

MEETING OF THE
BOARD OF DIRECTORS OF THE
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY
Jointly with the
PLANNING & OPERATIONS COMMITTEE
September 2, 2014, 8:30 a.m.
MWDOC Conference Room 101

P&O Committee:
Director Osborne, Chair
Director Barbre
Director Hinman

Staff: R. Hunter, K. Seckel, R. Bell,
H. De La Torre, P. Meszaros, J. Berg

Ex Officio Member: L. Dick

MWDOC Committee meetings are noticed and held as joint meetings of the Committee and the entire Board of Directors and all members of the Board of Directors may attend and participate in the discussion. Each Committee has designated Committee members, and other members of the Board are designated alternate committee members. If less than a quorum of the full Board is in attendance, the Board meeting will be adjourned for lack of a quorum and the meeting will proceed as a meeting of the Committee with those Committee members and alternate members in attendance acting as the Committee.

PUBLIC COMMENTS - Public comments on agenda items and items under the jurisdiction of the Committee should be made at this time.

ITEMS RECEIVED TOO LATE TO BE AGENDIZED - Determine there is a need to take immediate action on item(s) and that the need for action came to the attention of the District subsequent to the posting of the Agenda. (Requires a unanimous vote of the Committee)

ITEMS DISTRIBUTED TO THE BOARD LESS THAN 72 HOURS PRIOR TO MEETING --
Pursuant to Government Code section 54957.5, non-exempt public records that relate to open session agenda items and are distributed to a majority of the Board less than seventy-two (72) hours prior to the meeting will be available for public inspection in the lobby of the District's business office located at 18700 Ward Street, Fountain Valley, California 92708, during regular business hours. When practical, these public records will also be made available on the District's Internet Web site, accessible at <http://www.mwdoc.com>.

ACTION ITEMS

1. APPROVAL OF RESOLUTION DESIGNATING AUTHORIZED AGENTS FOR THE 2013 GRANT TRANSFER AGREEMENT WITH THE COUNTY OF ORANGE AS THE LOCAL ADMINISTRATOR OF HOMELAND SECURITY GRANTS FUNDS

INFORMATION ITEMS (The following items are for informational purposes only – background information is included in the packet. Discussion is not necessary unless a Director requests.)

2. DISCUSSION OF PROPOSALS RECEIVED FOR THE OC WATER RELIABILITY STUDY 2015

3. STATE WATER RESOURCES CONTROL BOARD, CALIFORNIA OCEAN PLAN – PROPOSED OCEAN DESALINATION AMENDMENT
4. STATUS REPORTS
 - a. Ongoing MWDOC Reliability and Engineering/Planning Projects
 - b. WEROC
 - c. Water Use Efficiency Projects
 - d. Water Use Efficiency Programs Savings and Implementation Report
5. NAPA EARTHQUAKE REPORT (oral report)
6. REVIEW OF ISSUES RELATED TO CONSTRUCTION PROGRAMS, FACILITY AND EQUIPMENT MAINTENANCE, WATER STORAGE, WATER QUALITY, CONJUNCTIVE USE PROGRAMS, EDUCATION, DISTRICT FACILITIES, and MEMBER-AGENCY RELATIONS

ADJOURNMENT

NOTE: At the discretion of the Committee, all items appearing on this agenda, whether or not expressly listed for action, may be deliberated, and may be subject to action by the Committee. On those items designated for Board action, the Committee reviews the items and makes a recommendation for final action to the full Board of Directors; final action will be taken by the Board of Directors. Agendas for Committee and Board meetings may be obtained from the District Secretary. Members of the public are advised that the Board consideration process includes consideration of each agenda item by one or more Committees indicated on the Board Action Sheet. Attendance at Committee meetings and the Board meeting considering an item consequently is advised.

Accommodations for the Disabled. Any person may make a request for a disability-related modification or accommodation needed for that person to be able to participate in the public meeting by telephoning Maribeth Goldsby, District Secretary, at (714) 963-3058, or writing to Municipal Water District of Orange County at P.O. Box 20895, Fountain Valley, CA 92728. Requests must specify the nature of the disability and the type of accommodation requested. A telephone number or other contact information should be included so that District staff may discuss appropriate arrangements. Persons requesting a disability-related accommodation should make the request with adequate time before the meeting for the District to provide the requested accommodation.



ACTION ITEM
September 17, 2014

TO: Board of Directors

FROM: **Planning & Operations Committee**
(Directors Osborne, Barbre, Hinman)

Robert Hunter
General Manager

Staff Contact: Kelly Hubbard
WEROC Manager

SUBJECT: Approval of Resolution Designating Authorized Agents for the 2013 Grant Transfer Agreement with the County of Orange as the Local Administrator of Homeland Security Grants Funds

STAFF RECOMMENDATION

Staff recommends that the Board of Directors approve the execution of the 2013 Grant Transfer Agreement with the County of Orange as the Local Homeland Security (HLS) Grant Administrator. Staff recommends the Board give approval to the WEROC Program Manager and the General Manager as designated Authorized Agents for this grant.

COMMITTEE RECOMMENDATION

Committee recommends (to be determined at Committee Meeting)

DETAILED REPORT

The County of Orange administers all Homeland Security (HLS) grant funds within the county. The Municipal Water District of Orange County (MWDOC) and the Water Emergency Response Organization of Orange County (WEROC) requested approval for training funds for Kelly Hubbard and Lisa Parson, WEROC Coordinator, to attend the California Emergency Services Association (CESA) Annual Training and Conference. The county agreed that they could fund this training. Signing this Transfer Agreement with the County will allow for the district to accept HLS Grant funds in reimbursement of Kelly and Lisa attending this Training & Conference. This is a budgeted and approved conference.

In order to receive any 2013 HLS grant funds the District must designate by resolution at least one authorized agent. Authorized agents execute for and on behalf of MWDOC any

Budgeted (Y/N): Yes	Budgeted amount: \$3000	Core ✓	Choice __
Action item amount: \$3,000 (grant reimbursement)	Line item: 7110& 7150		
Fiscal Impact (explain if unbudgeted): Full Grant Reimbursement			

actions necessary for obtaining the HLS grant funds and implementing projects. Staff recommends that the board approve two authorized agents by title – the General Manager and the WEROC Program Manager. The recommendation to designate two authorized agents by title is to allow the greatest flexibility in the grant funding management.

The Board recently took similar action in October 2013 in regards to the Homeland Security Funds and in May 2013 for the Urban Areas Security Initiative (UASI) funds. The attached agreements and resolution are required for each grant year that MWDOC seeks to receive funds. The provisions of this grant agreement are the same as those grant agreements already signed for in the 2012 HLS Grant awarded for Kelly's attendance at the Harvard Kennedy School of Executive Management. By signing this agreement, the district would also then be eligible for other grants opportunities throughout the 2013 HLS Grant cycle, should a project present itself as a good opportunity that may meet national homeland security goals. If staff decided to pursue a significant project under this grant, other than this training reimbursement, the project would be presented to the Board for input and approval. A summary of Homeland Security related funds received to date and proposed are noted below:

Funds Received	Grant Year	Amount
Hazard Mitigation Plan	2005	\$168,053
EOC Remodel & Mapping	2009	\$76,290
Trainings & Conferences	2010-2014	\$17,320
Water Trailers	2011	\$497,304
TOTAL Received		\$755,967

Funds Proposed	Grant Year	Amount
Generator Cabling & Connections	2014	\$16,000
Fuel Delivery Trailers	2014	\$100,000
Training & Conferences	2013	\$3,000
TOTAL Proposed		\$119,00

Attachments

1. Agreement to Transfer Property or Funds for 2013 Homeland Security Grant Program Purposes
2. California Governor's Office of Emergency Services , FY 2013 Grant Assurances (All HSGP Applicants)
3. Resolution to designate two authorized agents

**AGREEMENT TO TRANSFER PROPERTY OR FUNDS
FOR 2013 HOMELAND SECURITY GRANT PROGRAM PURPOSES**

THIS AGREEMENT is entered into this _____ day of _____ 201__, which date is enumerated for purposes of reference only, by and between the COUNTY OF ORANGE, a political subdivision of the State of California, hereinafter referred to as "COUNTY", and _____, a (municipal corporation/special district/not-for-profit corporation), hereinafter referred to as "SUBGRANTEE."

WHEREAS, COUNTY, acting through its Sheriff-Coroner Department in its capacity as the lead agency for the Orange County Operational Area, has applied for, received and accepted a grant from the State of California, acting through its California Office of Emergency Services, to enhance county-wide emergency preparedness, hereinafter referred to as "the grant", as set forth in the grant documents that are attached hereto as Attachments A (FY 13 CA Supplement to Federal Program Guidelines), B (2013 Homeland Security Grant Programs) and C (FY 13 Grant Assurances) and incorporated herein by reference.

WHEREAS, the terms of the grant require that COUNTY use certain grant funds to purchase equipment, technology or services that will be transferred to SUBGRANTEE to be used for grant purposes.

NOW, THEREFORE, IT IS MUTUALLY AGREED AS FOLLOWS:

1. COUNTY shall transfer to SUBGRANTEE the equipment, technology or services as specified in Attachment D hereto, which is incorporated herein by reference. If the grant requires COUNTY to transfer to SUBGRANTEE equipment, technology or services that COUNTY has not yet acquired, COUNTY shall transfer said equipment, technology or services to SUBGRANTEE as soon after acquisition by COUNTY as is reasonably practicable.

2. If COUNTY transfers grant funds to SUBGRANTEE, SUBGRANTEE shall use said grant funds only to acquire equipment, technology or services as set forth in Attachment B hereto and/or to perform such other grant functions, if any, for which Attachments A, B and C permit SUBGRANTEE

1 to expend grant funds. SUBGRANTEE shall provide COUNTY with a budget breakdown signed by the
2 authorized agent.

3 3. Throughout its useful life, SUBGRANTEE shall use any equipment, technology or
4 services acquired with grant funds only for those purposes permitted under the terms of the grant, and
5 shall make it available for mutual aid response.

6 4. SUBGRANTEE shall exercise due care to preserve and safeguard equipment acquired
7 with grant funds from damage or destruction and shall provide regular maintenance and repairs for said
8 equipment as are necessary, in order to keep said equipment in continually good working order. Such
9 maintenance and servicing shall be the sole responsibility of the SUBGRANTEE, who shall pay for
10 material and labor costs for any maintenance and repair of the said equipment throughout the life of the
11 said equipment.

12 5. SUBGRANTEE shall assume all continuation costs of said equipment, technologies
13 and/or services to include but not limited to upgrades, licenses and renewals of said equipment,
14 technologies and/or services.

15 6. If equipment acquired with grant funds becomes obsolete or unusable, SUBGRANTEE
16 shall notify COUNTY of such condition. SUBGRANTEE shall transfer or dispose of grant-funded
17 equipment only in accordance with the instructions of COUNTY.

18 7. SUBGRANTEE agrees to indemnify, defend and save harmless COUNTY and their
19 elected and appointed officials, officers, agents and employees from any and all claims and losses
20 accruing or resulting to any and all contractors, subcontractors, laborers, and any other person, firm or
21 corporation furnishing or supplying work services, materials or supplies in connection with
22 SUBGRANTEE's use of grant-funded equipment, technology or services and SUBGRANTEE's
23 performance of this Agreement, including Attachments A, B and C hereto, and from any and all claims
24 and losses accruing or resulting to any person, firm, or corporation who may be injured or damaged by
25 SUBGRANTEE in SUBGRANTEE's use of grant-funded equipment, technology or services and
26 SUBGRANTEE's performance of this Agreement, including Attachments A, B and C hereto.

27 8. By executing this Agreement, SUBGRANTEE agrees to comply with and be fully bound
28 by all applicable provisions of Attachments A, B and C hereto. SUBGRANTEE shall notify COUNTY

1 immediately upon discovery that it has not abided or no longer will abide by any applicable provision of
2 Attachments A, B and C hereto.

3 9. SUBGRANTEE and COUNTY shall be subject to examination and audit by the State
4 Auditor General with respect to this Agreement for a period of three years after final payment
5 hereunder.

6 10. No alteration or variation of the terms of this Agreement shall be valid unless made in
7 writing and signed by duly authorized representatives of the parties hereto, and no oral understanding or
8 agreement not incorporated herein shall be binding on any of the parties hereto.

9 11. SUBGRANTEE may not assign this Agreement in whole or in part without the express
10 written consent of COUNTY.

11 12. For a period of three years after final payment hereunder or until all claims related to this
12 Agreement are finally settled, whichever is later, SUBGRANTEE shall preserve and maintain all
13 documents, papers and records relevant to the work performed or property or equipment acquired in
14 accordance with this Agreement, including Attachments A, B and C hereto. For the same time period,
15 SUBGRANTEE shall make said documents, papers and records available to COUNTY and the agency
16 from which COUNTY received grant funds or their duly authorized representative(s), for examination,
17 copying, or mechanical reproduction on or off the premises of SUBGRANTEE, upon request during
18 usual working hours.

19 13. SUBGRANTEE shall provide to COUNTY all records and information requested by
20 COUNTY for inclusion in quarterly reports and such other reports or records as COUNTY may be
21 required to provide to the agency from which COUNTY received grant funds or other persons or
22 agencies.

23 14. COUNTY may terminate this Agreement and be relieved of the payment of any
24 consideration to SUBGRANTEE if a) SUBGRANTEE fails to perform any of the covenants contained
25 in this Agreement, including Attachments A, B and C hereto, at the time and in the matter herein
26 provided, or b) COUNTY loses funding under the grant. In the event of termination, COUNTY may
27 proceed with the work in any manner deemed proper by COUNTY.
28

1 15. SUBGRANTEE and its agents and employees shall act in an independent capacity in the
2 performance of this Agreement, including Attachments A, B and C hereto, and shall not be considered
3 officers, agents or employees of COUNTY or of the agency from which COUNTY received grant funds.

4 IN WITNESS WHEREOF, the parties have executed this Agreement in the County of Orange,
5 State of California.
6

7 DATED: _____, 201_

COUNTY OF ORANGE, a political
subdivision of the State of California

9 By _____

Sheriff-Coroner
"COUNTY"

11 APPROVED AS TO FORM:

12 COUNTY COUNSEL

13
14 By _____

Wendy Phillips

16 DATED: Nov. 13, 2013

18 DATED: _____

SUBGRANTEE

20 By: _____

22 By: _____

23 ATTEST:

25 By _____
City Clerk

26 DATED: _____, 201_

California Governor's Office of Emergency Services
FY 2013 Grant Assurances
(All HSGP Applicants)

Name of Applicant: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Telephone Number: _____ Fax Number: _____

E-Mail Address: _____

As the duly authorized representative of the Applicant, I certify that the Applicant named above:

1. Will assure that all allocations and use of funds under this grant will be in accordance with the Fiscal Year 2013 HSGP Funding Opportunity Announcement.
2. Will assure that grant funds will support efforts related to providing an integrated mechanism to enhance the coordination of national priority efforts to prepare for, prevent, respond to, and recover from terrorist attacks, major disasters and other emergencies.
3. Has the legal authority to apply for federal assistance and has the institutional, managerial and financial capability to ensure proper planning, management and completion of the grant provided by the U.S. Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA) and sub-granted through the State of California, California Governor's Office of Emergency Services (Cal OES).
4. Will assure that grant funds are used for allowable, fair, and reasonable costs only and will not be transferred between grant programs (for example: State Homeland Security Program and Urban Area Security Initiative) or fiscal years.
5. Will comply with any cost sharing commitments included in the FY2013 Investment Justifications submitted to DHS/FEMA/Cal OES, where applicable.
6. Will establish a proper accounting system in accordance with generally accepted accounting standards and awarding agency directives.
7. Will give the DHS/FEMA, the General Accounting Office, the Comptroller General of the United States, the Cal OES, the Office of Inspector General, through any authorized representatives, access to, and the right to examine, all paper or electronic records, books, and documents related to the award, and will permit access to its facilities, personnel and other individuals and information as may be necessary, as required by DHS/FEMA or Cal OES, through any authorized representative, with regard to examination of grant related records, accounts, documents, information and staff.
8. Will require any subrecipients, contractors, successors, transferees, and assignees to acknowledge and agree to comply with applicable provisions governing DHS/FEMA access to records, accounts, documents, information, facilities, and staff.
 - a. Recipients must cooperate with any compliance review or complaint investigation conducted by DHS/FEMA or Cal OES.
 - b. Recipients must give DHS/FEMA and Cal OES access to and the right to examine and copy records, accounts, and other documents and sources of information related to the grant and permit access to

facilities, personnel, and other individuals and information as may be necessary, as required by DHS/FEMA and Cal OES program guidance, requirements, and applicable laws.

- c. Recipients must submit timely, complete, and accurate reports to the appropriate DHS/FEMA and Cal OES officials and maintain appropriate documentation to support these reports.
 - d. Recipients must comply with all other special reporting, data collection, and evaluation requirements, as prescribed by law or detailed in program guidance.
 - e. If, during the past three years, the Recipient has been accused of discrimination on the grounds of race, color, national origin (including limited English proficiency), sex, age, disability, religion, or familial status, the Recipient must provide a list of all such proceedings, pending or completed, including outcome and copies of settlement agreements to the DHS/FEMA/Cal OES awarding office and the DHS Office of Civil Rights and Civil Liberties.
 - f. In the event any court or administrative agency makes a finding of discrimination on grounds of race, color, national origin (including limited English proficiency), sex, age, disability, religion, or familial status against the Recipient, or the Recipient settles a case or matter alleging such discrimination, Recipients must forward a copy of the complaint and findings to the DHS/FEMA Component and/or awarding office. The United States has the right to seek judicial enforcement of these obligations.
9. Will comply with any other special reporting, assessments, national evaluation efforts, or information or data collection requests, including, but not limited to, the provision of any information required for the assessment or evaluation of any activities within this agreement, or detailed in the program guidance.
 10. Agrees that funds utilized to establish or enhance state and local fusion centers must support the development of a statewide fusion process that corresponds with the Global Justice/Homeland Security Advisory Council (HSAC) Fusion Center Guidelines, follow the federal and state approved privacy policies, and achieve (at a minimum) the baseline level of capability as defined by the Fusion Capability Planning Tool.
 11. Will initiate and complete the work within the applicable timeframe, in accordance with grant award terms and requirements, after receipt of approval from Cal OES, and will maintain procedures to minimize the amount of time elapsing between the award of funds and the disbursement of funds.
 12. Will provide timely, complete and accurate progress reports, and maintain appropriate documentation to support the reports, and other such information as may be required by the awarding agency, including the Initial Strategy Implementation Plan (ISIP), within 45 (forty-five) days of the award, and update these reports and related documentation via the Grant Reporting Tool (GRT) twice each year.
 13. Will provide timely notifications to Cal OES of any developments that have a significant impact on award-supported activities, including changes to key program staff.
 14. Agrees to be non-delinquent in the repayment of any federal debt. Examples of relevant debt may be found in OMB Circular A-129, form SF-424, item #17, and include delinquent payroll and other taxes, audit disallowances, and benefit overpayments.
 15. Will comply with the requirement of 31 U.S.C. Section 3729, which sets forth that no subgrantee, Recipient or subrecipient of federal payments shall submit a false claim for payment, reimbursement or advance. Administrative remedies may be found in 38 U.S.C. Section 3801-3812, addressing false claims and statements made.
 16. Will comply with all federal and state laws, executive orders, regulations, program and administrative requirements, cost principles, audit requirements, policies and any other terms and conditions applicable to this award.
 17. Will comply with all applicable provisions of DHS/FEMA's regulations, including Title 44 of the Code of Federal Regulations, Part 13, Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments, including the payment of interest earned on advances.

18. Will comply with Office of Management and Budget (OMB) Circular A-102, Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments (also known as the "A-102 Common Rule"), found under FEMA regulations at Title 44, Code of Federal Regulations (CFR) Part 13, "Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments"; OMB Circular A-110, Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations, relocated to 2 CFR Part 215; requirements for allowable costs/cost principles in the A-102 Common Rule, OMB Circular A-110 (2 CFR § 215.27); OMB Circular A-21, Cost Principles for Educational Institutions, relocated to 2 CFR Part 220; OMB Circular A-87, Cost Principles for State, Local, and Indian Tribal Governments, relocated to 2 CFR Part 225; OMB Circular A-122, Cost Principles for Non-Profit Organizations, relocated to 2 CFR Part 230; and OMB Circular A-133, Audits of States, Local Governments and Non-Profit Organizations, as applicable.
19. Will comply with all provisions of the Federal Acquisition Regulations including, but not limited to, Title 48 CFR Part 31.2, Part 31.2 Contract Cost Principles and Procedures, Contracts with Commercial Organizations.
20. Will comply with provisions of the Hatch Act (5 U.S.C. §§ 1501-1508 and 7324-7328), which limits the political activities of employees whose principal employment activities are funded in whole or in part with federal funds.
21. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes, or presents the appearance of, personal or organizational conflict of interest, or personal gain for themselves or others, particularly those with whom they have family, business, or other connections.
22. Understands and agrees that federal funds will not be used, directly or indirectly, to support the enactment, repeal, modification or adoption of any law, regulation, or policy, at any level of government, without the express prior written approval from DHS/FEMA and Cal OES.
23. Will comply with all applicable lobbying prohibitions and laws, including those found in United States Code Title 31, § 1352, *et seq.*, and agrees that none of the funds provided under this award may be expended by the Recipient to pay any person to influence, or attempt to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any federal action concerning the award or renewal of any federal contract, grant, loan, or cooperative agreement.
24. Agrees that, to the extent contractors or subcontractors are utilized, will use small, minority-owned, women-owned, or disadvantaged businesses, to the extent practicable.
25. Will comply with Title 2 of the Code of Federal Regulations regarding duplication of benefits, whereby any cost allocable to a particular federal award or cost objective under the principles provided for in this agreement may not be charged to other federal awards to overcome fund deficiencies.
26. Will ensure that federal funds do not replace (supplant) funds that have been budgeted for the same purpose through non-federal sources. Subgrantees and subrecipients may be required to demonstrate and document that a reduction in non-federal resources occurred for reasons other than the receipt or expected receipt of federal funds.
27. Will comply, if applicable, with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§ 4801 *et seq.*), which prohibits the use of lead based paint in construction or rehabilitation of structures.
28. Will comply with all federal and state laws and regulations relating to civil rights protections and nondiscrimination. These include, but are not limited to:

- a. Title VI of the Civil Rights Act of 1964, Public Law 88-352,(42 U.S.C. § 2000d *et seq.*), , as amended, which prohibits discrimination on the basis of race, color and national origin.
 - b. Title IX of the Education Amendments of 1972, as amended (20 U.S.C. § 1681 *et seq.*), which prohibits discrimination on the basis of gender.
 - c. The Americans with Disabilities Act, as amended, which prohibits Recipients from discriminating on the basis of disability (42 U.S.C. § 12101 *et seq.*).
 - d. Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. § 794), which prohibits discrimination on the basis of disability in any program receiving federal financial assistance.
 - e. The Age Discrimination Act of 1975, as amended (42 U.S.C. § 6101 *et seq.*), which prohibits discrimination on the basis of age.
 - f. The Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse.
 - g. The Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism.
 - h. Sections 523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. 290 dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records.
 - i. Title VIII of the Civil Rights Act of 1968 (42 U.S.C. § 3601 *et seq.*, as implemented by 24 CFR Part 100), as amended, relating to nondiscrimination in the sale, rental and financing of housing.
 - j. Title 44 of the Code of Federal Regulations (CFR) Parts 7, 16, and 19 relating to nondiscrimination.
 - k. The requirements of any other nondiscrimination provisions in the specific statute(s) under which the application for federal assistance is being made and any other applicable statutes.
 - l. Will, in the event that a federal or state court or federal or state administrative agency makes a finding of discrimination after a due process hearing on the grounds or race, color, religion, national origin, gender, or disability against a Recipient of funds, the Recipient will forward a copy of the finding to the Office of Civil Rights, Office of Justice Programs.
 - m. Will provide an Equal Employment Opportunity Plan, if applicable, to the Department of Justice Office of Civil Rights within 60 days of grant award.
 - n. Will comply, and assure the compliance of all its subgrantees and contractors, with the nondiscrimination requirements and all other provisions of the current edition of the Office of Justice Programs Financial and Administrative Guide for Grants, M7100.1.
29. Will comply with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. § 4601 *et seq.* [P.L. 91-646]), which provides for fair and equitable treatment of persons displaced or whose property is acquired as a result of federal or federally-assisted programs. These requirements apply to all interested in real property acquired for project purposes regardless of federal participation in purchases. Will also comply with Title 44 CFR, Part 25, Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs.
30. Will comply with all provisions of DHS/FEMA's regulation 44 CFR Part 10, Environmental Considerations.
31. Will comply with all applicable federal, state, and local environmental and historical preservation (EHP) requirements. Failure to meet federal, state, and local EHP requirements and obtain applicable permits may jeopardize federal funding. Agrees not to undertake any project having the potential to impact EHP resources without the prior written approval of DHS/FEMA and Cal OES, including, but not limited to, ground disturbance, construction, modification to any structure, physical security enhancements, communications towers, any structure over 50 years old, and purchase and/or use of any sonar equipment. The subgrantee must comply with all conditions and restrictions placed on the project as a result of the EHP review. Any construction-related activities initiated without the necessary EHP review and approval will result in a noncompliance finding, and may not be eligible for reimbursement with DHS/FEMA and

Cal OES funding. Any change to the scope of work will require re-evaluation of compliance with the EHP. If ground-disturbing activities occur during the project implementation, the subgrantee must ensure monitoring of the disturbance. If any potential archeological resources are discovered, the subgrantee will immediately cease activity in that area and notify DHS/FEMA and Cal OES and the appropriate State Historic Preservation Office.

32. Any construction activities that have been initiated prior to the full environmental and historic preservation review could result in a non-compliance finding. Subgrantees must complete the DHS/FEMA EHP Screening Form (OMB Number 1660-0115/FEMA Form 024-0-01) and submit it, with all supporting documentation, to their Cal OES program representative, for processing by the DHS/FEMA Grants Program Directorate EHP.
33. Grantees should submit the FEMA EHP Screening Form for each project as soon as possible upon receiving their grant award. The Screening Form for these types of projects is available at:
www.fema.gov/doc/government/grant/bulletins/info329_final_screening_memo.doc
34. Will ensure that the facilities under its ownership, lease or supervision, which shall be utilized in the accomplishment of this project, are not on the Environmental Protection Agency's (EPAs) List of Violating Facilities, and will notify Cal OES and the DHS/FEMA of the receipt of any communication from the Director of the EPA Office of Federal Activities indicating if a facility to be used in the project is under consideration for listing by the EPA.
35. Will provide any information requested by DHS/FEMA and Cal OES to ensure compliance with applicable laws including, but not limited to, the following:
 - a. Institution of environmental quality control measures under the Archaeological and Historic Preservation Act, Endangered Species Act, and Executive Orders on Floodplains (11988), and Environmental Justice (EO12898) and Environmental Quality (EO11514).
 - b. Notification of violating facilities pursuant to EO 11738.
 - c. Assurance of project consistency with the approved state management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. § 1451 *et seq.*).
 - d. Conformity of federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. § 7401 *et seq.*).
 - e. Protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended, (P.L. 93-523).
 - f. California Environmental Quality Act (CEQA), California Public Resources Code Sections 21080-21098, and California Code of Regulations, Title 14, Chapter 3 Sections 15000-15007.
 - g. Wild and Scenic Rivers Act of 1968 (16 U.S.C. § 1271 *et seq.*) related to protecting components or potential components of the national wild and scenic rivers system.
 - h. Applicable provisions of the Coastal Barrier Resources Act (P.L. 97-348) dated October 19, 1982 (16 USC 3501 *et seq.*), which prohibits the expenditure of most new federal funds within the units of the Coastal Barrier Resources System.
36. Will comply with Standardized Emergency Management System (SEMS) requirements as stated in the California Emergency Services Act, Government Code, Chapter 7 of Division 1 of Title 2, § 8607.1(e) and CCR Title 19, §§ 2445, 2446, 2447, and 2448.
37. Agrees that subgrantees and subrecipients collecting Personally Identifiable Information (PII) must have a publically-available privacy policy that describes what PII they collect, how they plan to use the PII, whether they share PII with third parties, and how individuals may have their PII corrected where appropriate. Subgrantees and subrecipients may also find DHS Privacy Impact Assessments, guidance and templates online at http://www.dhs.gov/xlibrary/assets/privacy/privacy_pia_guidance_june2010.pdf and at http://www.dhs.gov/xlibrary/assets/privacy/privacy_pia_template.pdf, respectively.

38. Agrees that all DHS/FEMA-funded project activities carried on outside the United States are coordinated as necessary with appropriate government authorities and that appropriate licenses, permits, and approvals are obtained.
39. Will comply with Section 6 of the Hotel and Motel Fire Safety Act of 1990, 15 U.S.C. § 2225(a), whereby all subgrantees, recipients, and subrecipients must ensure that all conference, meeting, convention, or training space, funded in whole or in part with federal funds, complies with the fire prevention and control guidelines of the Federal Fire Prevention and Control Act of 1974, 15 U.S.C. § 2225.
40. Agrees that all publications created or published with funding under this grant shall prominently contain the following statement: *"This document was prepared under a grant from FEMA's Grant Programs Directorate, U.S. Department of Homeland Security. Points of view or opinions expressed in this document are those of the authors and do not necessarily represent the official position or policies of FEMA's Grant Programs Directorate or the U.S. Department of Homeland Security."* The Recipient also agrees that, when practicable, any equipment purchased with grant funding shall be prominently marked as follows: *"Purchased with funds provided by the U.S. Department of Homeland Security."*
41. Acknowledges that DHS/FEMA reserves a royalty-free, nonexclusive, and irrevocable license to reproduce, publish, or otherwise use, and authorize others to use, for federal government purposes: a) the copyright in any work developed under an award or sub-award; and b) any rights of copyright to which a Recipient or sub-recipient purchases ownership with federal support. The Recipient agrees to consult with DHS/FEMA and Cal OES regarding the allocation of any patent rights that arise from, or are purchased with, this funding and has requested through the State of California, federal financial assistance to be used to perform eligible work approved in the submitted application for federal assistance and after the receipt of federal financial assistance, through the State of California, agrees to the following:
- Promptly return to the State of California all funds received which exceed the approved, actual expenditures as determined by the federal or state government.
 - In the event the approved amount of the grant is reduced, the reimbursement applicable to the amount of the reduction will be promptly refunded to the State of California.
 - Property and equipment purchased under the HSGP reverts to Cal OES if the grant funds are deobligated or disallowed and not promptly repaid.
 - HSGP funds used for the improvement of real property must be promptly repaid following deobligation or disallowment of costs, and Cal OES reserves the right to place a lien on the property for the amount owed.
 - Separately account for interest earned on grant funds, and will return all interest earned, in excess of \$100 per federal fiscal year.
42. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§ 4728-4763) relating to prescribed standards for merit systems for programs funded under one of the nineteen statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
43. Will comply, if applicable, with the Laboratory Animal Welfare Act of 1966 (P. L. 89-544, as amended, 7 U.S.C. 2131 *et seq.*) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
44. Will comply with the minimum wage and maximum hour provisions of the Federal Fair Labor Standards Act (29 U.S.C. 201), as they apply to employees of institutions of higher education, hospitals, and other non-profit organizations.
45. Agrees that "Classified national security information," as defined in Executive Order (EO) 12958, as amended or updated via later executive order(s), means information that has been determined pursuant to EO 12958 to require protection against unauthorized disclosure and is marked to indicate its classified status when in documentary form. No funding under this award shall be used to support a contract,

subaward, or other agreement for goods or services that will include access to classified national security information if the Award Recipient has not been approved for and granted access to such information by appropriate authorities.

46. Agrees that where an Award Recipient has been approved for and has access to classified national security information, no funding under this award shall be used to support a contract, subaward, or other agreement for goods or services that will include access to classified national security information by the contractor, subrecipient, or other entity without prior written approval from the DHS Office of Security, Industrial Security Program Branch (ISPB), or, an appropriate official within the federal department or agency with whom the classified effort will be performed. Such contracts, subawards, or other agreements shall be processed and administered in accordance with the DHS "Standard Operating Procedures, Classified Contracting by States and Local Entities," dated July 7, 2008; EOs 12829, 12958, 12968, and other applicable executive orders; the National Industrial Security Program Operating Manual (NISPOM); and other applicable implementing directives or instructions. Security requirement documents may be located at: <http://www.dhs.gov/xopnbiz/grants/index.shtm>
47. Immediately upon determination by the Award Recipient that funding under this award may be used to support a contract, subaward, or other agreement involving access to classified national security information pursuant to paragraph 47, and prior to execution of any actions to facilitate the acquisition of such a contract, subaward, or other agreement, the Award Recipient shall contact ISPB, and the applicable federal department or agency, for approval and processing instructions.

DHS Office of Security ISPB contact information:
Telephone: 202-447-5346
Email: DD254AdministrativeSecurity@dhs.gov
Mail: Department of Homeland Security
Office of the Chief Security Officer
ATTN: ASD/Industrial Security Program Branch
Washington, D.C. 20528

48. Will comply with the requirements regarding Data Universal Numbering System (DUNS) numbers. If recipients are authorized to make subawards under this award, they must first notify potential subrecipients that no entity may receive or make a subaward to any entity unless the entity has provided a DUNS number.
49. For purposes of this award term, the following definitions will apply:
- "Data Universal Numbering System (DUNS)" number means the nine digit number established and assigned by Dun and Bradstreet, Inc. (D&B) to uniquely identify business entities. A DUNS number may be obtained from D&B by telephone (currently 866-705-5711) or the Internet, currently at <http://fedgov.dnb.com/webform>.
 - "Entity", as it is used in this award term, means all of the following, as defined at 2 CFR Part 25, Subpart C, as a governmental organization, which is a state, local government, or Indian Tribe; or a foreign public entity; or a domestic or foreign nonprofit organization; or a domestic or foreign for-profit organization; or a federal agency, but only as a subrecipient under an award or subaward to a non-federal entity.
 - "Subaward" means a legal instrument to provide support for the performance of any portion of the substantive project or program for which you received this award and that you as the Recipient award to an eligible subrecipient. It does not include your procurement of property and services needed to carry out the project or program (for further explanation, see § 210 of the attachment to OMB Circular A-133, "Audits of States, Local Governments, and Non-Profit Organizations") and may be provided through any legal agreement, including an agreement that you consider a contract.
 - "Subrecipient" means an entity that receives a subaward from you under this award, and is accountable to you for the use of the federal funds provided by the subaward.

50. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. Section 276a to 276a-7), the Copeland Act (40 U.S.C. § 276c and 18 U.S.C. § 874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§ 327-333), regarding labor standards for federally-assisted construction sub-agreements.
51. Agrees that equipment acquired or obtained with grant funds:
- Will be made available pursuant to applicable terms of the California Disaster and Civil Defense Master Mutual Aid Agreement, in consultation with representatives of the various fire, emergency medical, hazardous materials response services, and law enforcement agencies within the jurisdiction of the Applicant, and deployed with personnel trained in the use of such equipment in a manner consistent with the California Law Enforcement Mutual Aid Plan or the California Fire Services and Rescue Mutual Aid Plan.
 - Is consistent with needs as identified in the State Homeland Security Strategy and will be deployed in conformance with that Strategy.
52. Will comply with the financial and administrative requirements set forth in the current edition of the DHS Financial Management Guide.
53. Agrees that all allocations and use of funds under this grant will be in accordance with the FY 2013 Homeland Security Grant Program Funding Opportunity Announcement, and the California Supplement to the FY 2013 Homeland Security Grant Program Funding Opportunity Announcement. All allocations and use of funds under this grant will be in accordance with the Allocations, and use of grant funding must support the goals and objectives included in the State and/or Urban Area Homeland Security Strategies as well as the investments identified in the Investment Justifications which were submitted as part of the California FY2013 Homeland Security Grant Program application. Further, use of FY13 funds is limited to those investments included in the California FY13 Investment Justifications submitted to DHS/FEMA and Cal OES and evaluated through the peer review process.
54. Will comply with Homeland Security Presidential Directive (HSPD)-5, *Management of Domestic Incidents*. The adoption of the National Incident Management System (NIMS) is a requirement to receive federal preparedness assistance, through grants, contracts, and other activities. The NIMS provides a consistent nationwide template to enable all levels of government, tribal nations, nongovernmental organizations, and private sector partners to work together to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity.
55. Will comply with OMB Standard Form 424B Assurances – Non-construction Programs, whereby the awarding agency may require subgrantees and subrecipients to certify to additional assurances.
56. Will not make any award or permit any award (subgrant or contract) to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in federal assistance programs under Executive Order 12549 and 12689, “Debarment and Suspension”. As required by Executive Order 12549, Debarment and Suspension, and implemented at 44 CFR Part 17, for prospective participants in primary covered transactions, the Applicant will provide protection against waste, fraud and abuse, by debarring or suspending those persons deemed irresponsible in their dealings with the federal government. Applicant certifies that it and its principals:
- Are not presently debarred, suspended, proposed for debarment, declared ineligible, sentenced to a denial of federal benefits by a state or federal court, or voluntarily excluded from covered transactions by any federal department or agency.
 - Have not within a three-year period preceding this application been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) transaction or contract under a public transaction, violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.

- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, state, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and have not within a three-year period preceding this application had one or more public transactions (federal, state, or local) terminated for cause or default; and
 - d. Where the Applicant is unable to certify to any of the statements in this certification, he or she shall attach an explanation to this application.
57. Will comply with requirements to acknowledge federal funding when issuing statements, press releases, requests for proposals, bid invitations, and other documents describing projects or programs funded in whole or in part with federal funds.
 58. Will comply with requirements that publications or other exercise of copyright for any work first produced under federal financial assistance awards hereto related unless the work includes any information that is otherwise controlled by the government (e.g., classified information or other information subject to national security or export control laws or regulations). For any scientific, technical, or other copyright work based on or containing data first produced under this award, including those works published in academic, technical or professional journals, symposia proceedings, or similar works, the recipient grants the government a royalty-free, nonexclusive and irrevocable license to reproduce, display, distribute copies, perform, disseminate, or prepare derivative works, and to authorize others to do so, for government purposes in all such copyrighted works. The Recipient shall affix the applicable copyright notices of 17 U.S.C. § 401 or 402 and an acknowledgement of government sponsorship (including award number) to any work first produced under an award.
 59. Will obtain, via Cal OES, the prior approval from DHS on any use of the DHS seal(s), logos, crests or reproductions of flags or likenesses of DHS agency officials, including use of the United States Coast Guard seal, logo, crests or reproductions of flags or likenesses of Coast Guard officials.
 60. Will comply with the requirements of the Preference for U.S. Flag Air Carriers: Travel supported by U.S. Government funds requirement, which states preference for the use of U.S. flag air carriers (air carriers holding certificates under 49 U.S.C. § 41102) for international air transportation of people and property to the extent that such service is available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974 (49 U.S.C. § 40118) and the interpretative guidelines issued by the Comptroller General of the United States in the March 31, 1981, amendment to Comptroller General Decision B138942.
 61. Will comply with the requirements of the Drug-Free Workplace Act of 1988 (41 U.S.C. § 701 *et seq.*), which requires that all organizations receiving grants from any federal agency agree to maintain a drug-free workplace. The Recipient must notify the awarding office if an employee of the recipient is convicted of violating a criminal drug statute. Failure to comply with these requirements may be cause for debarment. These regulations are codified at 2 CFR 3001.
 62. Will comply with the requirements of the government-wide award term which implements § 106(g) of the Trafficking Victims Protection Act (TVPA) of 2000, as amended (22 U.S.C. § 7104), located at 2 CFR Part 175. This is implemented in accordance with OMB Interim Final Guidance, Federal Register, Volume 72, No. 218, November 13, 2007. In accordance with Section 106(g) of the TVPA, as amended, requires the agency to include a condition that authorizes the agency to terminate the award, without penalty, if the Recipient or a subrecipient engages in severe forms of trafficking in persons during the period of time that the award is in effect, procures a commercial sex act during the period of time that the award is in effect; or uses forced labor in the performance of the award or subawards under the award. Full text of the award term is provided at 2 CFR § 175.15.
 63. Will comply with the requirements of Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance; national origin discrimination includes discrimination on the basis of limited English proficiency (LEP). To ensure compliance with Title VI,

Recipients must take reasonable steps to ensure that LEP persons have meaningful access to your programs. Meaningful access may entail providing language assistance services, including oral and written translation, where necessary. Recipients are encouraged to consider the need for language services for LEP persons served or encountered both in developing budgets and in conducting programs and activities. For assistance and information regarding LEP obligations, go to <http://www.lep.gov>.

64. Will comply with the requirements of 42 U.S.C. § 7401 *et seq.* and Executive Order 11738, which provides for the protection and enhancement of the quality of the nation's air resources to promote public health and welfare and for restoring and maintaining the chemical, physical, and biological integrity of the nation's waters is considered research for other purposes.
65. Will comply with the requirements of the federal regulations at 45 CFR Part 46 and the requirements in DHS Management Directive 026-04, Protection of Human Subjects, prior to implementing any work with human subjects. The regulations specify additional protections for research involving human fetuses, pregnant women, and neonates (Subpart B); prisoners (Subpart C); and children (Subpart D). The use of autopsy materials is governed by applicable state and local law and is not directly regulated by 45 CFR Part 46.
66. Will comply with the requirements of the National Environmental Policy Act (NEPA), as amended, 42 U.S.C. § 4331 *et seq.*, which establishes national policy goals and procedures to protect and enhance the environment, including protection against natural disasters. To comply with NEPA for its grant-supported activities, DHS requires the environmental aspects of construction grants (and certain non-construction projects as specified by the Component and awarding office) to be reviewed and evaluated before final action on the application.
67. Will comply with the requirements of § 1306(c) of the National Flood Insurance Act, as amended, which provides for benefit payments under the Standard Flood Insurance Policy for demolition or relocation of a structure insured under the Act that is located along the shore of a lake or other body of water and that is certified by an appropriate state or local land use authority to be subject to imminent collapse or subsidence as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels. These regulations are codified at 44 CFR Part 63.
68. Will comply with the requirements of the Flood Disaster Protection Act of 1973, as amended (42 U.S.C. § 4001 *et seq.*), which provides that no federal financial assistance to acquire, modernize, or construct property may be provided in identified flood-prone communities in the United States, unless the community participates in the National Flood Insurance Program and flood insurance is purchased within one year of the identification. The flood insurance purchase requirement applies to both public and private applicants for DHS support. Lists of flood-prone areas that are eligible for flood insurance are published in the Federal Register by FEMA.
69. Will comply with the requirements of Executive Order 11990, which provides that federally funded construction and improvements minimize the destruction, loss, or degradation of wetlands. The Executive Order provides that, in furtherance of § 101(b)(3) of NEPA (42 U.S.C. § 4331(b)(3)), federal agencies, to the extent permitted by law, must avoid undertaking or assisting with new construction located in wetlands unless the head of the agency finds that there is no practicable alternative to such construction, and that the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use. In making this finding, the head of the agency may take into account economic, environmental, and other pertinent factors. The public disclosure requirement described above also pertains to early public review of any plans or proposals for new construction in wetlands. This is codified at 44 CFR Part 9.
70. Will comply with the requirements of the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act (USA PATRIOT Act), which amends 18 U.S.C. §§ 175-175c. Among other things, it prescribes criminal penalties for possession of any biological agent, toxin, or delivery system of a type or in a quantity that is not reasonably justified by a prophylactic, protective,

bona fide research, or other peaceful purpose. The act also establishes restrictions on access to specified materials. "Restricted persons," as defined by the act, may not possess, ship, transport, or receive any biological agent or toxin that is listed as a select agent.

71. Understands the reporting of subawards and executive compensation rules, including first tier subawards to Cal OES.
- a. Applicability. Unless you are exempt as provided in paragraph d. of this award term, you must report each action that obligates \$25,000 or more in federal funds that does not include Recovery funds (as defined in § 1512(a)(2) of the American Recovery and Reinvestment Act of 2009,
 - b. Where and when to report: you must report on each obligating action described in the following paragraphs to Cal OES. For subaward information, report no later than the end of the month following the month in which the obligation was made. (For example, if the obligation was made on November 7, 2011, the obligation must be reported by no later than December 31, 2011.)
 - c. What to report: You must report the information about each obligating action that the submission instructions posted in Information Bulletin 350, to Cal OES. To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at <http://www.sec.gov/answers/execomp.htm>. Subgrantees must report subrecipient executive total compensation to Cal OES by the end of the month following the month during which you make the subaward. Exemptions include: If, in the previous tax year, you had gross income, from all sources, under \$300,000, you are exempt from the requirements to report on subawards, and the total compensation of the five most highly compensated executives of any subrecipient.
 - d. Reporting Total Compensation of Recipient Executives: You must report total compensation for each of your five most highly compensated executives for the preceding completed fiscal year, if
 - i. the total federal funding authorized to date under this award is \$25,000 or more;
 - ii. in the preceding fiscal year, you received 80 percent or more of your annual gross revenues from federal procurement contracts (and subcontracts) and federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards); and \$25,000,000 or more in annual gross revenues from federal procurement contracts (and subcontracts) and federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards); and
 - iii. The public does not have access to information about the compensation of the executives through periodic reports filed under § 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or § 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at <http://www.sec.gov/answers/execomp.htm>.)
 - iv. Subrecipient Executives. Unless you are exempt as provided above, for each first-tier subrecipient under this award, you shall report the names and total compensation of each of the subrecipient's five most highly compensated executives for the subrecipient's preceding completed fiscal year, if in the subrecipient's preceding fiscal year, the subrecipient received 80 percent or more of its annual gross revenues from federal procurement contracts (and subcontracts) and federal financial assistance subject to the Transparency Act, as defined at 2 CFR 170.320 (and subawards); and \$25,000,000 or more in annual gross revenues from federal procurement contracts (and subcontracts), and federal financial assistance subject to the Transparency Act (and subawards); and the public does not have access to information about the compensation of the executives through periodic reports filed under § 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or § 6104 of the Internal Revenue Code of 1986.
72. Understands that failure to comply with any of the above assurances may result in suspension, termination, or reduction of grant funds.

The undersigned represents that he/she is authorized by the above named Applicant to enter into this agreement for and on behalf of the said Applicant.

Signature of Authorized Agent:_____

Printed Name of Authorized Agent:_____

Title:_____ Date:_____

RESOLUTION NO.

**MUNICIPAL WATER DISTRICT OF ORANGE COUNTY
WATER EMERGENCY RESPONSE ORGANIZATION OF ORANGE COUNTY
(WEROC)
AUTHORIZATION FOR FEDERAL FINANCIAL ASSISTANCE
PROVIDED BY THE FEDERAL DEPARTMENT OF HOMELAND SECURITY**

WHEREAS, The Municipal Water District of Orange County (MWDOC) manages the Water Emergency Response Organization of Orange County (WEROC) Program on behalf of the organization's 35 signatories.

WHEREAS, WEROC has been designated by the County of Orange as the water and wastewater Operational Area coordination entity for the purpose of assisting the county's water and wastewater utilities with disaster preparedness, prevention, response, recovery, and mitigation.

WHEREAS, MWDOC desires to keep the WEROC emergency operations centers, communications equipment and other such supplies in good working order and to date with the current technological abilities of the Operational Area.

WHEREAS, MWDOC also desires to keep its program and volunteer staff trained in current emergency management practices and required levels of training according to the National Incident Management System and the California State Emergency Management System.

WHEREAS, MWDOC also desires to ensure eligibility for project and training funding that may become available throughout the year.

WHEREAS, MWDOC has and will continue to submit grant applications to the Homeland Security Grant Program to continue to enhance the capabilities of the WEROC program and its staff.

NOW, THEREFORE, BE IT RESOLVED by Board of Directors of the Municipal Water District of Orange County that the Water Emergency Response Organization of Orange County (WEROC) Program Manager, or the General Manager, is hereby authorized to execute for and on behalf of the Municipal Water District of Orange County, a public entity established under the laws of the State of California, any actions necessary for the purpose of obtaining federal financial assistance provided by the federal Department of Homeland Security and sub-granted through the County of Orange as the Administrator for Fiscal Year 2013.

Said Resolution was adopted, on roll call, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

I hereby certify that the foregoing is a true and correct copy of Resolution No. adopted by the Board of Directors of Water District at its meeting held on.

MARIBETH GOLDSBY
District Secretary
Municipal Water District of Orange County



INFORMATION ITEM

September 2, 2014

TO: **Planning & Operations Committee**
(Directors Osborne, Barbre, Hinman)

FROM: Robert Hunter
General Manager

Staff Contact: Karl Seckel/Richard Bell

SUBJECT: **Discussion of Proposals Received for the OC Water Reliability Study 2015**

COMMITTEE RECOMMENDATION

Staff recommends the Committee receives and files the report.

SUMMARY

MWDOC has continued working on the Orange County Reliability Study Scope of Work with the Member Agencies and a Workgroup that also includes Anaheim (representing the Three Cities). At the August Manager's meeting the following items were discussed:

- The Scope of Work was discussed. With the exception of Task 9, project ranking and decision-making, no other comments were received. There was some concern about whether the responding Consultants would fully understand the project, as it is not a typical type of project, and much of the work is to be secured from agencies around the county that have already performed detailed work. It was recommended to keep the schedule for the receipt of proposals for August 27 to see if the proposals meet our needs.

Budgeted (Y/N): Yes	Budgeted amount: \$340,000	Core X	Choice __
Action item amount: Anticipated cost \$150,000 to \$200,000 for the work outlined above; there are other aspects of this work yet to be awarded.	Line item:		
Fiscal Impact (explain if unbudgeted): Actual proposals will be brought back at a later committee for award.			

- The most qualified consultant would be selected and, if deemed necessary, project scope and expectations could be negotiated.
- The initial study focus/effort would be on tasks 1 – 8, which would include completion of the GAP Analysis and compilation of potential projects to meet the GAPS.
- The Member Agencies wanted to make sure that the Workgroup is open to all interested agencies and that monthly reports will be provided at the Manager's meetings. MWDOC committed to do so.
- The next meeting of the Workgroup would occur the first or second week in September to review the consultants and develop an award recommendation for the MWDOC Board. The date for the meeting is being scheduled at this time.
- Consultant Proposals are due on August 27. Staff will provide an overview of the proposals received and discuss the next steps in the process. Depending on the proposals received, it may be necessary to interview the Consultants and/or negotiate portions of the scope.

Firms invited included:

- CDM
- B&V
- MWH
- Brown & Caldwell
- RMC
- Arcadis

Reviewers of the proposals will meet on August 29 to review and discuss the proposals. Volunteers for the review process include:

- Dan Ferons from SMWD
- Greg Woodside from OCWD
- Paul Weghorst from IRWD
- Karl, Richard and Ed Means (MWDOC)

- Orange County Water District has scheduled a discussion on the Study at their September 4 Communications and Legislation Committee at 8:00. MWDOC discussed the concept for the Study at the August Water Issues Committee of OCWD and the Board members raised a number of issues with the Study and how it would or would not involve OCWD.



INFORMATION ITEM

September 2, 2014

TO: **Planning & Operations Committee**
(Directors Osborne, Barbre, Hinman)

FROM: **Robert Hunter, General Manager**

Staff Contact: Karl Seckel and Richard Bell

SUBJECT: **State Water Resources Control Board**
California Ocean Plan – Proposed Ocean Desalination Amendment

STAFF RECOMMENDATION

Staff recommends the Planning & Operations Committee receive and file this report and provide input as appropriate. On August 6th, the State Water Resources Control Board (State Water Board) held a public workshop on their July 3, 2014 Draft Amendments and on August 19 held a public hearing to receive formal written and oral comments. Staff has been participating in the process and submittal comments and will continue to follow, participate, and provide comments in this process.

COMMITTEE RECOMMENDATION

Committee recommends (To be determined at Committee Meeting)

SUMMARY

On July 3, 2014 the State Water Resources Control Board (State Water Board) released their draft Amendments to the Ocean Plan for Ocean Desalination for a 45 day review period. The proposed Ocean Plan Ocean Desalination Amendments would apply to intakes and brine discharge. The State Water Board held a public workshop on August 6 and on August 19 held a public hearing to receive formal comments. MWDOC staff participated in at the August 6 workshop with CalDesal representatives and subsequently submitted written comments. MWDOC staff has been working with CalDesal and assisted in preparation of the CalDesal comment letter. CalDesal and representative agencies and organizations provided comments at the August 19 public hearing. Comment letters from MWDOC, CalDesal and Mesa Water District are attached. The State Water Board staff will compile and prepare response to comments with a plan to release the Final Drafts this fall

Budgeted (Y/N): n/a	Budgeted amount:	Core XX	Choice __
Action item amount:	Line item:		
Fiscal Impact (explain if unbudgeted):			

with the State Water Board consideration for adoption in the winter. There is a possibility that the State Water Board will re-circulate for comments a revised draft report, depending on the degree and extent of the comments that have been received.

DETAILED REPORT

After several years of effort, the State Water Board on July 3, 2014 released their "Proposed Amendments to the Water Quality Control Plan for Ocean Waters of California (aka California Ocean Plan) Addressing Desalination Facility Intake, Brine Discharges, and the Incorporation of Other Nonsubstantive Changes". This release included the draft amendment, the draft amended Ocean Plan, and the draft SED (substitute environmental document). A public workshop was held on August 6 in Sacramento and a public hearing was held on August 19 in Sacramento to receive comments on the proposed amendments. The proposed Amendments and State Water Board's staff presentation are attached.

MWDOC has been working with CalDesal and other agencies and organizations over the past several years on the State Water Board's ocean desalination policy development and Ocean Plan Amendment process. Recently, MWDOC attended the August 6 State Water Board workshop, provided comments and addressed questions from the Board at the workshop, and submitted formal written comments on August 16. We worked with SCWD and SOCWA in preparation of our comment letter. We also assisted CalDesal in preparation of their comment letter. CalDesal along with other agencies and organizations presented comments at the August 19 public hearing. CalDesal plans to meet with the State Water Board and staff to further discuss their comments. Staff plans on participating in some of those meetings. MWDOC's, CalDesal's and Mesa Water District's comment letters are attached.

The State Water Board staff is now in the process of compiling and developing responses to the comments. During the next few months, we anticipate the State Water Board and staff will be meeting with some of the commenters to go over their concerns and requested changes to the proposed amendments. The current plan is then to prepare and release the Final Drafts sometime in late fall and then the State Water Board would consider the proposed amendments for adoption during the winter. There is a possibility that the State Water Board may re-circulate a revised draft amendment if the comments and changes are deemed significant and further comment would be necessary. After the State Water Board adopts the Ocean Desalination amendments to the Ocean Plan, then OAL must review and approve of the changes in the regulations and then they would be transmitted to EPA for final approval.

Our major comments were concerned with the following:

1. The regulations need to be clarified that the project owner is responsible for project site, design, technology and mitigation measures, not the State. But that the State is responsible for making a determination that they satisfy Water Code Section 13142.5(b) requirement that the project incorporates the "...best available site, design, technology and mitigation measures feasible shall be used to minimize intake and mortality of all forms of marine life..."

2. The regulations as proposed would require the need for ocean desalination to be demonstrated and to be consistent with regional planning documents under the requirement for the best “site” determination. This goes beyond the Water Code requirement and we have asked that this section be deleted.
3. Modification of language that now would require absolute protections, such as “avoid”, “no impact”, “maximize” the location from a Marine Protected Area, etc.
4. Modification of language that would deem subsurface intakes infeasible if in the presence of coastal lagoons or if impacting groundwater supplies and that allowances be made for mitigation.
5. Deleting language that would prohibit brine discharge by commingling with wastewater through existing wastewater outfalls if the wastewater is of suitable quality and quantity to support domestic or irrigation uses.
6. Clarification of requirements for dedicated brine disposal lines and commingling brine through wastewater outfalls.
7. Modification of receiving water salinity for compliance with “natural background salinity” – as written now it would be possible to be in compliance.
8. Allowance of site specific most sensitive species that are found in the brine impacted area should be the basis for the salinity objective and not a more sensitive species found in different habitats, such as rocky reef areas. As written now, this would add substantial cost to the Poseidon Resources Huntington Beach project by requiring a new dedicated brine diffuser line.
9. Revision of the definition of a brine mixing zone to allow meeting chronic and acute toxicity at the edge of the mixing zone. As now written, acute toxicity would not be allowed within the brine mixing zone, which would prohibit brine discharges.
10. Add a definition for “feasible” to be consistent with a recent Court of Appeals decision that is consistent with CEQA and the Coastal Commission definition. At this time, economics are not considered by the SWRCB.

CalDesal included several other critical comments, including concerns over entrainment, wedge wire screen slot size, and mitigation.

Attachments

1. SWRCB Proposed Ocean Plan Ocean Desalination Amendments
2. SWRCB Staff Presentation at the Aug 19, 2014 Public Hearing
3. MWDOC Comment Letter
4. CalDesal/ACWA Comment Letter
5. Mesa Water District Comment Letter

L. Implementation Provisions for Desalination Facilities*

1. Applicability and General Provisions

a. Chapter III.L applies to desalination facilities* using seawater.* Chapter III.L.2 does not apply to desalination facilities* operated by a federal agency. Chapter III.L.2, L.3, and L.4 do not apply to portable desalination facilities* that produce less than 0.05 MGD of desalinated water and are operated by a governmental agency. These standards do not alter or limit in any way the authority of any public agency to implement its statutory obligations. The Executive Director of the State Water Board may temporarily waive the application of chapter III.L. to desalination facilities* that are operating to serve as a critical short term water supply during a state of emergency as declared by the Governor.

b. Definitions of New, Expanded, and Existing Facilities:

(1) For purposes of chapter III.L, “existing facilities” means desalination facilities* that have been issued an NPDES permit and all building permits and other governmental approvals necessary to commence construction for which the owner or operator has relied in good faith on those previously-issued permits and approvals and commenced construction of the facility beyond site grading prior to [effective date of this Plan]. Existing facilities do not include a facility for which permits and approvals were issued and construction commenced after January 1, 1977, but for which a regional water board did not make a determination of the best site, design, technology, and mitigations measures feasible, pursuant to Water Code section 13142.5, subdivision (b) (hereafter Water Code section 13142.5(b)).

(2) For purposes of chapter III.L, “expanded facilities” means existing facilities for which, after [effective date of the Plan], the owner or operator does either of the following in a manner that could increase intake or mortality of marine life: 1) increases the amount of seawater* used either exclusively by the facility or used by the facility in conjunction with other facilities or uses, or 2) changes the design or operation of the facility. To the extent that the desalination facility* is co-located with another facility that withdraws water for a different purpose and that other facility reduces the volume of water withdrawn to a level less than the desalination facility’s* volume of water withdrawn, the desalination facility* is considered to be an expanded facility.

(3) For purposes of chapter III.L, “new facilities” means desalination facilities* that are not existing facilities or expanded facilities.

- c. Chapter III.L.2 (Water Code §13142.5(b) Determinations for New and Expanded Facilities: Site, Design, Technology, and Mitigation Measures) applies to new and expanded desalination facilities* withdrawing seawater.*
 - d. Chapter III.L.3 (Receiving Water Limitation for Salinity*) applies to all desalination facilities* that discharge into ocean waters.*
 - e. Chapter III.L.4 (Monitoring and Reporting Programs) applies to all desalination facilities* that discharge into ocean waters.*
 - f. References to the regional water board include the regional water board acting under delegated authority. For provisions that require consultation between regional water board and State Water Board staff, the regional water board shall notify and consult with the State Water Board staff prior to making a final determination on the item requiring consultation.
2. Water Code section 13142.5(b) Determinations for New and Expanded Facilities: Site, Design, Technology, and Mitigation Measures Feasibility Considerations
- a. General Considerations
 - (1) The owner or operator shall submit a request for a Water Code section 13142.5(b) determination to the appropriate regional water board as early as practicable. This request shall include sufficient information for the regional water board to conduct the analyses described below. The regional water board in consultation with the State Water Board staff may require an owner or operator to provide additional studies or information if needed. Studies and models are subject to the approval of the regional water board in consultation with State Water Board staff.
 - (2) The regional water board shall conduct a Water Code section 13142.5(b) analysis of all new and expanded desalination facilities.* A Water Code section 13142.5(b) analysis may include future expansions at the facility. The regional water board shall first analyze separately as independent considerations a range of feasible alternatives for the best site, the best design, the best technology, and the best mitigation measures to minimize intake and mortality of marine life. Then, the regional water board shall consider all four factors collectively, and include the best combination of alternatives that in combination minimize intake and mortality of marine life. The best combination of alternatives may not always include the best alternative under each individual factor because some alternatives may be mutually exclusive, redundant, or infeasible in combination.

- (3) The regional water board's 13142.5(b) analysis for expanded facilities may be limited to those expansions or other changes that result in the increased intake or mortality of marine life, unless the regional water board determines that additional measures that minimize intake and mortality of marine life are feasible for the existing portions of the facility.
- (4) In conducting the Water Code section 13142.5(b) determination, the regional water boards shall consult with other state agencies involved in the permitting of that facility, including, but not limited to: California Coastal Commission, California State Lands Commission, California Department of Fish and Wildlife, and California Department of Public Health. The regional water board shall consider project-specific decisions made by other state agencies; however, the regional water board is not limited to project-specific requirements set forth by other agencies and may include additional requirements in a Water Code section 13142.5(b) determination.
- (5) A regional water board may expressly condition a Water Code section 13142.5(b) determination based on the expectation of the occurrence of a future event. Such future events may include, but are not limited to, the permanent shutdown of a co-located power plant with intake structures shared with the desalination facility* or a reduction in the volume of wastewater available for the dilution of brine.* The regional water board must make a new Water Code section 13142.5(b) determination if the foreseeable future event occurs.
 - (a) The owner or operator shall provide notice to the regional water board as soon as it becomes aware that the expected future event will occur, and shall submit a new request for a Water Code section 13142.5(b) determination to the regional water board at least one year prior to the event occurring. If the owner or operator does not become aware that the event will occur at least one year prior to the event occurring, the owner or operator shall submit the request as soon as possible.
 - (b) The regional water board may allow up to five years from the date of the event for the owner or operator to make modifications to the facility required by a new Water Code 13142.5(b) determination, provided that the regional water board finds that any water supply interruption resulting from the facility modifications requires additional time for water users to obtain a temporary replacement supply.

- (c) If the regional water board makes a Water Code section 13142.5(b) determination for a desalination facility* that will be co-located with a power plant, the regional water board shall condition its determination on the power plant remaining in compliance with the Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling.
- b. Site is the general onshore and offshore location of a new or expanded facility. There may be multiple potential facility design configurations within any given site. For each potential site, in order to determine whether a proposed facility site best minimizes intake and mortality of marine life, the regional water board shall require the owner or operator to:
 - (1) Consider whether the identified regional need for desalinated* water identified is consistent with any applicable general or coordinated plan for the development, utilization or conservation of the water resources of the state, such as a county general plan, an integrated regional water management plan or an urban water management plan. A design capacity in excess of the identified regional water need for desalinated* water shall not be used by itself to declare subsurface intakes as infeasible.
 - (2) Analyze the feasibility of placing intake, discharge, and other facility infrastructure in a location that avoid impacts to sensitive habitats* and sensitive species.
 - (3) Analyze the direct and indirect effects on marine life resulting from facility construction and operation, individually and in combination with potential anthropogenic effects on marine life resulting from other past, present, and reasonably foreseeable future activities within the geographic scope of the area affected by the facility.
 - (4) Analyze oceanographic, bathymetric, geologic, hydrogeologic, and seafloor topographic conditions, so the siting of a facility, including the intakes and discharges, minimize the intake and mortality of marine life.
 - (5) Analyze the presence of existing infrastructure, and the availability of wastewater to dilute the facility's brine* discharge.
 - (6) Ensure that the intake and discharge structures are not located within a MPA or SWQPA.* Discharges shall be sited at a sufficient distance from a MPA or SWQPA* so that there are no impacts from the discharge on a MPA or SWQPA* and so that the salinity* within the boundaries of a MPA or SWQPA* does not exceed natural background

salinity.* To the extent feasible, intakes shall be sited so as to maximize the distance from a MPA or SWQPA.*

- c. Design is the layout, form, and function of a facility, including the configuration and type of infrastructure, including intake and outfall structures. The regional water board shall require that the owner or operator perform the following in determining whether a proposed facility design best minimizes intake and mortality of marine life:

- (1) For each potential site, analyze the potential design configurations of the intake, discharge, and other facility infrastructure to avoid impacts to sensitive habitats* and sensitive species.
- (2) If the regional water board determines that subsurface intakes are infeasible and surface water intakes are proposed instead, analyze potential designs for those intakes in order to minimize the Area Production Forgone* (APF). The intake shall be designed to minimize entrainment of organisms when operational.
- (3) Design the outfall so that the brine mixing zone* does not encompass or otherwise adversely affect existing sensitive habitat.*
- (4) Design the outfall so that discharges do not result in dense, negatively-buoyant plumes that result in adverse effects due to elevated salinity* or anoxic conditions occurring outside the brine mixing zone.* An owner or operator must demonstrate that the outfall meets this requirement through plume modeling and/or field studies. Modeling and field studies shall be approved by the regional water board in consultation with State Water Board staff.
- (5) Design outfall structures to minimize the suspension of benthic sediments.

- d. Technology is the type of equipment, materials,* and methods that are used to construct and operate the design components of the desalination facility.* The regional water board shall apply the following considerations in determining whether a proposed technology best minimizes intake and mortality of marine life:

- (1) Considerations for Intake Technology:

- (a) Subject to Section L.2.a.(2), the regional water board shall require subsurface* intakes unless it determines that subsurface* intakes are infeasible based upon an analysis of the criteria listed below, in consultation with State Water Board staff.

- i. The regional water board shall consider the following criteria in determining feasibility of subsurface* intakes: geotechnical data, hydrogeology, benthic topography, oceanographic conditions, presence of sensitive habitats,* presence of sensitive species, energy use; impact on freshwater aquifers, local water supply, and existing water users; desalinated* water conveyance, existing infrastructure, co-location with sources of dilution water, design constraints (engineering, constructability), and project life cycle cost. Project life cycle cost shall be determined by evaluating the total cost of planning, design, land acquisition, construction, operations, maintenance, mitigation, equipment replacement and disposal over the lifetime of the facility, in addition to the cost of decommissioning the facility. In addition, the regional water board may evaluate other site- and facility-specific factors.
 - ii. The regional water board may find that a combination of subsurface* and surface intakes is the best feasible alternative to minimize intake and mortality of marine life.
- (b) Installation and maintenance of a subsurface* intake shall avoid, to the maximum extent feasible, the disturbance of sensitive habitats* and sensitive species.
- (c) If subsurface* intakes are not feasible, the regional water board may approve a surface water intake subject to the following conditions.
 - i. The regional water board shall require that surface water intakes be screened. Screens must be functional while the facility is withdrawing seawater.*
 - ii. In order to reduce entrainment, all surface water intakes must be screened with a [0.5 mm (0.02 in)/ 0.75 (0.03 in)/ 1.0 mm (0.04 in)] or smaller slot size screen when the desalination facility* is withdrawing seawater.* *[NOTE: The State Water Board intends to select a single slot size, but is soliciting comments on whether 0.5 mm, 0.75 mm, 1.0 mm, or some other slot size is most appropriate to minimize intake and mortality of marine life.]*
 - iii. An owner or operator may use an alternative method of preventing entrainment so long as the alternative method

provides equivalent protection of eggs, larvae, and juvenile organisms as is provided by a [0.5 mm (0.02 in)/ 0.75 (0.03 in)/ 1.0 mm (0.04 in)] slot size screen [see note above]. The owner or operator must demonstrate the effectiveness of the alternative method to the regional water board. The owner or operator must conduct a pilot study to demonstrate the effectiveness of the alternative method, and use an Empirical Transport Model* (ETM)/ Area of Production Forgone* (APF) approach* to estimate entrainment at the pilot study location. The study period shall be at least 36 consecutive months and sampling shall be designed to account for variation in oceanographic conditions and larval abundance and diversity such that abundance estimates are reasonably accurate. Samples must be collected using a mesh size no larger than 335 microns and individuals collected shall be identified to the lowest taxonomical level practicable. The ETM/APF analysis* shall be representative of the entrained species. At their discretion, the regional water boards may permit the use of existing entrainment data from the facility to meet this requirement.

- (d) In order to minimize impingement, through-screen velocity at the surface water intake shall not exceed 0.15 meters per second (0.5 feet per second).

(2) Considerations for Brine* Discharge Technology:

- (a) The preferred technology for minimizing intake and mortality of marine life resulting from brine* disposal is to commingle brine* with wastewater (e.g., agricultural, sewage, industrial, power plant cooling water, etc.) that would otherwise be discharged to the ocean, unless the wastewater is of suitable quality and quantity to support domestic or irrigation uses.
- (b) Multiport diffusers* are the next best method for disposing of brine* when the brine* cannot be diluted by wastewater and when there are no live organisms in the discharge. Multiport diffusers* shall be engineered to maximize dilution, minimize the size of the brine mixing zone,* minimize the suspension of benthic sediments, and minimize marine life mortality.
- (c) The regional water board shall require the owner or operator to analyze the brine* disposal technology or combination of brine* disposal technologies that best reduces the effects of the discharge of brine* on marine life due to intake-related entrainment, osmotic

stress from elevated salinity,* turbulence that occurs during water conveyance and mixing, and shearing stress at the point of discharge.

(d) Brine* disposal technologies other than wastewater dilution and multiport diffusers,* such as flow augmentation,* may be used if an owner or operator can demonstrate to the regional water board that the technology provides a comparable level of protection. The owner or operator must evaluate all of the individual and cumulative effects of the proposed alternative discharge method on marine life mortality, including (where applicable); intake-related entrainment, osmotic stress, turbulence that occurs during water conveyance and mixing, and shearing stress at the point of discharge. When determining the level of protection provided by a brine* disposal technology or combination of technologies, the regional water board shall require the owner or operator to use empirical studies or modeling to:

- i. Estimate intake entrainment impacts using an ETM/APF approach.*
- ii. Estimate degradation of marine life from elevated salinity within the brine mixing zone,* including osmotic stresses, the size of impacted area, and the duration that marine life are exposed to the toxic conditions. Considerations shall be given to the most sensitive species, and community structure and function.
- iii. Estimate marine life mortality that occurs as a result of water conveyance, in-plant turbulence or mixing, and waste discharge.

(e) An owner or operator proposing to use flow augmentation* as an alternative brine* discharge technology must:

- i. Use low turbulence intakes (e.g., screw centrifugal pumps or axial flow pumps) and conveyance pipes.
- ii. Convey and mix dilution water in a manner that limits thermal stress, osmotic stress, turbulent shear stress, and other factors that could cause marine life mortality.
- iii. Within three years of beginning operation, submit to the regional water board an empirical study that evaluates intake and mortality of marine life associated with flow

augmentation.* The study must evaluate impacts caused by augmented intake volume, intake and pump technology, water conveyance, waste brine* mixing, and effluent discharge. Unless demonstrated otherwise, organisms entrained by flow augmentation* are assumed to have a mortality rate of 100 percent.

- iv. If the empirical study shows that flow augmentation* is less protective of marine life than a facility using wastewater dilution or multiport diffusers,* then the facility must either (1) cease using flow augmentation* technology and install and use wastewater dilution or multiport diffusers* to discharge brine* waste, or (2) re-design the flow augmentation* system to minimize intake and mortality of marine life to a level that is comparable with wastewater dilution or multiport diffusers,* subject to regional water board approval.
 - v. Facilities proposing to using flow augmentation* must comply with chapter III.L.2.d.(1).
 - vi. Facilities proposing to using flow augmentation* through surface intakes are prohibited from discharging through multiport diffusers.*
- (f) Facilities that use subsurface* intakes to supply augmented flow water for dilution are exempt from the requirements of chapter III.L.2.d.(2) if the facility meets the receiving water limitation for salinity in chapter III.L.3.
- e. Mitigation for the purposes of this section is the replacement of marine life or habitat that is lost due to the construction and operation of a desalination facility* after minimizing marine life mortality through site, design, and technology measures. The owner or operator may choose whether to satisfy a facility's mitigation measures pursuant to chapter III.L.2.e.(3) or, if available, L.2.e.(4). The owner or operator shall fully mitigate for all marine life mortality associated with the desalination facility.*
- (1) *Marine Life Mortality Report.* The owner or operator of a facility shall submit a report to the regional water board projecting the marine life mortality resulting from construction and operation of the facility after implementation of the facility's required site, design, and technology measures.
- (a) For operational mortality related to intakes, the report shall include a detailed entrainment study. The entrainment study period shall be at least 36 consecutive months and sampling shall be designed

to account for variation in oceanographic conditions and larval abundance and diversity such that abundance estimates are reasonably accurate. At their discretion, the regional water boards may permit the use of existing entrainment data from the facility to meet this requirement. Samples must be collected using a mesh size no larger than 335 microns and individuals collected shall be identified to the lowest taxonomical level practicable. Additional samples shall also be collected using a 200 micron mesh to provide a broader characterization of other entrained organisms. The ETM/APF analysis* shall be representative of the entrained species collected using the 335 micron net. The APF* shall be calculated using a 90 percent confidence level. An owner or operator with subsurface* intakes is not required to do an ETM/APF analysis* for their intakes and is not required to mitigate for intake-related operational mortality.

- (b) For operational mortality related to discharges, the report shall estimate the area in which salinity* exceeds 2.0 parts per thousand above natural background salinity* or a facility-specific alternative receiving water limitation (see § L.3). The area in excess of the receiving water limitation for salinity* shall be determined by modeling and confirmed with monitoring. The report shall use any acceptable approach for evaluating mortality that occurs due to shearing stress resulting from the facility's discharge, including any incremental increase in mortality resulting from a commingled discharge.
 - (c) For construction-related mortality, the report shall use any acceptable approach for evaluating the mortality that occurs within the area disturbed by the facility's construction. The regional water board may determine that the construction-related disturbance does not require mitigation because the disturbance is temporary and the habitat is naturally restored.
 - (d) Upon approval of the report by the regional water board in consultation with State Water Board staff, the calculated marine life mortality shall form the basis for the mitigation provided pursuant to this section.
- (2) The owner or operator shall mitigate for the marine life mortality determined in the report above by choosing to either complete a mitigation project as described in chapter III.L.2.e.(3) or, if an appropriate fee-based mitigation program is available, provide funding for the program as described in chapter III.L.2.e.(4). The mitigation project or the use of a fee-based mitigation program and the amount of the fee that

the owner or operator must pay is subject to regional water board approval.

(3) *Mitigation Option 1: Complete a Mitigation Project.* The mitigation project must satisfy the following provisions:

(a) The owner or operator shall submit a Mitigation Plan. Mitigation Plans shall include: project objectives, site selection, site protection instrument (the legal arrangement or instrument that will be used to ensure the long-term protection of the compensatory mitigation project site), baseline site conditions, a mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards and success criteria, monitoring requirements, and financial assurances.

(b) The mitigation project must meet the following requirements:

- i. Mitigation shall be accomplished through expansion, restoration or creation of one or more of the following: kelp beds, estuaries, coastal wetlands, natural reefs, MPAs, or other projects approved by the regional water board that will mitigate for intake and mortality of marine life associated with the facility.
- ii. The owner or operator shall demonstrate that the project fully mitigates for intake-related marine life mortality by including acreage that is at least equivalent in size to the APF* calculated in the Marine Life Mortality Report above. The owner or operator shall do modeling to evaluate the areal extent of the mitigation project's production area* to confirm that it overlaps the facility's source water body.* Impacts on the mitigation project due to entrainment by the facility must be offset by adding compensatory acreage to the mitigation project. The regional water boards may require additional habitat be mitigated to compensate for the annual entrainment of organisms between 200 and 335 microns.
- iii. The owner or operator shall demonstrate that the project also fully mitigates for the discharge-related marine life mortality projected in the Marine Life Mortality Report above. For each acre of discharge-related disturbance as determined in the Marine Life Mortality Report, an owner or operator shall restore one acre of habitat unless the regional water board determines that a mitigation ratio greater than 1:1 is needed.

- iv. The owner or operator shall demonstrate that the project also fully mitigates for the construction-related marine life mortality identified in the Marine Life Mortality Report above. For each acre of construction-related disturbance, an owner or operator shall restore one acre of habitat unless the regional water board determines that a mitigation ratio greater than 1:1 is needed.
 - (c) The Mitigation Plan is subject to approval by the regional water board in consultation with State Water Board staff and with other agencies having authority to permit the project and require mitigation.
- (4) *Mitigation Option 2: Fee-based Mitigation Program.* If the regional water board determines that an appropriate fee-based mitigation program has been established by a public agency, and that payment of a fee to the mitigation program will result in the creation and ongoing implementation of a mitigation project that meets the requirements of section L.2.e.(3), the owner or operator may pay a fee to the mitigation program in lieu of completing a mitigation project.
- (a) The agency that manages the fee-based mitigation program must have legal and budgetary authority to accept and spend mitigation funds, a history of successful mitigation projects documented by having set and met performance standards for past projects, and stable financial backing in order to manage mitigation sites for the operational life of the facility.
 - (b) The amount of the fee shall be based on the cost of the mitigation project, or if the project is designed to mitigate cumulative impacts from multiple desalination facilities or other development projects, the amount of the fee shall be based on the desalination facility's fair share of the cost of the mitigation project.
 - (c) The manager of the fee-based mitigation program must consult with the California Department of Fish and Wildlife, Ocean Protection Council, Coastal Commission, State Lands Commission, and State and regional water boards to develop mitigation projects that will best compensate for intake and mortality of marine life caused by the desalination facility.* Mitigation projects that increase or enhance the viability and sustainability of marine life in Marine Protected Areas are preferred, if feasible.

- (5) California Department of Fish and Wildlife, the regional water board, and State Water Board may perform audits or site inspections of any mitigation project.
- (6) An owner or operator, or a manager of a fee-based mitigation program, must submit a mitigation project performance report to the regional water board 180 days prior to the expiration date of their NPDES permit.

3. Receiving Water Limitation for Salinity*

- a. Chapter III.L.3 is applicable to all desalination facilities discharging brine* into ocean waters,* including facilities that commingle brine* and wastewater.
- b. The receiving water limitation for salinity* shall be established as described below:

- (1) Discharges shall not exceed a daily maximum of 2.0 parts per thousand above natural background salinity* to be measured as total dissolved solids (mg/L) measured no further than 100 meters (328 ft) horizontally from the discharge. There is no vertical limit to this zone.
- (2) In determining an effluent limit necessary to meet this receiving water limitation, permit writers shall use the formula in chapter III.C.4 that has been modified for brine* discharges as follows:

Equation 1: $C_e = (2,000 \text{ mg/l} + C_s) + D_m(2,000 \text{ mg/l})$

Where:

C_e = the effluent concentration limit, mg/L
 C_o = the salinity* concentration to be met at the completion of initial* dilution= 2,000 mg/l + C_s
 C_s = the natural background salinity* mg/L
 D_m = minimum probable initial*dilution expressed as parts seawater* per part brine* discharge

- (a) The fixed distance referenced in the initial dilution* definition shall be no more than 100 meters (328 feet).
- (b) In addition, the owner or operator shall develop a dilution factor (D_m) based on the distance of 100 meters (328 feet) or initial*dilution, whichever is smaller.

- (c) The value 2,000 mg/l in Equation 1 is the maximum incremental increase above ambient background salinity* (Cs) allowed at the edge of the brine* mixing zone. A regional water board may substitute an alternative numeric value for 2,000 mg/l in Equation 1 based upon the results of a facility-specific alternative salinity* receiving water limitation study, as described in chapter III.L.3.c below.
- c. An owner or operator may submit a proposal to the regional water board for approval of an alternative salinity* receiving water limitation.
 - (1) To determine whether a proposed facility-specific alternative receiving water limitation is adequately protective of beneficial uses, an owner or operator shall:
 - (a) Establish baseline biological conditions at the discharge location and at reference locations over a 36-month period prior to commencing brine* discharge. The biologic surveys must characterize the ecologic composition of habitat and marine life using measures established by the regional water board. At their discretion, the regional water boards may permit the use of existing data from the facility to meet this requirement.
 - (b) Conduct at least the following Whole Effluent Toxicity (WET) tests: germination and growth for giant kelp (*Macrocystis pyrifera*); development for red abalone (*Haliotis refescens*); development and fertilization for purple urchin (*Strongleocentrotus purpuratus*); development and fertilization for sand dollar (*Dendraster excentricus*); larval growth rate for topsmelt (*Atherniops affinis*).
 - (c) The regional water board in consultation with State Water Board staff may require an owner or operator to do additional toxicity studies if needed.
 - (2) The regional water board in consultation with the State Water Board staff may require an owner or operator to provide additional studies or information in order to approve a facility-specific alternative receiving water limitation for salinity.*
 - (3) The facility-specific alternative receiving water limitation shall be based on the no observed effect level (NOEL) for the most sensitive species and toxicity endpoint as determined in the chronic toxicity* studies. The regional water board in consultation with State Water Board staff

has discretion to approve the proposed facility-specific alternative receiving water limitation for salinity.*

- (4) The regional water board may eliminate or revise a facility-specific alternative receiving water limitation for salinity* based on a facility's monitoring data, the results from their Before-After Control-Impact study as required in chapter III.L.4 below, or based on any other information that the regional water board deems to be relevant.

- d. Existing facilities that do not meet the receiving water limitation at the edge of the brine mixing zone* and throughout the water column by [the effective date of this plan] must either: 1) establish a facility-specific alternative receiving water limitation for salinity* as described in chapter III.L.3.(c); or, 2) upgrade the facility's brine* discharge method in order to meet the receiving water limitation in chapter III.L.3.b in accordance with the State Water Board's Compliance Schedule Policy, as set forth in (e) below. An owner or operator that chooses to upgrade the facility's method of brine* disposal:

- (1) Must demonstrate to the regional water board that the brine* discharge does not negatively impact sensitive habitats,* sensitive species, MPAs, or SWQPAs.

- (2) Is subject to the Considerations for Brine* Discharge Technology described in chapter III.L.2.e.(2).

- e. The regional water board may grant compliance schedules for the requirements for brine* waste discharges for existing desalination facilities.* All compliance schedules shall be in accordance with the State Water Board's Compliance Schedule Policy, except that the salinity* receiving water limitation set forth in chapter III.L.3.(b) shall be considered to be a "new water quality objective" as used in the Compliance Schedule Policy.

4. Monitoring and Reporting Programs

- a. The owner or operator of a desalination facility* must submit a Monitoring and Reporting Plan to the regional water board for approval. The Monitoring and Reporting Plan shall include monitoring of effluent and receiving water characteristics and impacts to marine life. The Monitoring and Reporting Plan shall, at a minimum, include monitoring for benthic community health, aquatic life toxicity, and receiving water characteristics consistent with Appendix III of this Plan and for compliance with the receiving water limitation in chapter III.L.3. Receiving water monitoring for salinity* shall be conducted at times when the monitoring locations are most likely affected by the discharge. For new or expanded facilities the following additional requirements apply:

- (1) An owner or operator must perform facility-specific monitoring to demonstrate compliance with the receiving water limitation for salinity,* and evaluate the potential effects of the discharge within the water column, bottom sediments, and the benthic communities. Facility-specific monitoring is required until the regional water board determines that a regional monitoring program is adequate to ensure compliance with the receiving water limitation. The monitoring and reporting plan shall be reviewed, and revised if necessary, upon NPDES permit renewal.
- (2) Baseline biological conditions shall be established at the discharge location and at a reference location prior to commencement of construction. The owner or operator is required to conduct Before-After Control-Impact biological surveys that will evaluate the differences between biological communities at a reference site and at the discharge location before and after the discharge commences. The regional water board will use the data and results from the Before-After Control-Impact surveys for evaluating and renewing the requirements set forth in a facility's NPDES permit.

Add the following new definitions to, and amend existing definitions in, Appendix I of the Ocean Plan.

AREA PRODUCTION FOREGONE (APF), also known as habitat production foregone, is an estimate of the area that is required to produce (replace) the same amount of larvae or propagules* that are removed via entrainment at a desalination facility's* intakes. APF is calculated by multiplying the proportional mortality* by the source water body,* which are both determined using an empirical transport model.* (Raimondi 2014)

BRINE is the byproduct of desalinated* water having a salinity* concentration greater than a desalination facility's* intake source water.

BRINE MIXING ZONE is the area where the salinity* exceeds 2.0 parts per thousand above natural background salinity.* The brine mixing zone shall not exceed 100 meters (328 feet) laterally from the points of discharge and throughout the water column unless otherwise authorized by the regional water board in accordance with this plan. The brine mixing zone is an allocated impact zone where water quality criteria can be exceeded as long as acutely toxic conditions are prevented and the designated use of the water is not impaired as a result of the brine mixing zone. The brine mixing zone is determined through a mixing zone study and the use of applicable water quality models that have been approved by the regional water boards in consultation with State Water Board staff.

DESALINATION FACILITY is an industrial facility that processes water to remove salts and other components from the source water to produce water that is less saline than the source water.

EELGRASS BEDS are aggregations of the aquatic plant species, *Zostera marina*.

EMPIRICAL TRANSPORT MODEL (ETM) is a methodology for determining the spatial area known as the source water body* that contains the source water population, which are the organisms that are at risk of entrainment as determined by factors that may include but are not limited to biological, hydrodynamic, and oceanographic data. ETM can also be used to estimate proportional mortality,* P_m . (Raimondi 2014)

ETM/APF APPROACH or ANALYSIS. For guidance on how to perform an ETM/APF analysis please see Raimondi 2011 and Steinbeck *et al.* 2007.

FLOW AUGMENTATION is a type of in-plant dilution and occurs when a desalination facility* withdraws additional source water for the specific purpose of diluting brine* prior to discharge.

KELP BEDS are aggregations of marine algae of the order Laminariales, including species in the genera *Macrocystis*, *Nereocystis*, and *Pelagophycus*. Kelp beds include the total foliage canopy throughout the water column.

MARKET SQUID NURSERIES are comprised of numerous egg capsules, each containing approximately 200 developing embryos, attached in clusters or mops to sandy substrate with moderate water flow. Market squid (*Doryteuthis opalescens*) nurseries occur at a wide range of depths; however, mop densities are greatest in shallow, nearshore waters between ten and 100 meters (328 feet) deep. *D. opalescens* egg nurseries commonly occur within a few hundred meters of the same location every year.

MULTIPORT DIFFUSERS are linear structures consisting of many spaced ports or nozzles that are installed on submerged marine outfalls. Multiport diffusers discharge brine* waste into an ambient receiving water body and enable rapid mixing, dispersal, and dilution of brine* within a relatively small area.

NATURAL BACKGROUND SALINITY is the salinity* at a location that results from naturally occurring processes and is without apparent human influence. Natural background salinity shall be determined by averaging 20 years of historical salinity* data at a location. When historical data are not available, natural background salinity shall be determined by measuring salinity* at depth of proposed discharge for three years, on a weekly basis prior to a desalination facility* discharging brine,* and the average salinity* shall be used to determine natural background salinity. Facilities shall establish a reference location with similar natural background salinity to be used for comparison in ongoing monitoring of brine* discharges.

PROPAGULES are structures that are capable of propagating an organism to the next stage in its life cycle via dispersal. Dispersal is the movement of individuals from their birth site to their reproductive grounds.

PROPORTIONAL MORTALITY, P_m , is percentage of larval organisms or propagules* in the source water body* that is expected to be entrained at a desalination facility's* intake. It is assumed that all entrained larvae or propagules* die as a result of entrainment. (Raimondi 2014)

SALINITY is a measure of the dissolved salts in a volume of water. For the purposes of this Plan, salinity shall be measured as total dissolved solids in mg/l.

SEAWATER is salt water that is in or from the ocean. For the purposes of chapter III.L, seawater includes tidally influenced waters in coastal estuaries and lagoons and underground salt water beneath the seafloor, beach, or other contiguous land with hydrologic connectivity to the ocean.

SENSITIVE HABITATS, for the purposes of this Plan, are kelp beds,* rocky substrate, surfgrass beds,* eelgrass beds,* oyster beds, spawning grounds for state or federally managed species, market squid nurseries,* or other habitats in need of special protection as determined by the Water Boards.

SOURCE WATER BODY is the spatial area that contains the organisms that are at risk of entrainment at a desalination facility* as determined by factors that may include but are not limited to biological, hydrodynamic, and oceanographic data. (Raimondi 2014)

SUBSURFACE, for the purposes of this Plan, is the area beneath the ocean floor or beneath the surface of the earth inland from the ocean.

SURFGRASS BEDS are aggregations of marine flowering plants of the genus *Phyllospadix*.

Proposed Amendment to the Water Quality Control Plan for Ocean Waters to Address Desalination Facilities

Claire Waggoner

Environmental Scientist

Ocean Standards Unit

Division of Water Quality

State Water Resources Control Board



**Public Hearing
August 19, 2014**



Art By: Avi Jagdish, 2nd Grade, 2012

Purpose of Public Hearing

- Listen to comments and feedback.
- Provide additional information and clarification.
- No action to be taken by the State Water Board.



Issue

- Desalination projects have been proposed along the California coastline.
- Desalination activities have the potential to negatively affect water quality and other beneficial uses of ocean waters.
- The 2012 Ocean Plan does not adequately address impact from desalination facilities.
- Regional Water Boards permit desalination facilities on a facility-specific basis.

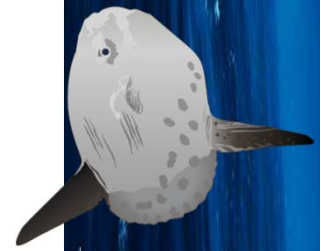
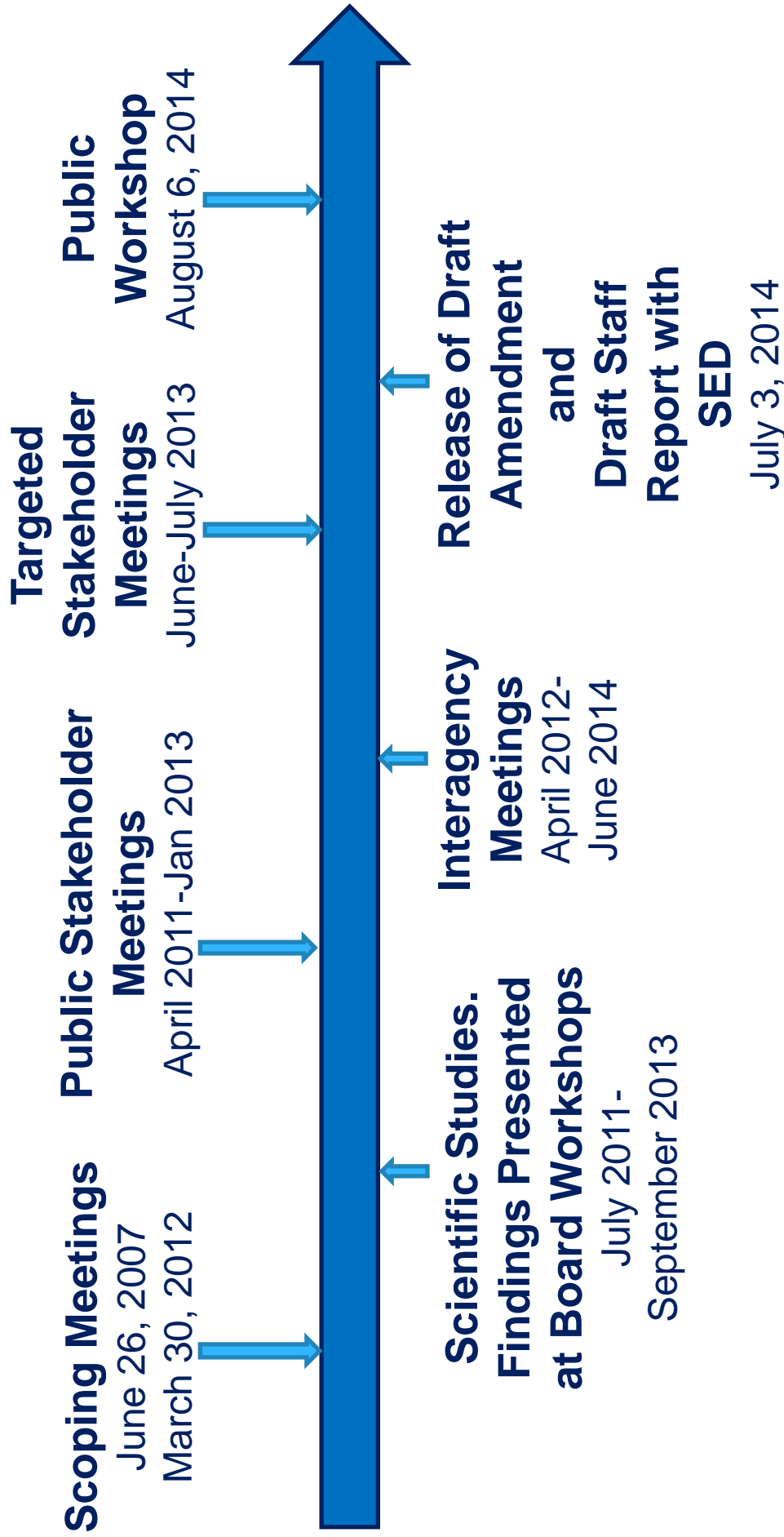


Amend Statewide Water Quality Control Plan

- Address desalination intakes, brine discharges, and incorporate other non-substantive changes (Desalination Amendment) in the California Ocean Plan.
- Overarching goal is to ensure California has a diverse water supply portfolio while protecting marine resources.

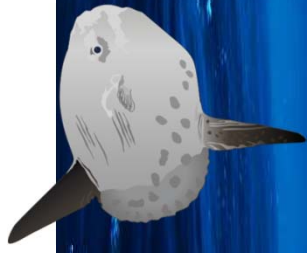


Previous Steps



Proposed Desalination Amendment

- 1) Applicability and general provisions that include definitions of new, expanded, and existing facilities.
- 2) Direction for the Regional Water Boards regarding the determination for new, expanded, and conditionally permitted desalination facilities required by California Water Code § 13142.5(b).
- 3) Narrative receiving water limitation for salinity.
- 4) Monitoring and reporting requirements.



Considerations for Brine Discharge Technology

- Commingling brine with wastewater is the preferred alternative.
- Multiport diffusers are the next best method for diluting brine when wastewater is unavailable.
- Other technologies may be used if an owner or operator can demonstrate the technology provides a comparable level of protection.
- The Regional Water Boards' goal is to identify the best available technology for minimizing intake and mortality of marine life.



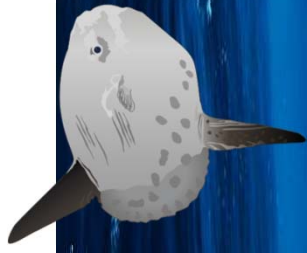
Considerations for Alternative Brine Discharge Technologies

- Section III.L.2.d.(2)(d): For the proposed alternative discharge, an owner or operator will evaluate (where applicable):
 - intake-related entrainment,
 - osmotic stress,
 - turbulence that occurs during water conveyance and mixing, and
 - shearing stress at the point of discharge.



Narrative Receiving Water Limitation for Salinity

- Applicable to all desalination facilities:
“Discharges shall not exceed a daily maximum of 2.0 parts per thousand above natural background salinity to be measured as total dissolved solids (mg/L) measured no further than 100 meters (328 ft) horizontally from the discharge. There is no vertical limit to this zone.”
- An owner or operator may submit a proposal to the Regional Water Board for approval of an alternative salinity receiving water limitation.



Alternative Receiving Water Limitation for Salinity

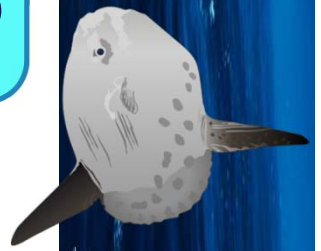
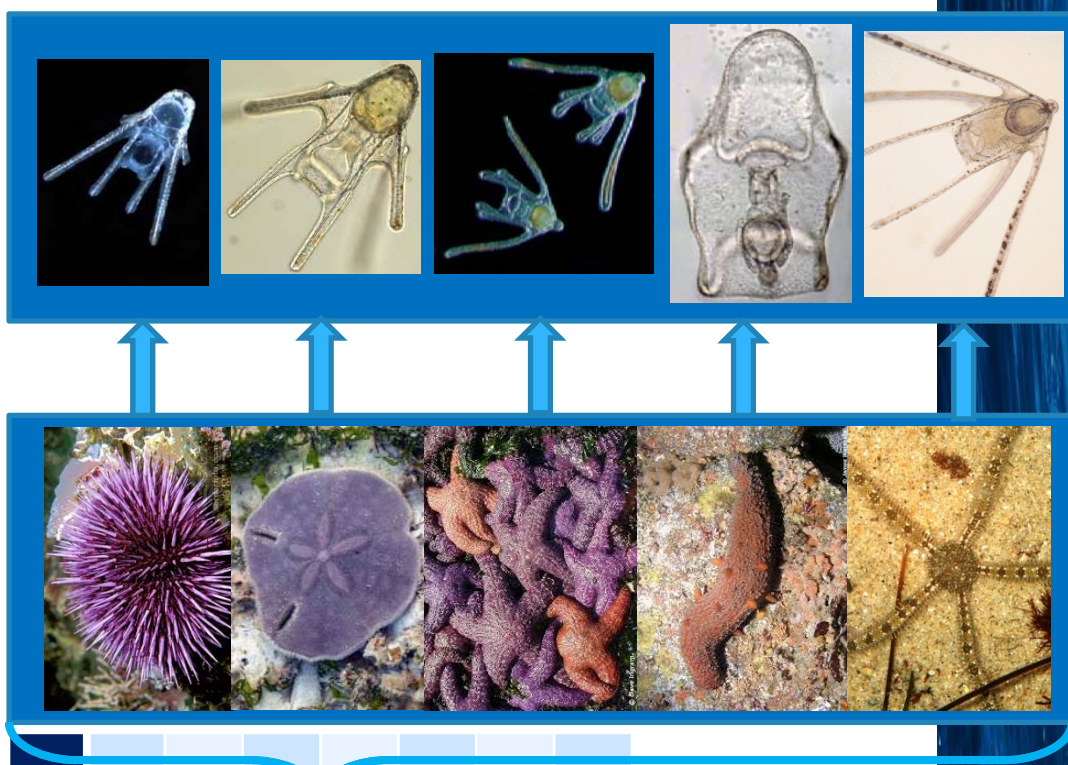
- Complete a study to establish baseline conditions
- Characterize composition of habitat and marine life.
- Regional Water Board may permit the use of existing data.
- Conduct Whole Effluent Toxicity (WET) tests.



Alternative Receiving Water Limitation for Salinity: WET Tests

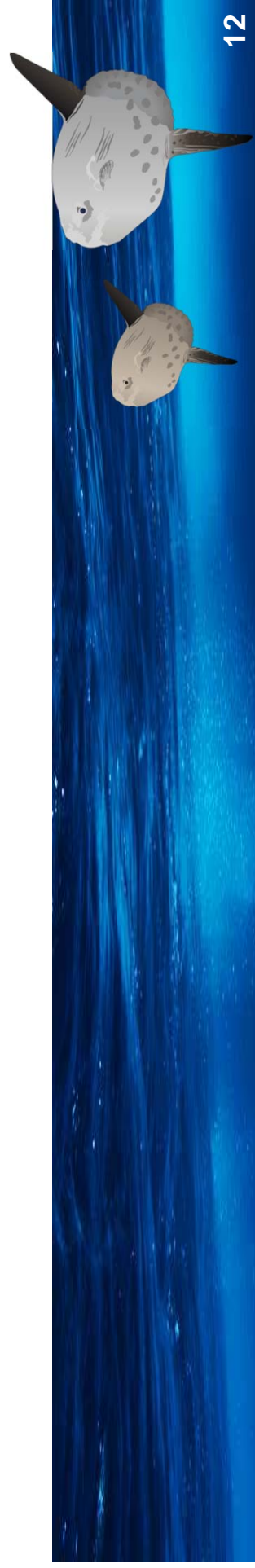
Species	Toxicity Endpoints
Giant Kelp	Germination and Growth
Red Abalone	Development
Purple Urchin	Development and Fertilization
Sand Dollar	Development and Fertilization
Topsmelt	Larval Growth Rate
Bivalves?	
Worms? (Annelids)	

**WET test species are
representatives of other
species in their taxon**



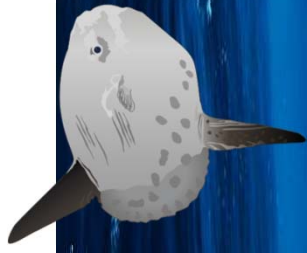
Feedback Received at the August 6, 2014 Public Workshop

- Add clarity while preserving flexibility.
- Investigate what tools the State Water Board has to review intake technology.
- Include brackish desalination facilities discharging to the ocean.



Feedback Received at the August 6, 2014 Public Workshop

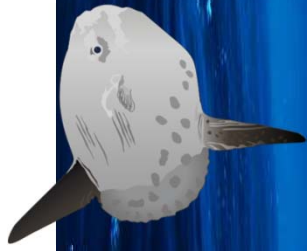
- Clarify the language regarding using wastewater for brine dilution.
- Investigate areas where staff could be more clear on mitigation assessment.
- Explore options for the City of Santa Barbara.



Define Feasibility

- CEQA definition:
“Feasible’ means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.” (Pub. Resources Code, § 21061.1.)
- Once-through Cooling Policy definition:
“Not Feasible – Cannot be accomplished because of space constraints or the inability to obtain necessary permits due to public safety considerations, unacceptable environmental impacts, local ordinances, regulations, etc. Cost is not a factor to be considered when determining feasibility under Track 1.”

Should cost be a factor?



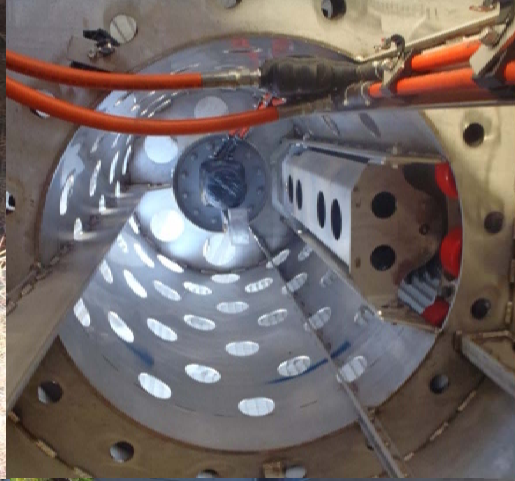
Screen Slot Size

Slot Size (mm)	Facility	Location	Intake capacity (MGD)
0.5	Tampa Bay Seawater Desal	Tampa Bay, FL, USA	58
0.5	Barney Davis Seawater Cooling Station	Corpus Christi, TX, USA	467
0.5	Big Bend Florida Power and Light Station	Apollo Beach, FL, USA	1500
0.5 – 1.0	Brunswick Seawater Cooling Power Plant	Southport, NC, USA	1428
0.5 – 3.0	Chalk Point Generating Station	Eagle Harbor, MD, USA	360-734
1.0	Logan Generating Station	Swedesboro, NJ, USA	2
1.0 – 2.0	Seminole Generating Station	Palatka, FL, USA	>34
0.5 – 1.0	EPRI 2005 Studies	Narragansett Bay, RI, USA	NA
0.5 – 1.0	EPRI 2005 Studies	Lake Erie, OH, USA	NA
2.0	Swansea Desalination Facility	Hudson River, NY, USA	10
3.0	Gold Coast Desalination Plant	Tugun, Queensland, Australia	90
75	Adelaide Desalination Project	Lonsdale, South Australia	80-160



Note: The screen slot sizes in the left column have been used for entrainment studies at the facilities. Entrainment data from each of these facilities, with the exception of the Australian facilities, are presented in the draft staff report with substitute environmental documentation.

Screen Slot Size

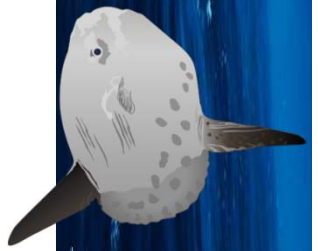
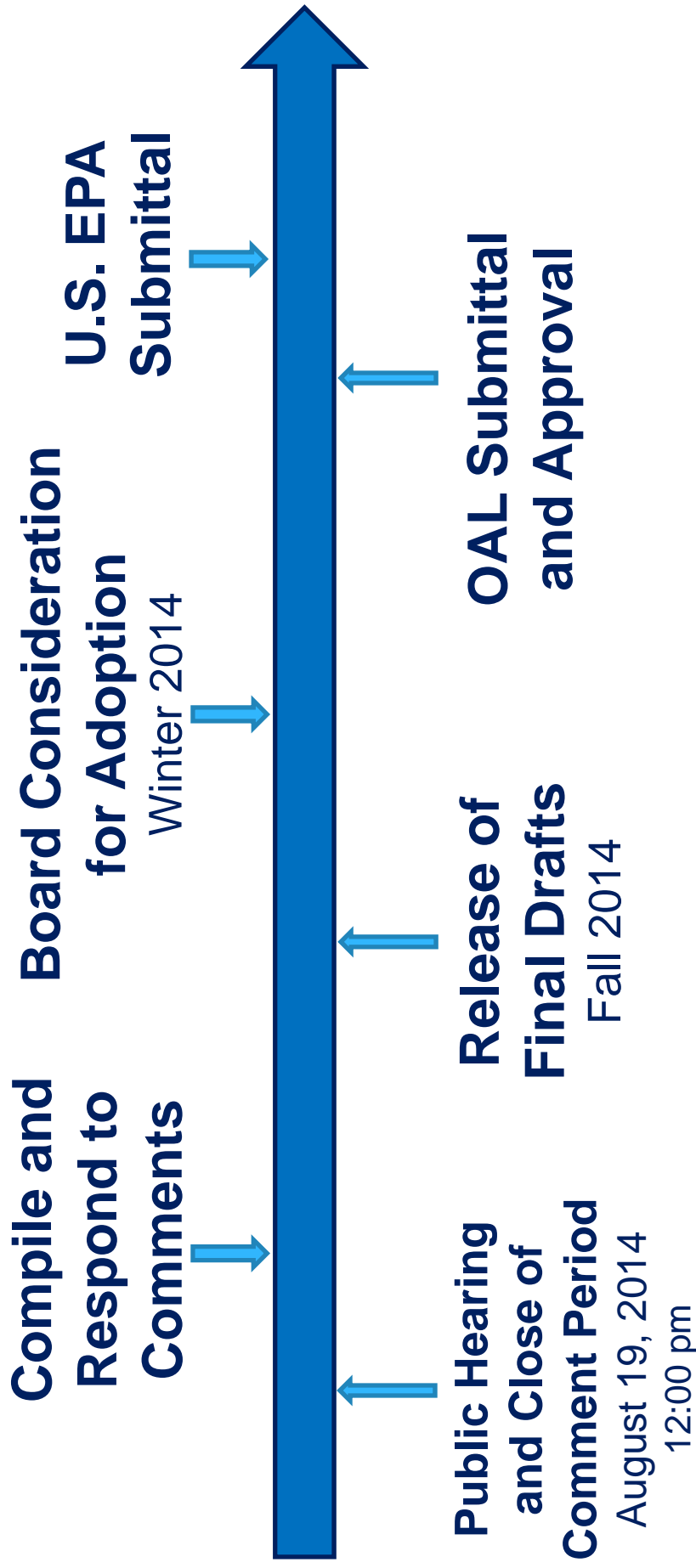


Intake Screens, Inc.

<http://intakescreensinc.com/>



Next Steps





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August 15, 2014

Via Email to: commentletters@waterboards.ca.gov

Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

Dear Ms. Townsend,

Subject: Comment Letter – Desalination Amendments

Thank you for the opportunity to provide comments on the Proposed Amendments to the California Ocean Plan for Desalination Facility Intakes and Brine Discharges.

The Municipal Water District of Orange County (MWDOC) is a member agency of Metropolitan Water District of Southern California (MET) and wholesales imported water to 28 member agencies in Orange County. MWDOC provides multiple regional services, including water use efficiency, water reliability planning, emergency response planning and coordination, and helps to facilitate the development of regional and sub-regional water supply projects.

Since 2004, MWDOC with five participating agencies led the development of the Doheny Ocean Desalination Project, which included construction and testing of the first full scale slant beach well for drawing in ocean water. This method completely avoids impingement and entrainment of marine organisms. Project reports are available on our website and have been previously provided to SWRCB staff.

We are also working with OCWD and our member agencies in the continuing evaluation of the Poseidon Resources proposed Huntington Beach Ocean Desalination Project.

Together with CalDesal, other Ocean Desalination agencies, and with our participating agencies, we have prepared comments on the subject proposed amendment to the Ocean Plan that we consider important to the improvement of the overall objectives of the proposed amendments. We have participated in prior Board workshops and meetings and will continue to offer assistance and our knowledge in helping to develop balanced and effective regulations that achieve the co-equal goals of water quality protection and water supply. SWRCB staff are to be commended in preparing an excellent draft. Our comments are attached.

Sincerely,

Richard B. Bell, PE
Manager, Water Resources and Facility Planning

Attachment

Municipal Water District of Orange County

Comments on

SWRCB July 3, 2014 Draft Amendment to the Water Quality Control Plan for Ocean Waters of California - Desalination Facility Intakes and Brine Discharges

The proposed regulations provide necessary regulatory and project development flexibility, are well written and clear, and very thorough. However, we see areas where improvement should be made to make the draft regulations more effective and to clean up areas where oversights or inconsistencies exist, and where interpretation could lead to unintended constraints. Following are our main comments where the regulations need to be revised.

1. Clean Up Inconsistent Language

Section 13142.5(b) application to intake and brine disposal should be made consistent throughout the document. The terminology, "Best available site, design, technology and mitigation feasible..." needs to be consistently used throughout the document. For example, Page 2 c. and Page 2 2. – "Best available" needs to be inserted before site, and "feasible" inserted after Measures. There are other places in the document where similar abbreviated versions are used and these should be all made the same per 13142.5(b).

2. Page 2 2.a.(1) – Clarification of owner or operator responsibility in project development and design for satisfaction of the requirement "...best available site, design, technology and mitigation measures feasible shall be used to minimize intake and mortality of all forms of marine life..."

Water supply agencies are responsible for developing their projects and have the capability to manage, design, construct and operate/maintain desalination facilities. The responsibility of the Regional Water Boards is to make a determination that Section 13142.5(b) is met by the applicants proposed project. For this reason, we recommend that the second sentence in the first paragraph on Page 2 under item 2.a.(1) be changed to read:

"This request shall include sufficient information that demonstrates that the project provides the best available site, design, technology and mitigation measures feasible which shall be used to minimize the intake and mortality of all forms of marine life in its request for a Water Code section 13142.5(b) determination to for the regional water board to conduct the analyses described below."

3. Need for Ocean Desalination and consistency with regional planning documents.

Page 4. 2.b.(1) Site – This section, under determination of the best available site, brings into the Ocean Plan the determination whether the proposed ocean desalination facility is needed and whether the proposed project is consistent with an integrated regional water management plan or an urban water management plan and County or City general plans regarding growth.

This determination is beyond the scope of the statutory requirement under Section 13142.5 and is not part of the determination of the best available site. We don't see a need for this in the Ocean Plan. Water supply agencies are responsible for determining the need for local resource developments, not the SWRCB or RWQCB's, and these projects would be incorporated in their plans. It should be noted that water agencies develop Water Master Plans, Water Resource Plans, Water Reliability Plans, and Facility Plans which are relied upon for project development decisions. We are recommending that this provision be deleted since it is not a specified part of a Water Quality Control Plan and is not relevant to the regulation of intakes and brine disposal.

4. Section 13142.5(b) Site

Page 4. 2.b.(2) – Change “avoid” to “minimize” to be consistent with Section 13142.5(b).

Page 4. 2.b.(6) – Change the second sentence to read as follows and delete the third sentence:

“Discharges shall be sited at a sufficient distance from a MPA or SWQPA based on dispersion modeling so that there are no significant impacts from the discharge on a MPA or SWQPA ~~and so such~~ that the salinity within the boundaries of a MPA or SWQPA does not exceed the lowest observable effect level for the most sensitive species in the the MPA above the natural background salinity. ~~To the extent feasible, intakes shall be sited so as to maximize the distance from a MPA or SWQPA.~~”

Assuring a “no impact” standard is impossible to comply with as it is possible that some slight increase in salinity from the discharge could reach an MPA or SWQPA under unusual ocean conditions. Since there is natural variation in ocean salinity, it would be difficult to comply with an average condition and this should be changed to not exceeding the natural salinity that would occur at any time. Maximizing the distance from an MPA or SWQPA is limitless, sets no feasible boundary, is a subjective consideration, and could lead to excessive costs to public agencies without any added protective benefit to marine organisms in the MPA or SWQPA. Determination of a reasonable or sufficient distance to be fully protective of the MPA and SWQPA should be determined by the Regional Board with dispersion modeling information provided by the project proponent.

5. Determination that Subsurface Intakes are infeasible by the Regional Board.

Page 6, Section 2d(1)(a)(i) allows the Regional Board to make a determination that subsurface intakes are infeasible based on their analysis of specified criteria, including “presence of sensitive habitats, presence of sensitive species, energy use, impact to freshwater aquifers, local water supply, and existing water users...” This section should allow mitigation of impacts and not be solely used by the Regional Board to determine that a subsurface intake is infeasible due to a finding of the presence of any of these criteria. The following language should be added: “Project mitigation measures and monitoring programs that would minimize impacts to coastal resources shall be considered by the Regional Water Board in such determinations.”

6. As proposed, potential for recycling would prohibit co-disposal of brine with municipal wastewater.

Page 7, Section 2d(2)(a) states that the preferred technology for minimizing mortality of marine life resulting from brine disposal is to “...commingle brine with wastewater...unless the wastewater is of suitable quality and quantity to support domestic or irrigation uses”. We believe this phrase could be misconstrued and could be interpreted to prohibit co-disposal of brine with municipal wastewater if the Regional Board determines that the wastewater is of suitable quality and quantity for future recycling. Water supply agencies are responsible for development of water supply and reliability projects, and would always seek the least cost project that meets the water agencies supply objectives. If a future recycling project is planned, then the wastewater and water agency would determine if sufficient wastewater flows would remain that would be adequate for dilution of the brine or the agency would plan a new brine disposal system. It would be best to delete this phrase and replace it with language that would note something along the lines: “nothing in this section shall prohibit the future recycling of wastewater”.

We recommended that paragraph 2d(2)(a) on page 7 of the consolidated Draft Regulations be changed to read as follows:

“The preferred technology for minimizing intake and mortality of marine life resulting from brine disposal is to commingle brine with wastewater (e.g., agricultural, sewage, industrial, power plant, cooling water, etc.) that would otherwise be discharged to the ocean, ~~unless the wastewater is of suitable quality and quantity to support domestic or irrigation uses.~~ For commingled brine and wastewater discharges, when the combined TDS is near ambient ocean salinity sub-section 2.(c) shall not apply. Nothing in this section shall preclude the future recycling of wastewater.”

7. Page 9 e. Mitigation: Add the following language to the end of the paragraph:

...The owner or operator shall fully mitigate for all marine life mortality associated with the desalination facility. "This provision shall not apply to brine disposal by commingling with wastewater."

8. Requirement for mitigating shearing stress induced mortality and any increase in mortality resulting from a commingled discharge entrainment impact in the Brine Mixing Zone (BMZ).

Page 10 - 2. e.(1)(b) - Existing wastewater agencies are not required to mitigate for the very small entrainment, shearing, or commingling losses that might occur from wastewater disposal within the zone of initial dilution. The SWRCB Expert Panel indicated that the mortality from shearing losses is likely quite small from high pressure jets and would be non-existent in low pressure wastewater outfall diffusers. The Expert Panel also recommended that the toxicity and other requirements of the Ocean Plan should be met at the edge of the brine mixing zone, not someplace inside of the mixing zone. The purpose of the mixing zone is to allow a small area for initial dilution of the brine or commingled wastewater plume. Add the following language to the end of Section (b) on page 10:

"This section does not apply to commingled brine discharges with wastewater."

9. Page 13 Receiving Water Limitation for Salinity - Compliance with "Natural Background Salinity" as worded is non-attainable.

Under Receiving Water Limitations for Salinity, the "natural background salinity" is to be used. The definition provided for "natural background salinity" is a 20 year average or a site specific average based on new data collected at the discharge point on a weekly basis over 3 years. Using long term averages would make it impossible to comply with the allowable 2,000 mg/l maximum incremental increase above ambient or reference salinity when natural salinity levels exceed their average condition. Instead, a reference, moving average background salinity for the site would be a better approach. We would recommend using a 12 month moving average of monthly salinity. More frequent sampling than monthly sampling would not add sufficiently to the accuracy of determining the moving mean for establishing the reference salinity. A moving mean is a better measure as sometimes errors in sampling and analysis can occur.

10. Page 14 - Receiving Water Limitation for Salinity, the Alternate Method should allow use of site specific most sensitive species that are found in the impacted habitat.

To provide for appropriate flexibility without causing any additional impact, site specific habitat species that occur and would be affected by the discharge should be used in the determination of the appropriate receiving water limitation for salinity. For example, it makes no sense to use

rocky habitat species in sandy or muddy bottom habitats and vice versa. It would seem better to use the most sensitive species that have developed protocols for the impacted habitat.

- 11. Page 16 - Definition of BMZ should be specified that it is for dedicated brine disposal discharge lines equipped with multiport diffusers and that it does not apply to conventional wastewater outfalls that may be used for commingling brine for disposal. Further, the BMZ definition should be consistent with the mitigation requirements in the draft amendment and as now written would inadvertently prohibit brine disposal.**

As currently defined, acutely toxic conditions are to be prevented in the BMZ. Whether brine discharge is considered acutely toxic depends on how dilution is factored in. If dilution is not factored in, it would be impossible to prevent acutely toxic conditions. When brine first enters the ocean from the diffuser it is about twice the concentration of seawater undergoing dilution in the BMZ and would be acutely toxic. The very purpose of the BMZ is for dilution of the brine to prevent acute and chronic toxicity from concentrated seawater at the edge of the BMZ. Acute toxicity should be met at the edge of the BMZ as recommended by the Expert Panel (September 23, 2013 workshop presentation and March 2012 Expert Panel Final Report). Granite Canyon Lab work provided chronic toxicity evaluations for brine but not for acute toxicity. It is not possible at this time to know if some distance within the BMZ could be established for acute toxicity as is now provided in NPDES permits for wastewater outfalls for constituents other than salinity.

We recommend that under the definition for BMZ on page 16, that the third sentence of the definition be changed to read as follows:

“The brine mixing zone is an allocated impact zone where water quality criteria can be exceeded as long as acutely and chronic toxic conditions due to elevated salinity are prevented at the edge of the brine mixing zone and the designated use of the ocean water beyond the brine mixing zone is not impaired as a result of the brine discharge mixing zone. This section shall not apply to commingled discharges through existing wastewater outfalls that fall under existing NPDES permits.

- 12. Page 17 – Add Definition of “Feasible”.**

Section 13142.5(b) utilizes the term “feasible”. It is important that this term be defined and be consistently utilized. It should be noted that in the recent Court of Appeals Decision in *Surfrider Foundation v. Cal. Regional Water Quality Control Board* upheld the use of the definition of “feasible” under CEQA. Under CEQA, “feasible” means “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors”. The Coastal Act relies on the same definition. For consistency, the SWRCB should incorporate this same definition and include it under Definitions.

August 19, 2014

Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

SUBJECT: Comment letter – Desalination Amendments

Dear Ms. Townsend:

CalDesal and the Association of California Water Agencies (ACWA) are pleased to submit the following comments in response to the State Water Resources Control Board's (Board) publication of the draft staff report, draft amendment to the Ocean Plan, and the draft substitute environmental documentation. CalDesal members generally find the draft is positive and productive, and we appreciate the opportunities for stakeholder involvement provided by the Board and staff. However, we have several concerns that we wish to bring to your attention.

CalDesal is a nonprofit association of water agencies and other entities that advances the use of desalination and salinity management as important options for local and regional sustainable water supply reliability. CalDesal has actively participated in the Board's California Ocean Plan Amendment process from the start. During this long process, CalDesal has previously raised several issues for the Board to consider in developing regulations specific to desalination facilities, both ocean and groundwater desalination including:

1. The Board should and we believe does recognize desalination as an important local and regional sustainable water supply and reliability option in order to improve water supply reliability, to help reduce reliance on imported water and in the face of climate change, to better meet future regional and local needs.
2. The Ocean Plan Amendments should recognize the site-specific nature and unique marine habitat at each proposed location for a desalination facility. The salinity objective should be based on site-specific species that could be impacted by the facility. Feasible intakes and brine disposal methods require site specific investigation to determine the most cost-effective approach that is protective of water quality and would produce the necessary supply capacity for the project.
3. The Ocean Plan Amendments need to incorporate a definition of "feasibility" that takes into consideration economic feasibility when applying the amendment provisions which is consistent with CEQA.
4. The Ocean Plan Amendments should not identify a preferred "Best Available" technology over others. The Ocean Plan Amendments should establish a standard based on sound science for intakes and brine disposal, and allow a project proponent to develop the most suitable technology and design that meets both the project's capacity needs and that meets the

objectives of Section 13142.5(b) of the water code. There should be only a one track approach to intakes and not the two track approach for intakes as originally proposed by staff.

5. CalDesal is open to a mitigation fee, but we believe it is critical that the fee have a direct nexus to the potential impacts of a project and that it should be calculated and applied one time to cover all marine organism mitigation requirements for a project, inclusive of all state permitting agencies. Assuming the Board is able to develop a mitigation fee that CalDesal and other stakeholders can support, CalDesal submits that each desalination project proponent should have the option of paying the mitigation fee or building their own mitigation project or utilizing an existing restoration project. Moreover, CalDesal is ready to work with the appropriate state agencies to pass legislation to set up the mechanics for the mitigation fee. In addition, the magnitude and significance of the impacts on the overall marine environment should be understood in context to the larger issues of concern: overfishing and pollution.
6. The Ocean Plan Amendments should allow alternative brine discharge technologies where such technologies used in conjunction with site-specific conditions would result in marine life protection comparable to that of other methods that would meet the Section 13142.5(b) requirements. Such technologies include flow augmentation and co-mingling with wastewater discharges. With respect to brine discharge from brackish groundwater recovery facilities, co-mingling with treated municipal wastewater should be allowed as long as receiving water objectives are met. Furthermore, the point of compliance for such facilities should be at the end of the Zone of Initial Dilution for wastewater outfalls or at the end of the Brine Mixing Zone for dedicated multiport brine disposal lines.
7. Existing or planned facilities that have been approved by the California Coastal Commission as of the effective date of the Ocean Plan Amendments should be considered “existing facilities.” Application of the Ocean Plan Amendments to “existing facilities” should be limited to desalination plants that are required to submit a new report of waste discharge due to significant changed conditions. All new and expanding desalination facilities must comply with requirements in the Ocean Plan Amendments. The Ocean Plan Amendments should include an exemption for existing and future facilities with intake capacities less than a certain size to be determined through further discussion between the State Board and stakeholders.
8. CalDesal supports the protection of larval, juvenile, and adult stages of marine life through the use of marine protective technologies (e.g., wedge wire screens) to avoid impingement and minimize entrainment losses. Project applicants should be credited for using such marine protective technologies when calculating Empirical Transport Model (ETM) for mitigation purposes since the ETM methodology assumes open intakes.
9. The entrainment study requirements set forth in the desalination amendments should be consistent with standard protocols for such studies including but not limited to 12 month duration, 335 micron mesh nets, study specific confidence intervals, and allowance for use of existing data collected using standard protocols. The approach recommended by CalDesal, discussed in further detail below, is called the Reproductive Ocean Impact Methodology (ROIM). This procedure synchronizes existing methodologies recommended by the Expert Review Panel’s final report¹, Empirical Transport Model (ETM) and the Area

of Production Forgone (APF). This approach also integrates the Whole Life Cycle Methodology to calculate total entrainment and mitigation.

CalDesal is grateful that the Board staff took into consideration many of our previous comments. However, as indicated earlier, we respectfully submit the attached comments to the current staff draft. CalDesal and our members would be happy to meet with staff to discuss these comments further. Please contact me directly if you have any questions.

Sincerely,

Ron Davis
Executive Director
CalDesal

A handwritten signature in black ink that reads "David E. Bolland". The signature is written in a cursive, slightly slanted style.

David E. Bolland
Senior Regulatory Advocate
Association of California Water Agencies

General Comments

Definition of the term “feasible”

It is important that this term be defined and be consistently utilized. It should be noted that in the recent Court of Appeals Decision in *Surfrider Foundation v. Cal. Regional Water Quality Control Board*, 211 Cal. App. 4th 557 (2012), the court upheld the use of the definition of “feasible” under CEQA. Under CEQA, “feasible” means “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors”. The Coastal Act relies on the same definition. For consistency, the SWRCB should incorporate this same definition and include it under Definitions. Page 17 – Add Definition of “Feasible”:

FEASIBLE means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors.

Clean Up Inconsistent Language

Section 13142.5(b) application to intake and brine disposal should be made consistent throughout the document. The terminology, “Best available site, design, technology and mitigation feasible...” needs to be consistent and used throughout the document. For example, Page 2, sections L.1.c. and L.2. – “Best available” needs to be inserted before site, and “feasible” inserted after Measures. There are other places in the document where similar abbreviated versions are used and these should be all made the same per 13142.5(b).

Application of Water Code Section 13142.5(b)

13142.5(b) Determination Process

Page 2. L.2.a. This section describes how regional boards would conduct 13142.5(b) determinations with guidance from the SWRCB.¹ Their determinations would be based on information provided by the project proponent. We are concerned that the regional boards would in essence have the ability to make critical design decisions regarding intakes, yet lack technical expertise and resources to carry out the provisions in this section. We urge the SWRCB to consider restructuring this section. Project proponents should submit 13142.5(b) studies and determination analysis using the same guidelines described. Regional boards would then be responsible for reviewing the project applicant’s best available site, design, technology and mitigation measures feasible to make their determinations and ensuring it is consistent with this section with support from the SWRCB. We recommend that the second sentence in the first paragraph on Page 2 under item 2.a.(1) be changed to read:

¹ Note that Water Code Section 13142.5(b) governs “new or expanded coastal powerplant or other industrial installation using seawater for cooling, heating, or industrial processing.” It is questionable whether desalinating seawater for potable use should be considered “industrial processing.” The statute appears to cover facilities that use seawater to assist with industrial operations, it does not appear to contemplate the use of seawater as the source and product of treatment. Moreover, it is also unclear whether subsurface intakes would be covered by Section 13142.5(b).

“This request shall include sufficient information that demonstrates that the project provides the best available site, design, technology and mitigation measures feasible which shall be used to minimize the intake and mortality of all forms of marine life in its request for a Water Code section 13142.5(b) determination to for the regional water board to conduct the analyses described below.”

Consultation with other agencies.

Page 3. L.2.a.(4). This provision requires regional boards to consult with other state agencies but states the regional boards would not be limited by prior rulings made by these agencies. Allowing regional boards to add on to rulings made by other agencies after the fact undermines the permitting process and creates regulatory uncertainty. We suggest this section require the regional boards to consult with and make consistent their determinations with other state agencies.

Size of project must be left to the project proponent.

Page 4. L.2.b.(1). This provision (under determination of the best site available), brings into the Ocean Plan the determination whether the proposed ocean desalination facility is needed and whether the proposed project is consistent with an integrated regional water management plan or an urban water management plan and County or City general plans regarding growth. This determination is beyond the scope of the statutory requirement under Section 13142.5, as project size is clearly not part of the determination of the best available site, design, technology or mitigation.

Water supply agencies, not the State Board or Regional Boards, are responsible for determining the need for local resource developments. Water supply agencies typically utilize a diverse set of water sources to provide a reliable supply to ensure that the basic health and safety demands of California can be met on a near- and long-term basis.

Typically, the need and sizing options for a project are considered long before permitting for the project begins. This includes any number of water agency plans and evaluations. Need is considered during the project planning phase and CEQA process before permits such as the Coastal Development and NPDES permit are obtained. This provision has the potential to undermine water agency resource plans, CEQA, and related documents after the fact and is not the function of the Regional Boards.

For these reasons we urge the SWRCB to consider removing this provision. In the event that the SWRCB keeps this provision, it should be expanded to also include water agency Water Master Plans, Water Resource Plans, Regional Integrated Water Resources Plans, Water Reliability Plans, and related facility planning documents.

Intake Regulations

Determination that Subsurface Intakes are infeasible by the Regional Board.

Page 6, L.2.d.(1)(a)i. allows the Regional Board to make a determination that subsurface intakes are infeasible based on their analysis of specified criteria, including “presence of sensitive habitats, presence of sensitive species, energy use, impact to freshwater aquifers, local water supply, and

existing water users...” This section should allow mitigation of impacts and not be solely used by the Regional Board to determine that a subsurface intake is infeasible due to a finding of the presence of any of these criteria. The following language should be added: “Project mitigation measures and monitoring programs that would minimize impacts to coastal resources shall be considered by the Regional Water Board in such determinations.”

Feasibility re: lifecycle cost/site specificity

Page 6. L.2.d.(1)(a)i. on page 6 defines factors to be considered in determining if a sub-surface intake is infeasible, and includes “life-cycle” costs as a factor. We agree that project life-cycle costs should be considered. However, due to site- and project-specific variables, the pre-treatment benefits of sub-surface intakes and related maintenance costs must be considered on a case by case basis. For example, beach wells may encounter Iron and Manganese water quality issues that could require higher pre-treatment costs. Likewise, maintenance costs for infiltration galleries and other alternative intakes are relatively unknown and could be significant. We request the SWRCB consider adding language to clarify that actual life-cycle cost estimates will be used in the feasibility analysis, as generic cost savings estimates would not be applicable to all projects.

Siting Issues

Page 4. L.2.b.(6): This provision requires intakes and outfalls “to the extent feasible” to be sited to maximize the distance from MPAs and SWQPAs. Later provisions also call for using ETM – empirical transport modeling to estimate intake entrainment areas. The ETM entrainment areas for most intakes will almost always include MPAs. New intakes and outfalls are already disallowed in MPAs and other protected areas.

We agree that MPAs and other protected areas are important and need to be considered in the 13142.5(b) determination. Depending on site-specific variables, it is possible that the most protective available intake site might not be the maximum distance from an MPA or MPA cluster. For instance, the maximum distance from two MPAs could be sensitive rocky bottom habitat that could otherwise be avoided. Consider adding language to clarify these types of cases or provide additional guidance.

Also, the presence of a MPA in the ETM zone of a potential intake should not be the grounds for infeasibility for screened or alternative intake. Consider adding a statement that once the 13142.5(b) determinations regarding the best site, design, technology and mitigation are complete, the intakes are sufficiently protective of MPAs. The presence of an MPA in a project’s ETM entrainment zone should not be cause for disallowing a screened open water intake. Otherwise, there would be nowhere along the coast where they could be sited. We would also oppose any effort to make the presence of an MPA in an ETM zone used as justification for additional mitigation in the APF calculations, as they would already be accounted for in the APF methodology. The staff report on page 61, Section 8.4.4 suggests studies may be used “to demonstrate to the regional water boards that a surface intake will not impact a SWQPA or MPA.” We recommend adding this option in the Ocean Plan amendments.

Assuring a “no impact” standard is impossible to comply with as it is possible that some slight increase in salinity from the discharge could reach an MPA or SWQPA under unusual ocean conditions. Since there is natural variation in ocean salinity, it would be difficult to comply with an

average condition and this should be changed to not exceeding the natural salinity that would occur at any time.

Based on these comments, we suggest the following modifications:

Page 4. L2.b.(2) – Change “avoid” to “minimize” to be consistent with Section 13142.5(b).

Page 4. L2.b.(6):

“Discharges shall be sited at a sufficient distance from a MPA or SWQPA based on dispersion modeling so that there are no significant impacts from the discharge on a MPA or SWQPA ~~and so such~~ that the salinity within the boundaries of a MPA or SWQPA does not exceed natural ~~background~~ salinity. ~~To the extent feasible, intakes shall be sited so as to maximize the distance from a MPA or SWQPA.~~”

Combining surface and open ocean intakes

Page 6. L2.d.(1)(a)ii. It is hard to imagine a project where constructing two separate intakes would be a preferred intake alternative. First, there would be the construction costs and marine environment impacts for two intakes instead of one. There would likely also be increased on-shore environmental and land use impacts from additional required infrastructure. The added construction and mitigation costs would likely make this option infeasible from a life-cycle cost perspective. Also, using a combination of intakes creates potential treatment design and operational issues due to the different source water qualities.

For these reasons, we request the SWRCB to consider removing this provision or at least clarifying how it would and when it would be applied.

Recommendation for screen size is 1mm.

Page 6. L2.d.(1)(c)ii: The SWRCB has solicited advice for what screen size to require for open water intakes. We note first that wedge-wire and related screens have not been implemented in a full scale project in the marine environment, and project proponents are acting in good faith in supporting this alternative and performing additional research to ensure this is a viable option and protective of the marine environment.

West Basin MWD (West Basin) has completed several studies of wedge-wire screen performance in the past few years. West Basin’s most recent research evaluated 0.5 mm, 1.0 mm, and 2.0 screens in real-world operating conditions. The results of the study showed 0.5 mm screens are susceptible to fouling and clogging in real-world conditions, whereas 1.0 mm and 2.0 mm screens were significantly less prone to fouling. Screen fouling is a crucial factor in slot size selection. Frequent fouling increases intake maintenance costs and potentially elevates intake velocities in areas of the screens that are not fouled. Results of West Basin’s studies, as well as similar studies performed by the Santa Cruz Water District, have been provided to SWRCB staff and the expert panels. West Basin is conducting additional studies on material selection for wedge-wire screens to address the high corrosion and biofouling potential of the marine environment. CalDesal supports West Basin’s recommendation that the SWRCB require a slot size of no smaller than 1.0 mm. Screens with 1.0 mm slot sizes can eliminate impingement, and balance significantly reduced entrainment impacts with minimized screen fouling.

Brine Disposal, Discharge and Receiving Water Limitations

As proposed, potential for recycling would prohibit co-disposal of brine with municipal wastewater.

Page 7. L.2.d.(2)(a). For this provision, we suggest the following modification:

“The preferred technology for minimizing mortality of marine life resulting from brine* disposal is to commingle brine* with wastewater (e.g., agricultural, sewage, industrial, powerplant cooling water, etc.) that would otherwise be discharged to the ocean, ~~unless the wastewater is of suitable quality and quantity to support domestic or irrigation uses.~~”

We deleted “unless the wastewater is of suitable quality and quantity to support domestic or irrigation uses” for a number of reasons. First, while water reuse and recycling should certainly be encouraged many factors play into whether reuse and recycling are feasible, and it should be up to the water agencies to determine whether the water can be reused or recycled. The suitability of the water in and of itself should not preclude a desalination facility from being able to commingle its brine effluent with the wastewater. In any event, if a future recycling project is planned which may reduce the volume of wastewater available for the dilution of brine, a regional water board may condition the permit on the availability of the wastewater pursuant to Section L.2.a.(5).

For purposes of commingling brine discharge with wastewater for disposal, the standard water quality objectives, testing and mixing zone analysis appropriate to POTW discharges should apply. Such standards allow for a zone of initial dilution and impacts are assessed outside of this zone of initial dilution. This is consistent with the Expert Panel’s recommendation that brine discharge be regulated by the mixing zone approach where water quality standards must be met at the mixing zone boundary:

“Because discharges can be designed to result in rapid initial dilution around the discharge, we recommend that they be regulated by a mixing zone approach wherein the water quality regulations are met at the mixing zone boundary. The mixing zone should encompass the near field processes, defined as those influenced hydrodynamically by the discharge itself. These processes typically occur within a few tens of meters from the discharge, therefore we conservatively recommend that the mixing zone extend 100 m from the discharge structure in all directions and over the whole water column.”

(Management of Brine Discharges to Coastal Waters Recommendations of a Science Advisory Panel, March 2012, Executive Summary at ii) (emphasis added).

“Water quality objectives must be met at the edge of a regulatory mixing zone that extends vertically through the water column up to 100 m from the discharge structure in all directions.” (Id. at 45)

To require impact analysis and mitigation of these impacts within the brine mixing zone appears to be inconsistent with the Expert Panel’s recommendation and the existing regulatory scheme. As such, we propose the following modifications:

Page 7. L.2.d.(2)(c).

“the owner or operator to analyze the brine* disposal technology or combination of brine* disposal technologies that best reduces the effects of the discharge of brine* on marine life due to intake-related entrainment, osmotic stress from elevated salinity,* turbulence that occurs during water conveyance and mixing, and shearing stress at the edge of the brine mixing zone or zone of initial dilution ~~point of discharge.~~”

Page 8. L.2.d.(2)(d).

“Brine* disposal technologies other than wastewater dilution and multiport diffusers,* such as flow augmentation,* may be used if an owner or operator can demonstrate to the regional water board that the technology provides a comparable level of protection. The owner or operator must evaluate all of the individual and cumulative effects of the proposed alternative discharge method on marine life mortality, including (where applicable); intake-related entrainment, osmotic stress, turbulence that occurs during water conveyance and mixing, and shearing stress at the edge of the brine mixing zone or zone of initial dilution ~~point of discharge.~~ . . .”

Brine Mixing Zone and Mitigation

Page 9. L.2.e. For facilities which commingle brine with wastewater as a discharge option, the NPDES permit governing the wastewater discharge should be fully protective of marine life impacts. So long as the brine does not result in any exceedance of NPDES permit limits, compliance at the edge at the zone of initial dilution should be sufficiently protective of marine life impacts and should not require any further mitigation. Consistent with the above comments on brine mixing zone and compliance, we suggest the following changes to this provision:

“Mitigation for the purposes of this section is the replacement of marine life or habitat that is lost due to the construction and operation of a desalination facility* after minimizing marine life mortality through site, design, and technology measures. The owner or operator may choose whether to satisfy a facility’s mitigation measures pursuant to chapter III.L.2.e.(3) or, if available, L.2.e.(4). The owner or operator shall fully mitigate for all marine life mortality associated with the desalination facility.* With respect to brine disposal, where wastewater is commingled with brine as a disposal option, so long as the NPDES permit discharge water quality standards are met, compliance at the edge of the zone of initial dilution* shall be presumed to be fully protective of marine life impacts sustained from brine disposal.”

Brine Discharges and Shear Stress Mortality

As discussed above, analysis of impact should occur outside of the mixing zone or zone of initial dilution. The requirement to evaluate shearing impacts should not apply to commingled brine/wastewater discharge. Existing POTWs are not required to mitigate for entrainment and shearing losses that might occur from wastewater disposal within the zone of initial dilution. Such losses are expected to be quite low or non-existent for the low pressure wastewater outfall diffusers. The Expert Panel recognized that there is no published evidence of mortality due to diffuser jets and that shearing losses from diffusers would likely be low because exposure to damaging turbulence is on the order of seconds. (See Desalination Plant Entrainment Impacts and Mitigation, October 9, 2014 at p.3). The Expert Panel noted that “literature reports of damage to larvae caused by turbulence are generally based on longer exposure times.” (See id.). Given the lack of scientific evidence demonstrating the potential for mortality impacts from diffusers, we recommend the following modifications to this provision:

Page 9. L.2.e. Add the following to the end of the paragraph:

...The owner or operator shall fully mitigate for all marine life mortality associated with the desalination facility. “This provision shall not apply to brine disposal by commingling with wastewater.”

Page 10. L.2.e.(1)(b) Modify as follows:

“For operational mortality related to discharges, the report shall estimate the area in which salinity* exceeds 2.0 parts per thousand above natural background salinity* or a facility-specific alternative receiving water limitation (see § L.3) outside of the brine mixing zone* or zone of initial dilution*. The area in excess of the receiving water limitation for salinity* shall be determined by modeling and confirmed with monitoring. The report shall use any acceptable approach for evaluating mortality that occurs due to shearing stress resulting from the facility’s discharge, ~~including any incremental increase in mortality resulting from a commingled discharge.~~ “This section does not apply to commingled brine discharges with wastewater.”

Receiving Water Limitation for Salinity - Compliance with “Natural Background Salinity” as worded is non-attainable.

Page 13. L.3. Under Receiving Water Limitations for Salinity, the “natural background salinity” is to be used. The definition provided for “natural background salinity” is a 20 year average or a site specific average based on new data collected at the discharge point on a weekly basis over 3 years. Using long term averages would make it impossible to comply with the allowable 2,000 mg/l maximum incremental increase above ambient or reference salinity when natural salinity levels exceed their average condition. Instead, we would recommend using natural salinity conditions.

Receiving Water Limitation for Salinity, the Alternate Method should allow use of site specific most sensitive species that are found in the impacted habitat.

Page 14. L.3.c.(1)(b). To provide for appropriate flexibility without causing any additional impact, site specific habitat species that occur and would be affected by the discharge should be used in the determination of the appropriate receiving water limitation for salinity. For example, it makes no

sense to use rocky habitat species in sandy or muddy bottom habitats and vice versa. It would seem better to use the most sensitive species that have developed protocols for the impacted habitat. Otherwise, this provisions undermines the site-specific allowances in the provision, as the limit would never be lower than the 2,000 mg/L found in the expert panel.

Receiving Water Limitation for Salinity: No Observed Effect Level versus Lowest Observable Effect Level

Page 14. L.3.c.(3). The procedure set forth in the OPA for establishing facility-specific receiving water limits uses a *different, and more restrictive*, standard of salinity than the standard that is used as a guideline throughout the entire draft OPA. Throughout the draft OPA, and throughout Roberts et al. 2012 (upon which much of the draft OPA is based), it is stated that red abalone are the most sensitive species tested, with a LOEL (Lowest Observable Effect Level) of 35.6 ppt – or approximately 2.1 ppt above ambient (in southern California waters). Thus, it is argued, a maximum regulatory salinity increase of 2 ppt is reasonable because it protects the most sensitive species. However, the language in the draft OPA for alternative receiving water limitations uses a completely different standard, which is NOEL (No Observable Effect Level). The NOEL value, according to Philips et al. (2012) is 34.9 ppt, or approximately *only 1.4 ppt above ambient* (in southern California waters). Consequently, an operator that wishes to establish a site-specific receiving water limit under the OPA is being held to a more restrictive salinity standard. CalDesal requests that the OPA be amended such that the facility-specific alternative receiving water standard be based on the same standard that will be used to establish the statewide receiving water limit of 2 ppt – the lowest observed effect level (LOEL).

Monitoring Reporting Plan and Brine Mixing Zones

Page 16. L.4.a.(1): “Facility-specific monitoring” should be clarified, particularly for commingled brine and wastewater facilities. Such monitoring should occur in the receiving waters at stations representative of the area within the waste field where initial dilution is completed, i.e., at the edge of the brine mixing zone or zone of initial dilution. In addition, we recommend the following changes to this provision:

“An owner or operator must perform facility-specific monitoring to demonstrate compliance with the receiving water limitation for salinity,* and evaluate the potential effects of the discharge within the water column, bottom sediments, and the benthic communities. Facility-specific Monitoring is required until the regional water board determines that a regional monitoring program is adequate to ensure compliance with the receiving water limitation. Receiving water monitoring for salinity shall be conducted at the boundary of the defined brine mixing zone* or zone of initial dilution* and shall be conducted at times when the monitoring locations are most likely affected by the discharge. The monitoring and reporting plan shall be reviewed, and revised if necessary, upon NPDES permit renewal. The regional water board may require additional monitoring at the desalination facility, however, compliance with water quality objectives is to be determined at the edge of the brine mixing zone* or zone of initial dilution*.”

Definition of Brine Mixing Zone

Page 16. The Definition of Brine Mixing Zone (BMZ) should be specified that it is for dedicated brine disposal discharge lines equipped with multiport diffusers and that it does not apply to

conventional wastewater outfalls that may be used for commingling brine for disposal. Further, the BMZ definition should be consistent with the mitigation requirements in the draft amendment and as now written would inadvertently prohibit brine disposal.

As currently defined, acutely toxic conditions are to be prevented in the BMZ. Whether brine discharge is considered acutely toxic depends on how dilution is factored in. If dilution is not factored in, it would be impossible to prevent acutely toxic conditions. When brine first enters the ocean from the diffuser it is about twice the concentration of seawater undergoing dilution in the BMZ and would be acutely toxic. The very purpose of the BMZ is for dilution of the brine to prevent acute and chronic toxicity from concentrated seawater at the edge of the BMZ. Acute toxicity should be met at the edge of the BMZ as recommended by the Expert Panel (September 23, 2013 workshop presentation and March 2012 Expert Panel Final Report). Granite Canyon Lab work provided chronic toxicity evaluations for brine but not for acute toxicity. It is not possible at this time to know if some distance within the BMZ could be established for acute toxicity as now done in the NPDES permits for wastewater outfalls for constituents other than salinity.

We recommend that under the definition for BMZ on page 16, that the third sentence of the definition be changed to read as follows:

“The brine mixing zone is an allocated impact zone where water quality criteria can be exceeded as long as acutely and chronic toxic conditions due to elevated salinity are prevented at the edge of the brine mixing zone and the designated use of the ocean water beyond the brine mixing zone is not impaired as a result of the brine discharge ~~mixing zone~~.”

The draft Desalination Amendments also propose to limit the salinity increase to a maximum of 2 ppt over natural ocean salinity background, at a fixed distance of 100 meters from the point of discharge. The distance of 100 meters appears to be based on the multiport diffuser. (Staff Report at page 98). The Desalination Amendments definition for brine mixing zone includes a mechanism for establishing a larger brine mixing zone: “the brine mixing zone shall not exceed 100 meters ... unless otherwise authorized in accordance with this plan.” However, the Desalination Amendments currently do not include a process for establishing a larger brine mixing zone, which would limit the brine discharge to the multiport diffuser. This appears to be an oversight, and we recommend that it be addressed in follow-up revisions.

Add definition of “zone of initial dilution”:

Page 18. Definitions. We recommend the following definition be added to the amendment to the extent our proposed language above is adopted:

“ZONE OF INITIAL DILUTION is a regularly shaped area (e.g., circular or rectangular) surrounding the discharge structure (e.g., submerged pipe or diffuser line) that encompasses the regions of high (exceeding standards) pollutant concentrations under design conditions.

Comments on Mitigation Provisions

Mitigation for Intakes

The following comments 1 through 4 apply to page 9-10, Section L.2.e.(1)(a):

L.2.e.(1)(a). Comment 1: Entrainment study duration:

The OPA should permit the use of 12 months of entrainment data which conforms to the guidelines for entrainment impact assessment included in Appendix E of the Staff Report. (Guidance Documents for Assessing Entrainment Including Additional Information on the Following Loss Rate Models: Fecundity Hindcasting (FH), Adult Equivalent Loss (AEL) and Area of Production Forgone using an Empirical Transport Model (ETM/APF)). These guidelines, written by members of the SWRCB's Expert Review Panel, state that entrainment sampling that is done for 12 months is a reasonable period of sampling because the entrainment estimated by the ETM method is "much less subject to inter-annual variation. (Id. at 97.) Therefore, a 12 month study would be adequate to account for variation in oceanography conditions and larval abundance and diversity such that the abundance estimates are reasonably accurate. All of the intake assessments in California, except one, have been conducted for a period of one year. A 36 month study would be excessive and would cause potentially costly delays in project development. We urge the SWRCB to change the entrainment study period from 36 consecutive months to 12 consecutive months.

L.2.e.(1)(a). Comment 2: 200 micron mesh not required:

As noted on page 70 of the Staff Report, the Expert Review Panel III recommended the ETM/APF method that relies on the 335 micron mesh net to calculate mitigation levels because:

- This method has historically been used in California to determine mitigation for entrainment at power plants and is widely accepted in the scientific community;
- Compensates for all entrained species and not just commercially valuable fish taxa;
- Utilizes representative species (e.g. fish larvae sampled using a 335 micron mesh net) that can be used as proxy species for rare, threatened, or endangered species, which may be challenging to acquire adequate data for. The creation of habitat benefits all species in the food web regardless of whether or not they were assessed in the ETM/APF model.

L.2.e.(1)(a). Comment 3: 90 percent confidence interval:

Section L2e(1)(a). The uniform application of a 90 percent confidence interval does not take into consideration the varying levels of uncertainty associated with ETM/APF estimates. This proposal should be submitted for peer review by the Intake Expert Review Panel for review and guidance on development of a methodology for establishing the appropriate confidence interval based on site-specific interpretation of site specific entrainment data.

This is a concern because specifying a 90% confidence interval also has the potential to exponentially increase the acreage of land necessary to insure compliance if individual species curves are used. Appendix E shows exponential increases in required acreage after the 60% confidence interval. In Appendix E-164, the mitigation calculation for the Encina plant increases as much as 1.5 times from 80% to 90% confidence interval if individual species curves are used. If the SWRCB keeps the 90% confidence interval in the regulations, it should be based on the "Means of species" and not "Measurements from individual species" as shown in Appendix E.

L.2.e.(1)(a). Comment 4: Use of existing entrainment data:

Consistent with Section L2d(1)(c)iii, the OPA should allow the use of existing entrainment data that meets the guidelines in Appendix E.

Base on comments 1 – 4, CalDesal recommends the following revisions to L.2.e.(1)(a), pages 9-10:

For operational mortality related to intakes, the report shall include a detail entrainment study. The entrainment study shall be ~~at least 36~~ 12 consecutive months and sampling shall be designed to account for variation in oceanographic conditions and larval abundance and diversity such that abundance estimates are reasonably accurate. At their discretion, the regional water boards may permit the use of existing entrainment data for the facility to meet this requirement. Samples must be collected using a mesh size no larger than 335 microns and individuals collected to the lowest taxonomical level practicable. ~~Additional samples shall also be collected using 200 micron mesh to provide a broader characterization of other entrained organisms.~~ The ETM/APF analysis* shall be representative of the entrained species collected using 335 micron net. The APF* shall be calculated using a ~~90-95 percent~~ confidence interval between 50 and 90 percent to account for variation in the site-specific entrainment data. The actual confidence interval to be used by the regional water boards shall be consistent with the procedures established by the Intake Expert Review Panel . An owner or operator with subsurface* intakes is not required to do an ETM/APF analysis* for their intakes and is not required to mitigate for intake-related operational mortality. The regional water boards shall permit the use of existing entrainment data from the facility from studies conducted in conformance with the Guidelines for Entrainment Impact Assessment set forth in Appendix E.

Mitigation in brine mixing zone

Page 10. L.2.e.(1)(b). Standard practice under the Ocean Plan is that dischargers do not mitigate for impacts within the ZID. Consistent with this approach, CalDesal recommends the following changes to this paragraph:

~~For operational mortality related to discharges, the report shall estimate the area in which salinity* exceeds 2.0 parts per thousand above natural background salinity* or a facility specific alternative receiving water limitation (see § L.3). The area in excess of the receiving water limitation for salinity* shall be determined by modeling and confirmed with monitoring. The report shall use any acceptable approach for evaluating mortality that occurs due to shearing stress resulting from the facility's discharge, including any incremental increase in mortality resulting from a commingled discharge. No mitigation shall be required for brine concentrations in excess of 2 ppt in the brine mixing zone.~~

The following four comments apply to mitigation project requirements

Page 11, Section L.2.e.(3)(b)ii:

APF sizing determinations

Page 11. L.2.e.(3)(b)ii. Consistent with past APF siting and sizing determinations, the OPA should provide the regional water board sufficient flexibility to adjust the mitigation acreage as needed based on the expected productivity of the type of mitigation to be provided compared to the actual productivity within the facility's source water body. For example, the Coastal Commission (CCC) determined that 64 acres were needed to mitigate for the open ocean species entrained by the Carlsbad project. However, in recognition of the impracticality of creating 64 acres of offshore open water habitat and recognizing the relatively greater productivity rates per acre of estuarine wetlands habitats, the CCC allowed the offshore impacts to be "converted" to estuarine mitigation areas. The

CCC determined that successfully restored wetland habitat would be ten times more productive than a similar area of nearshore ocean waters. Based on this determination, for every ten acres of nearshore impacts, the Carlsbad project was allowed to mitigate by creating or restoring one acre of estuarine habitat. Although this approach would result in “out of kind” mitigation, the CCC found it would produce overall better mitigation because not only is it not practical to create nearshore, open water habitat, and that habitat type is already well-represented along the shoreline. Whereas creating or restoring coastal estuarine habitat types would support a long-recognized need to increase the amount of those habitat types in Southern California. (See E-06-013 – Condition Compliance for Special Condition 8, Poseidon Resources Corporation, Marine Life Mitigation Plan, December 8, 2008.)

Location of the mitigation project.

Page 11. L.2.e.(3)(b)ii. Given the limited number of suitable mitigation sites, it would be impractical to limit site selection to the facility’s source water body. Consistent with past mitigation siting determinations, the OPA should provide the regional water board sufficient flexibility to site the mitigation acreage as needed based on the availability of suitable mitigation sites. For example, the CCC allowed the Carlsbad project to select from a number of suitable sites in the Southern California Bight for its restoration project. Following an exhaustive search in and around the Carlsbad facility’s source water, the Coastal Commission (CCC) determined that there were no suitable mitigation sites located directly with the project’s source water body, and the best available mitigation site for the Carlsbad project was located at the south end of San Diego Bay, a distance of 50 miles from the facility (See E-06-013 – Condition Compliance for Special Condition 8, Poseidon Resources Corporation, Marine Life Mitigation Plan, December 8, 2008.)

200 Micron Mesh.

Page 11. L.2.e.(3)(b)ii. See comment 2 above. See also Expert Review Panel Report on Intake Impacts and Mitigation. Specifically page 1 of Appendix 1 which states in part: “The key assumption of APF that makes it useful ... it should reflect the impacts to measured and unmeasured resources (e.g., to invertebrate larvae). This is because its calculation assumes that those species assessed [those species captured on the 335 micron mesh] are representative of those not assessed [those species smaller than 335 micron]. Practically, this means that should the amount of habitat calculated using APF be created or substantially restored, the habitat will support species that were assessed as well as those that were not assessed in the ETM. Importantly, that amount of habitat will also compensate for impacts to species only indirectly affected. This means that should the mitigation take place according to APF estimates there will be no net impact.”

Compensatory Acreage for Mitigation Projects

Page 11. L.2.e.(3)(b)ii. This provision also requires that “compensatory acreage” be added to a mitigation project if the mitigated area is affected by entrainment from the facility. It has the potential to create an endless loop where increased mitigation leads to increased entrainment requiring increased mitigation. Also, if the goal of mitigation is to restore similar habitat near the project site, this provision creates an incentive to locate projects far from the project. To avoid this possibility we suggest removing this provision.

Based on the four proceeding comments, CalDesal recommends the following revisions to Page 11. L.2.e.(3)(b)ii.

The owner or operator shall demonstrate that the project fully mitigates for intake-related marine life mortality by including acreage that is at least equivalent in size, of the APF* calculated in the Marine Life Mortality Report above, unless the regional water board determines that the mitigation habitat is of higher productivity than the facility's source water body (e.g., open ocean vs. estuarine mitigation habitat), in which case, the regional water board shall adjust the quantity of the mitigation acreage such that the productivity of the mitigation habitat provided matches that of the APF times the productivity of the source water body. The owner or operator shall attempt to locate the mitigation project within the facility's source water body,* and shall do modeling to evaluate the areal extent of the mitigation project's production area* ~~to confirm it overlaps the facility's source water body.* Impacts on the mitigation project due to entrainment by the facility must be offset by adding compensatory acreage to the mitigation project. The regional water board may require additional habitat for entrained organisms between 200 and 335 microns.~~

Mitigation ratio should be linked to quality of restored habitat.

Page 39, Section L.2.e. (3)(b) iii: Similar to the above comments, we recommend changes to this provision.

The owner or operator shall demonstrate that the project also fully mitigates for the discharge-related marine life mortality projected in the Marine Life Mortality Report. If the regional water board determines that the mitigation habitat is of higher productivity than the facility's source water body (e.g., open ocean vs. estuarine mitigation habitat), the regional water board shall adjust the quantity of the mitigation acreage required such that the productivity mitigation habitat provided fully mitigates for the discharge-related marine life mortality projected in the Marine Life Mortality Report. For each acre of discharge-related disturbances as determined in the Marine Life Mortality Report, an owner or operator shall restore one acre of habitat unless the Board determines that a mitigation ratio ~~greater~~ less than 1:1 is warranted due the higher productivity of the mitigation site compared to that of the disturbed area. ~~If needed.~~

Mitigation of construction related marine life impacts.

Page 12, Section L.2.e.(3)(b)iv. The following changes are intended to be consistent with the statement in OPA section 2.e.(1).(c) which states the regional water board may determine that the construction-related disturbance does not require mitigation because the disturbance is temporary and the habitat is naturally restored.

The owner or operator shall demonstrate that the project also fully mitigates for ~~the any~~ any permanent construction-related marine life mortality projected in the Marine Life Mortality Report. For each acre of discharge-related disturbances as determined in the Marine Life

Mortality Report, an owner or operator shall restore one acre of habitat unless the Board determines that a mitigation ratio ~~less~~ ~~greater~~ than 1:1 is warranted due the higher productivity of the mitigation site compared to that of the disturbed area. The regional water board may determine that the construction-related disturbance does not require mitigation because the disturbance is temporary and the habitat is naturally restored, or has otherwise been mitigated by the owner or operator.

Mitigation Fee Flexibility

Page 12, Section L.2.d.(4). SWRCB should permit both mitigation projects and a mitigation fee to account for the total facility impact and mitigation and not leave this decision up to the RWQCB. If and when a fee-based mitigation option is developed, we recommend the provision include assurances that the mitigation paid for covers the total required mitigation for all permitting agencies. We recommend the following revision for this section:

The SWRCB will allow both a project and fee based mitigation approach for a facilities impacts to be allowed. The mitigation fee should pay into a mitigation project that meets the requirements of L.2.e.(3).

SED Comments

We believe that the substitute environmental documentation (SED) is flawed in so far as it fails to consider the impacts of the proposed regulations to the extent that the regulations may limit ocean desalination and reduce the capacity of potential desalination projects due to additional costs and intake and discharge requirements. The threshold of significance referenced by the SED is that desalination projects in general can cause significant impacts to utilities and service systems if the Draft Amendments (the project) were to “require or result in the construction of new water or wastewater treatment facilities or the expansion of existing facilities, the construction of which could cause significant environmental effect.” (SED at p. 171). In their present form, the Draft Amendments present significant obstacles to ocean desalination projects including but not limited to the following:

- Requirement of subsurface intakes unless the regional water board determines that subsurface intakes are infeasible (L.2.d.(1)(a));
- Possible requirement of a less than 1.0 mm slot size screen for surface water intakes (L.2.d.(1)(c)(ii));
- Wholesale restriction on commingling brine with treated wastewater where the wastewater is of suitable quality and quantity to support domestic or irrigation uses (L.2.d.(2)(a)); and
- Requirements to analyze impacts at the point of discharge as opposed to the edge of the brine mixing zone (or zone of initial dilution for wastewater outfalls) (L.2.d.(2)(c) and (d)).

As discussed above, many of these requirements as written (and others) are problematic for water agencies, and they could preclude the development of many ocean desalination projects. If future ocean desalination projects are included in the water agencies’ plans and such projects are removed, other water supply projects or expansion of existing projects must be implemented. These potential replacement projects should have been analyzed for potential impacts.

Furthermore, the SED regulations state:

“In the preparation of the environmental analysis contained in subdivision (b)(4) [environmental analysis of reasonably foreseeable methods of compliance], the board may utilize numerical ranges or averages where specific data are not available; however, the board shall not be required to engage in speculation or conjecture. The environmental analysis shall take into account a reasonable range of environmental, economic, and technical factors, population and geographic areas, and specific sites, but the board shall not be required to conduct a site specific project level analysis of the methods of compliance, which CEQA may otherwise require of those agencies who are responsible for complying with the plan or policy when they determine the manner in which they will comply.” (27 C.C.R. § 3777(c)).

We believe that the SED fails to perform an adequate environmental analysis of reasonably foreseeable methods of compliance. The SED purports to analyze the reasonably foreseeable

methods of compliance in the analysis of project alternatives yet it does not seem that economic and technical factors have been adequately considered. For example, such factors do not appear to have been adequately considered in the obstacles described above.

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August 18, 2014

State Water Resources Control Board
Attention: Jeanine Townsend, Clerk of the Board
1001 I Street, 24th Floor
Sacramento, CA 95814

RE: AGENDA ITEM No. 9

COMMENTS RE PROPOSED AMENDMENTS TO THE WATER QUALITY CONTROL PLAN FOR OCEAN WATERS OF CALIFORNIA (OCEAN PLAN) ADDRESSING DESALINATION FACILITY INTAKES, BRINE DISCHARGES, AND OTHER NON-SUBSTANTIVE CHANGES (DESALINATION AMENDMENTS), AND THE DRAFT STAFF REPORT, INCLUDING THE DRAFT SUBSTITUTE ENVIRONMENTAL DOCUMENTATION (SED)

Dear Chairwoman Marcus and Members of the Board:

Our office represents Mesa Water District ("Mesa Water"). On behalf of Mesa Water, we appreciate the opportunity to comment on the State Water Resources Control Board's (hereinafter "State Board" or "Board") Draft Staff Report including the Draft Substitute Environmental Documentation ("SR/SED") for the "Amendment to the Water Quality Control Plan for Ocean Waters of California" addressing "Desalination Facility Intakes, Brine Discharges, and the Incorporation of Other Nonsubstantive Changes" ("Amendment").

Since 1960, Mesa Water has provided water service to residents in the City of Costa Mesa, parts of Newport Beach, and some unincorporated sections of Orange County, including the John Wayne Airport.

Given the water supply challenges facing California, multiple water sources will be necessary to meet future needs. Mesa Water supports the development of cost-effective and environmentally-sensitive sources of water, including recycling, groundwater cleanup, water use efficiency and conservation, and desalination. As you know, ocean desalination offers a variety of benefits, four (4) of which merit noting:

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- (1) A safe and reliable water supply source that is functionally independent of regional water conveyance systems and their associated seismic vulnerability and susceptibility to interruption due to regulatory, supply or environmental constraints;
- (2) A reduced dependence on limited State Water Project supplies and sensitive Delta habitat;
- (3) Alleviating the burden on both freshwater sources which have associated environmental and regulatory constraints, and groundwater supplies which are often limited due to contamination, overdraft or water rights issues; and,
- (4) The opportunity for local agencies to have greater control of their water supplies.

The need for quickly ensuring desalination facilities are available is underscored by the Governor's declaration that California is in an "Extreme Drought" condition, noting that "the driest months are still to come in California and extreme drought conditions will get worse...". With this in mind, Mesa Water's fundamental concern is that the SR/SED and Regulations, as proposed, may jeopardize, delay, or add unnecessary or unclear regulatory and economic burdens to this essential water supply source, thereby impacting the State's and Mesa Water's ability to meet water supply needs.

Mesa Water recognizes and appreciates the enormous task that the State Board and Staff have undertaken in this effort, and understands that the intent was to create guidance that is protective of the environment and "seeks to ensure an efficient approach to permitting desalination facilities to address needed water supplies," with the limited resources at the Regional Water Board level. However, Mesa Water believes that, if the Amendment to the Ocean Plan is adopted "as is", the unintended effect of the Regulations would result in greater regulatory burden at the State and local Regional Water Board level, as well as conflict with other relevant State policies related to water supply planning. Among these are various existing and proposed policies including those set forth in the 2013 California Water Plan Draft Update, excerpted below:

"Policy 1 – The State recognizes that desalination is an important water supply alternative and, where economically, socially and environmentally appropriate, should be part of a balanced water supply portfolio, which includes other alternatives such as conservation and water recycling."

"Policy 6 – Desalination should be evaluated using the same well-established planning criteria applied to all water management options, using feasibility criteria such as: water supply need within the context of community and regional planning, technical feasibility, economic feasibility, financial feasibility, environmental feasibility, institutional feasibility, social impacts, and climate change. The California Desalination Planning Handbook published by DWR should be one of the resources used by water supply planners..."

"Policy 8 – DWR, in collaboration with regulatory agencies, should lead an effort to create a coordinated streamlined permitting process for desalination projects. Because of the many regulatory agencies involved in desalination of ocean, bay or estuarine waters, a coordinated

framework to streamline permitting approvals without weakening environmental and other protections should be explored. Establishing an appropriate sequencing of approval by the various agencies may be appropriate. The Ocean Protection Council may be appropriate for the role of coordinating regulatory reviews and guiding project sponsors through the regulatory process..."

I. INTRODUCTION

Mesa Water welcomes the opportunity to continue an open dialogue with the Board in developing Regulations that meet the Board's objectives while recognizing the importance of considering financial feasibility and the need for site-specific considerations in designing, evaluating, and permitting ocean desalination facilities.

Specifically, it provides these comments to ensure compliance with all applicable laws and to avoid any potential delay in pursuit of additional sources of water for Mesa Water's customers. The below highlights the SR/SED's inadequate analysis of the Amendment, which violates the California Environmental Quality Act ("CEQA"), the State Board's SED regulations and the California Coastal Act. This conclusion is supported by an analysis from experts at MBC Applied Environmental Sciences that address the SR/SED's (and supporting documentations) technical analysis of impacts to marine life. (See attached Exhibits A and B.)

As more fully discussed below, the SR/SED fails as an informational document. Specifically, it fails: (1) to adequately define the Project as it does not accurately reflect the actual intended action of the regulations nor their reasonably foreseeable future effects; (2) to analyze all significant environmental impacts of the Project as it is limited to a less than one page discussion for five topical impacts; and (3) to properly analyze Project alternatives. Stated differently, the SR/SED's analysis is deficient because it omits relevant data and rather than thoroughly analyzing the proposed Amendment's environmental impacts, it analyzes desalination projects in general and then frames the Project as an alternative with only a cursory analysis of its impacts.

For example, the SR/SED fails to adequately discuss the various types of construction/operational impacts associated with subsurface intakes or the magnitude of those impacts in any detail. Specifically, the SR/SED fails to adequately consider recent coastal desalination projects which have readily available scientific literature and environmental documents. By failing to conduct this analysis, the State Board has created a conclusory document which supports its Proposed Amendment instead of complying with CEQA and providing an analysis of environmental impacts that the State Board must consider before approving or denying the Amendment. In addition, the SR/SED and Amendment contain inaccurate definitions, mischaracterizations, incorrect or unclear citations to technical literature and unsupported claims. (See Exhibits A [Comments on Ocean Plan Amendment, pp. 18-21] and B.)

Mesa Water disagrees that: (1) subsurface intakes are by default the preferred technology for seawater intakes for all new or expanded desalination facilities; and (2) the guidelines for brine discharges should be set at a limit of 2 ppt above the natural background salinity at 100 meters from the point of discharge. Mesa Water recommends that the Proposed Amendment be

revised to provide applicants with greater site design flexibility in selecting what is most appropriate for new projects including the latest available technology for new desalination projects. Further, the SR/SED arbitrarily chooses subsurface intakes to the exclusion of analysis of other demonstrated methods. As described below, desalination projects require site-specific analysis instead of a one-size-fits-all approach.

Accordingly, Mesa Water respectfully requests that the entire SR/SED and Regulations be revised to include a more robust discussion of the potentially significant environmental impacts of subsurface intakes, as well as reflecting the potentially benign effects of properly designed passive screened surface intakes. Alternatively, the SR/SED should be revised to include a full analysis of the impacts of subsurface intakes and then be recirculated for public comment.

II. THE SR/SED DOES NOT MEET THE PROCEDURAL AND SUBSTANTIVE REQUIREMENTS OF THE SED STATUTE AND CEQA

A. Background

The SED is a substitute environmental document prepared by the State Board to support the proposed amendment to the Water Quality Control Plan for Ocean Waters of California ("Ocean Plan") that would address desalination facility intakes and brine discharges.

The preparation of the SED is governed by various laws, including the State CEQA guidelines,¹ the Public Resources Code, the Porter-Cologne Act, and the Clean Water Act (as it applies to water quality standards promulgated by the Board). These various laws charge the Board with, among other things, reasonably describing and analyzing potentially significant direct and indirect environmental impacts of a project; describing and analyzing reasonably foreseeable methods of compliance with the regulatory requirements of each alternative; analyzing potentially feasible mitigation measures and the economic considerations of establishing objectives in water quality control plans; and, analyzing related direct and indirect impacts on the regional economy including estimating the total cost of implementing the Desalination Amendment.

B. SED Requirements

Although the SED is, by definition, a substitute environmental document, the Board must comply with the requirements of CEQA when adopting water quality control plans. Environmental review documents prepared by certified programs may be used instead of environmental documents that CEQA would otherwise require. Documents prepared by certified programs are considered the "functional equivalent" of documents CEQA would otherwise require. When conducting its environmental review and preparing its documentation, a certified regulatory program² is subject to the broad policy goals and substantive standards of CEQA. In a certified

¹ While not binding, CEQA's implementing regulations, the CEQA Guidelines, (Cal. Code Regs., tit. 14, §§15000 et seq. adopted pursuant to CEQA (§21083) (CEQA Guidelines) are entitled to great weight. (*Laurel Heights Improvement Assn. v. Regents of Univ. of Cal.* (1988) 47 Cal.3d 376, 391, fn.2 (*Laurel Heights I.*)).

² The Secretary for Natural Resources has certified the State Water Boards' regulatory program for adoption or approval of standards, rules, regulations, or plans to be used in the Basin/208 Planning program for the protection, maintenance, and enhancement of water quality in California as an exempt

program, an environmental document used as a substitute for an EIR [such as the SED in this case] must include “[a]lternatives to the activity and mitigation measures to avoid or reduce any significant or potentially significant effects that the project might have on the environment[.]” (CEQA Guidelines, § 15252(a)(2)(A).) (*City of Arcadia v. SWRCB*, (2006) 135 Cal.App.4th 1392, 1421–1422.) “A regional board’s submission of a plan for State Board approval must be accompanied by a brief description of the proposed activity, a completed environmental checklist prescribed by the State Board, and a written report addressing reasonable alternatives to the proposed activity and mitigation measures to minimize any significant adverse environmental impacts.” (*Id.* at 1423, citing Cal. Code Regs., tit. 23, § 3777(a).)

C. Standard of Review

CEQA has two primary purposes. First, CEQA is designed to inform decision-makers and the public about the potential, significant environmental effects of a project, (CEQA Guidelines, § 15002(a)(1).) “Its purpose is to inform the public and its responsible officials of the environmental consequences of their decisions before they are made. Thus, the EIR ‘protects not only the environment but also informed self-government.’” (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal. 3d 553, 564.)

For the first time in May 2014 in an unpublished decision, a California appellate court reviewed the adequacy of a SED prepared by the State Board for an amendment to the Water Quality Control Plan for the San Francisco Bay Region Water Quality Control Board. (*Living Rivers Council v. State Water Resources Control Board*, 2014 WL 1813289 (1st Dist., May 7, 2014) (“*Living Rivers*”).) While non-precedential, this case is instructive in that the Court explained the standard of review for a SED is that set forth by the California Supreme Court in *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412 (“*Vineyard Area Citizens*”):

“[A]n agency may abuse its discretion under CEQA either by failing to proceed in the manner CEQA provides or by reaching factual conclusions unsupported by substantial evidence. (§ 21168.5.) Judicial review of these two types of error differs significantly: while we determine de novo whether the agency has employed the correct procedures, ‘scrupulously enforc[ing] all legislatively mandated CEQA requirements’ [citation], we accord greater deference to the agency’s substantive factual conclusions. In reviewing for substantial evidence, the reviewing court ‘may not set aside an agency’s approval of an EIR on the ground that an opposite conclusion would have been equally or more reasonable,’ for, on factual questions, our task ‘is not to weigh conflicting evidence and determine who has the better argument.’

“In evaluating an EIR for CEQA compliance, then, a reviewing court must adjust its scrutiny to the nature of the alleged defect,

regulatory program for the purpose of complying with CEQA. (Pub. Res. Code § 21080.5; CEQA Guidelines, §§ 15250-15252; Cal. Code Regs., tit. 23, § 3775.)

depending on whether the claim is predominantly one of improper procedure or a dispute over the facts. For example, where an agency failed to require an applicant to provide certain information mandated by CEQA and to include that information in its environmental analysis, we held the agency ‘failed to proceed in the manner prescribed by CEQA.’ [citation]. In contrast, in a factual dispute over ‘whether adverse effects have been mitigated or could be better mitigated’ [citation], the agency’s conclusion would be reviewed only for substantial evidence.” (*Vineyard Area Citizens*, 40 Cal.4th at 435.)

In the sole SED case, the Court carefully reviewed the SED for compliance with the SED regulations and CEQA requirements. Unlike here, the amendment at issue in *Living Rivers* sufficiently evaluated vineyard drainage, and did “extensive analyses of the potential environmental impacts caused by requiring compliance with the 125 percent of background TMDL.” (2014 WL 1813289 at 6.)

III. ANALYSIS

A. The SR/SED Fails to Include an Executive Summary

Missing from the Introduction section is an executive summary which is fundamental to assisting the public in understanding the key impacts and areas of controversy associated with the Amendment. Without this explanation or summary, it is difficult to digest the myriad of documents, which are lengthy and randomly organized. For example, it is unclear what is actually being analyzed, what the significant impacts are, and where the Staff Report ends and the SED begins.

To avoid this problem, the CEQA Guidelines require that an EIR contain a brief summary of the proposed project and its consequences, using language that is as clear and simple as is reasonably practical. (CEQA Guidelines, § 15123(a).) The summary should normally not exceed 15 pages. (CEQA Guidelines, § 15123(c).)

Under CEQA Guidelines section 15123(b), an EIR summary must identify:

- Each significant environmental effect of the project and proposed mitigation measures and project alternatives that would reduce or avoid each effect;
- Areas of controversy that are known to the lead agency, including issues raised by other agencies and issues raised by the public; and
- Issues to be resolved, including the choice among project alternatives, and whether or how to mitigate the project’s significant effects.

To assist the public, Mesa Water recommends that the SR/SED be revised to include an executive summary that complies with CEQA.

B. The Background on “Seawater Desalination In California” Contains Inaccuracies (Section 2)

Section 2 of the SR/SED, entitled “Seawater Desalination in California,” contains inaccuracies and lacks relevant analysis, and therefore should be revised to correct those statements. Specifically, the following revisions are recommended:

Page/Paragraph No.	Necessary Correction
Page 12, Paragraph 4	The references to impingement should be deleted or clarified as none of the proposed coastal desalination facilities listed in Table 2-2 would have impingement impacts due to the facilities’ low intake velocity.
Page 12, Paragraph 5	<p>The statement that “few impingement or entrainment studies are available” is misleading as the SR/ SED does not include the extensive analysis conducted by various ocean desalination proponents. The SR/SED and proposed Amendment should be revised to include and consider the information contained in the impingement/entrainment studies conducted at pilot and demonstration plants, including at minimum the following locations:</p> <ul style="list-style-type: none"> • Carlsbad (Poseidon Resources) • Camp Pendleton (San Diego County Water Authority) • Redondo Beach (West Basin Municipal Water District) • Santa Cruz (City of Santa Cruz and Soquel Creek Water District) • Marin (Marin Municipal Water District)
Page 12 – Continuing to Page 13	The discussion beginning on the bottom of page 12 and continuing to page 13 regarding “cooling water intakes” (OTC) is inappropriate and should be deleted. Desalination intakes draw in substantially less volume than typical OTC plants. In addition, the proposed desalination plants would utilize modern intake structures, likely either subsurface intakes or passive ocean intakes, which effectively eliminates impingement and substantially reduces entrainment. In general, the Amendments should entirely avoid, or clearly distinguish, references to OTC in these documents.
Page 13, Paragraph 1	The last sentence of the first full paragraph, the reference to a two to four ppt salinity range tolerance, should be clarified to indicate which indigenous species showed effects at this level and should state that depending on site-specific conditions, proposed desalination plant

Page/Paragraph No.	Necessary Correction
	discharge locations may not affect these sensitive species.
Page 14, Table 2-1	This should be updated to reflect the current status of Duke Energy (Station ID 5) as “Inactive” and Santa Barbara (Station ID 8) as “Pursuing Reactivation.”
Page 17, Table 2-2	<p>This should be updated to reflect the current status of proposed coastal desalination facilities. At minimum, the table should be corrected as follows:</p> <ul style="list-style-type: none"> • Station ID Nos. 4 and 5 are mutually exclusive, meaning either one or the other may be built, but it is unlikely that both will be built. • Add an entry for “Monterey Peninsula Water Supply Project, California American Water,” listing the Location as “TBD,” Production Capacity as “6.4-9.6 MGD,” and Intake as “Subsurface, Commingled.” • Station ID No. 10 (West Basin Municipal Water District) should list Location as “Redondo Beach/El Segundo,” and Production Capacity as “20-80 MGD.”

C. The SR/SED Contains an Inadequate Project Description and Goals (Section 4)

The SR/SED’s half-page Project Description (Section 4.2) fails to accurately set forth the elements of the Amendment, as required by CEQA. An “accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR.” (*County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 193.) An inaccurate or truncated project description is prejudicial error because it fails to “adequately apprise all interested parties of the true scope of the project.” (See *City of Santee v. County of San Diego* (1989) 214 Cal.App.3d 1438, 1454-55.) An EIR is therefore flawed when an “enigmatic or unstable project description draws a red herring across the path of public input,” because “[o]nly through an accurate view of the project may affected outsiders and public decision-makers balance the proposal’s benefit against its environmental cost.” (*County of Inyo*, 71 Cal.App.3d at 198, 192.)

Here, the Project Description describes the “components” of the Amendment in vague terms without clearly identifying the changes the Amendment would make to the Ocean Plan. Not until Chapter 8 (*Issues Considered In the Development of the Proposed Desalination Amendment*) are the elements of the Amendment finally revealed: (1) defining the type of facilities to be covered by Amendment policies; (2) developing definitions for new, expanded and existing facilities; (3) identifying a preferred method of seawater intake; (4) establishing statewide guidelines for evaluating site alternative; (5) establishing statewide mitigation guidelines for

desalination-related impacts; (6) establishing guidelines for regulation of brine discharge; and (7) developing a receiving water limit for salinity. None of these elements are called out in the Project Description in a way that enables the public to understand the scope of the Amendment. More importantly, the inaccurate and vague Project Description fails to disclose that the Amendment is designed to discourage or preclude open ocean intakes in favor of subsurface intakes. Further, it is unclear whether the Amendment governs only desalination projects using ocean water, or whether it proposes to regulate brackish water desalter facilities that discharge brine into the ocean.

The SR/SED's nebulous Project Description is problematic as the adequacy of an EIR's analysis of significant environmental effects is closely linked to the adequacy of its project description. An EIR must contain a project description that is sufficient to allow an adequate evaluation of the project's environmental impacts. (*Dry Creek Citizens Coalition v. County of Tulare* (1999) 70 Cal.App.4th 20, 27.) A failure to adequately describe anticipated project operations can also result in a flawed impact analysis. (See *San Joaquin Raptor Rescue Ctr. v. County of Merced* (2007) 149 Cal.App.4th 645 [project description for mining project failed to describe increase in levels of production that would occur under new permit].) Even if the Project Description was amended to accurately reflect the Amendment's key purpose, which is to promote subsurface intakes, there is insufficient analysis provided to support Staff's recommendation and conclusions that this method is the environmentally superior alternative to justify it being mandated unless proven infeasible. (See Alternatives discussion detailed in SR/SED Section 12.4.) As a threshold matter, the term "infeasible" in the SR/SED should be specifically defined as it is unclear what would need to be shown to demonstrate that a subsurface intake is infeasible.

1. The Project Objectives Fail to Contain All of the Amendment's Goals

A legally sufficient project description also must include a "clearly written statement of objectives" that accurately explains "the underlying purpose of the project." (CEQA Guidelines, § 15124(b).) Misleading project objectives give "conflicting signals to decisionmakers and the public about the nature and scope of the activity being proposed." (*San Joaquin Raptor Rescue Ctr.*, 149 Cal.App.4th at 655-56.) The SR/SED's Project Goals (Section 4.3) are analogous to project objectives in an EIR, are part of the project description, and should accurately explain the underlying purpose of the Project (i.e., adoption of the Amendment).

The Project Goals are narrowly focused on minimizing mortality of marine life and fail to include, among other things, minimizing onshore impacts. As the SR/SED makes clear, a primary purpose of the Amendment is to establish a regulatory preference for use of subsurface intakes over open ocean intakes and to require desalination facilities to use subsurface intakes to the greatest extent possible. The Amendment's goal of establishing this preference and the other policies reflected in Section 8's Staff Recommendation for each element should be clearly stated as Project Goals in order to accurately reflect the true scope of the Amendment.

The Project Goals should also include a statement reflecting the State Board's desire to adopt Amendments that are consistent with applicable State policy and regulations, including the California Water Plan and the Governor's California Water Action Plan (discussed above). Each identified "Option" discussed in the SR/SED and each Alternative identified in Section 12.4

should be evaluated in light of the Project Goals and consistency with other existing State policies, plans and regulations.

D. The SR/SED Fails to Establish an Accurate Baseline for the Project (Section 7)

The baseline environmental setting of the SR/SED does not accurately describe the environmental setting. An “environmental setting,” is defined as “the physical environmental conditions in the vicinity of the project.” CEQA Guidelines provide that the existing physical conditions in the vicinity of the project “will normally constitute the baseline physical conditions by which a Lead Agency determines whether an impact is significant.” (CEQA Guidelines, § 15125(a).)

While the SR/SED sets forth a general overview of marine ecosystems in California, it should note that the identified sensitive species and habitats are site-specific, and that some proposed desalination facilities may have intake and/or discharge facilities proposed in relatively benign locations such as sandy substrates. In addition, as identified in Exhibit A, there are several inaccuracies in the Environmental Setting’s description of Kelp Beds, Surfgrass and Eelgrass Beds, Sensitive Habitats, Broadcast Spawners and Larval Recruitment, and Fisheries in California. (See Exhibit A, pp. 2-4; see, e.g., SR/SED, pp. 33-38.) These inaccuracies should be corrected in the recirculated SED.

In addition, Section 7 of the SR/SED (and other sections) repeatedly refers to *The Brine Panel Report* as “Roberts, et al. 2012.” This is not a valid citation; and because it is referenced so often in the document, it should be cited properly. The title page of The Brine Panel Report appears in Attachment 1, and a proper citation by authorship is:

Jenkins, S. A., J. Paduan, P. Roberts, D. Schlenk, and J. Weis,
“Management of Brine Discharges to Coastal Waters;
Recommendations of a Science Advisory Panel”, submitted at the
request of the California Water Resources Control Board, Southern
California Coastal Water Research Project, Tech. Rpt. 694, March,
2012, 56 pp. + App.

By mutual agreement of the Brine Panel members, the order of authorship was by alphabetical order, although by page and figure count, the contributions by Jenkins and Roberts was roughly equal. Since this document was released as a technical report of the Southern California Coastal Water Research Project (SCCWRP) an appropriate alternative for referencing this document would be:

SCCWRP (20 12), Management of Brine Discharges to Coastal
Waters Recommendations of a Science Advisory Panel,” submitted
at the request of the State Water Resources Control Board by the
Southern California Coastal Water Research Project, Costa Mesa,
CA, Technical Report 694, March 2012, 56 pp. + App.

E. Comments on “Issues Considered in the Development of the Proposed Desalination Amendment” (Section 8)

Section 8 of the SR/SED, entitled *Issues Considered in the Development of the Proposed Desalination Amendment* contains multiple inaccuracies and should be revised to correct those statements.

Page/Paragraph No.	Necessary Correction
Page 62, Paragraph 1	The second sentence of paragraph 1 reads “The absence of sensitive species in an area can be used [as] an indicator of pollution....” This sentence should be modified to clarify that the absence of sensitive species may also simply reflect the nature of the underlying benthic environment, such as sandy substrates.
Page 62, Paragraph 2	<p>This section reflects a bias in the documents against Once-Through Cooling (OTC), which occurs when desalination facilities are co-located with power plants and other industrial cooling water intakes. Although loss of the OTC source water flow creates a “stand alone” condition for a co-located desalination facility, these documents (SR/SED and Regulations) underplay or omit the remaining potential benefits of a co-located desalination facility, which should be factored into facility siting and intake/discharge considerations. These potential benefits include, but are not limited to:</p> <ul style="list-style-type: none"> • Existing intake/discharge infrastructure minimize additional marine environment construction impacts; • Existing developed site, typically zoned for industrial use, minimizes potential land use conflicts; • Existing infrastructure such as electrical, gas, access, wastewater connections, etc.; • Opportunities to create GHG friendly hybrid water/power facilities through such technologies as thermal distillation; • Opportunities for reduced electricity costs; and • Accordingly, all references to OTC data should be deleted or carefully distinguished from desalination Impingement/Entrainment effects.
Page 64, Paragraph 2	The fourth sentence of paragraph 2 reads – “All other things being equal, locations where subsurface intakes are feasible would be considered the best...” This sentence should be modified to allow

Page/Paragraph No.	Necessary Correction
	evaluation of intake options on a site-specific basis, recognizing that some subsurface intake locations could have significant environmental impacts, while ocean intakes in certain environments could have relatively nominal impacts or impacts that can be readily mitigated to less than significant levels.

In addition, this section should be updated to reflect the extensive work done to date studying desalination facilities' potential use of subsurface intakes (at Doheny and Marina) and passive wedgewire intakes (at Camp Pendleton, Redondo Beach, Santa Cruz and Marin). Further, because of the length of the technical comments and suggested edits to Section 8, they are not included here but are discussed in detail in Exhibit A. (Exhibit A, pp. 4-17.)

F. The SR/SED'S Economic Analysis Is Inadequate Because It Is Based on a Narrow Data Set that Does Not include Data for All Existing Seawater Desalination Plants Thus Excluding Analysis of both Potential Physical Impacts and Impacts to Ratepayers (Section 9 & Appendix G)

While an EIR must evaluate a project's physical impacts on the environment, consideration of a project's economic and social impacts are appropriate when determining whether a project's physical impacts are significant. Though "[e]conomic and social changes" are not themselves significant effects on the environment, "economic and social effects of a physical change may be used to determine that the physical change is a significant effect on the environment." (CEQA Guidelines, § 15064(e).) "If the physical changes cause adverse economic or social effects on people, those adverse effects may be used as a factor in determining whether the physical change is significant." (CEQA Guidelines, §§ 15064(e), 15832; 1 Kostka & Zischke, *Practice Under the California Environmental Quality Act* (2d ed. Cal CEB 2014), §§ 6.36, 6.52.)

As discussed above, the SR/SED's failure to address environmental impacts, specifically the inland impacts to water supply and water quality likely to result from requiring subsurface intakes, leads to the omission of associated economic costs (e.g., increased well drilling/maintenance costs, impairment of water supply, etc.) from the Economic Analysis found in Appendix G (Appendix G Economic Analysis). Accordingly, the Economic Analysis is inaccurate and potentially undervalues the extent of economic costs associated with subsurface intakes. This omission prevents a fair comparison of the scope of costs associated with subsurface intakes relative to costs for open ocean intakes. For example, the costs for subsurface intakes are likely to be greater than simply the capital costs of constructing a subsurface intake at a desalination facility and will include the costs associated with the environmental impacts that flow from use of that method.

To exacerbate the inadequacy of Section 9 *Economic Analysis*, it simply incorporates the Appendix G Economic Analysis without providing any substantive or contextual discussion of the Amendment's total costs or the relative costs of subsurface versus surface water intakes for new facilities and the associated financial considerations.

Further, the analysis also fails to account for the potential economic costs created by the greater regulatory burden and compliance requirements associated with implementing subsurface intakes. The increased duration of the permitting and approval periods impacts the timing of construction, which in turn has financial implications for financing and construction costs, none of which are reflected in the Economic Analysis. These considerations should be discussed in Section 9 and analyzed in the Appendix G Economic context as required.

The Economic Analysis also fails to reconcile some obvious inconsistencies.

Appendix G Economic Analysis Discussion	Explanation of Inaccuracy/Deficiency
P. G-8: States “when compared to the cost of surface water intakes, subsurface intakes could decrease total project capital costs by 2% to 9% due primarily to reduced pretreatment costs.”	This statement as a generalization is misleading. While it is true that subsurface intakes may reduce pretreatment costs, it is not necessarily true that pretreatment can be eliminated. Further, assuming that site specific geology exists to even consider subsurface intakes, a capital cost comparison of subsurface intakes with surface intakes must consider not only the differences in pretreatment costs (which do favor subsurface intakes) but also the differences associated with the configuration, number, sites, and site access characteristics of the intakes (which generally do not favor subsurface intakes, particularly at larger capacity desalination plants). Each site and situation requires a specific site specific analysis, and it is inaccurate to state that total project capital costs will be reduced in all cases for desalination projects using subsurface intakes.
P. G-27: States that subsurface intake wells are generally associated with higher capital and construction costs than open or screened ocean intakes and with higher land acquisition costs because subsurface intakes require larger footprints than open ocean intakes. It further notes that subsurface intakes have much lower operating costs due to reductions in feedwater pretreatment, biofouling and mitigation costs. (<i>Id.</i>)	Exhibit 12-4, which compares the total capital costs for subsurface and surface intake structures for two proposed projects (taking into account differences in pretreatment), shows lower total capital costs for the subsurface intake option on both projects relative to surface intakes. (Appendix G, Economic Analysis, pp. G28-29.) The Economic Analysis does not explain why these projects do not fit the norm of having higher capital costs for subsurface intakes.

Appendix G Economic Analysis Discussion	Explanation of Inaccuracy/Deficiency
The Economic Analysis provides no cost analysis or discussion of operation and maintenance (O&M) costs (including pretreatment) associated with the two projects.	The appendix to the Economic Analysis contains several charts that appear to estimate operation and maintenance (O&M) costs but there is no discussion of the significance of those costs relative to total overall project costs (capital + O&M costs). (See Appendix G, Economic Analysis, pp. G-35 to G-46.)

In short, the Economic Analysis makes general assertions but then fails to marshal data supporting those assertions or provide why real world data contradicts its assertions. Such inconsistencies and omissions of relevant data cast doubt on the credibility of the document and the appropriateness of basing decisions on its analysis.

G. The SR/SED Fails to Address All Potentially Significant Impacts of the Proposed Amendment (Section 12)

The SR/SED impact analysis fails as an informational document for 2 reasons: (1) it only provides analysis for 5 of the 18 resource areas associated with the Proposed Amendment essentially omitting 13 areas of information; and (2) fails to analyze a key component of the Amendment—the impact of subsurface intakes on coastal areas. (Cal. Code Regs., tit. 23, § 3777; Pub. Resources Code, § 21092.1.)

1. Analysis contains only 5 of 18 resource categories

Fundamentally, an EIR must be prepared with a sufficient degree of analysis to provide decision-makers with the information needed to make an intelligent judgment concerning a project's environmental impacts. (CEQA Guidelines, § 15151; *Napa Citizens for Honest Gov't v Napa County Bd. of Supervisors* (2001) 91 Cal.App.4th 342, 356 (“*Napa Citizens*”).) An EIR should, when looked at as a whole, provide a reasonable, good faith disclosure and analysis of the project's environmental impacts. (*Laurel Heights I*, 47 Cal.App.3d at 392.)

In contrast to these standards, the majority of SR/SED analysis of potential adverse impacts concentrates on those which “generally occur from construction and operation of a coastal desalination facility, without regard to the requirements set forth in the State Water Board’s proposed Desalination Amendment.” (SR/SED, p. 115.) The SR/SED’s analysis of desalination projects generally covers 18 resources areas. (SR/SED, pp. 121-172.) However, here the analysis of the “Project” specifically was arbitrarily limited to 5 resources areas: aesthetics, air quality, biological resources, greenhouse gas emissions and hydrology and water

quality. Surprisingly, each impact assessment is less than 1 page in length.³ (SR/SED, pp. 177-192.) By analyzing the Amendment as an alternative (Alternative 2) the SR/SED avoided the comprehensive analysis required under the SED regulations and CEQA—an EIR must set forth the bases for its findings on a project’s environmental impacts; a bare conclusion without an explanation of its factual and analytical basis is not a sufficient analysis of an environmental impact. (*Laurel Heights I*, 47 Cal.App.3d at 404; *City of Maywood v. Los Angeles Unified Sch. Dist.* (2012) 208 Cal.App.4th 362, 393.)

The truncated analysis was further complicated by the SR/SED only analyzing the Amendment as Alternative 2 in Section 12.4. (See further discussion of alternatives detailed in Section H.) Contrary to law, the SR/SED states that “[s]ince the project alternatives only describe activities related to the coastal and nearshore intakes and outfalls, only those issues potentially affected are included in this analysis of project alternatives.” (SR/SED, p. 177.) While alternatives may be described in less detail than the impacts analysis for the Proposed Project, the impact analysis for the Project must contain an explanation of the reasoning supporting the EIR’s impact findings, and of the supporting evidence. (*Association of Irrigated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383; *Napa Citizens*, 91 Cal.App.4th at 359.)

Had the SR/SED used the general analysis as a foundation for an in-depth analysis of the Amendment, it might have avoided these deficiencies.

2. No analysis of impact of subsurface intakes on coastal areas

As explained on page 25 of the SR/SED, a SED is required to conduct an “environmental analysis of the reasonably foreseeable methods of compliance” with the Regulations. As noted below, the SR/SED does not evaluate the potential environmental impacts of imposing new regulations favoring subsurface intakes over screened ocean intakes, which is the clear intent and likely outcome of the Amendment.

a. Biological Resources (Section 12.1.4)

The SR/SED fails to adequately describe the types of organisms, numbers of organisms, area or type of habitat that could be affected during construction, operation and maintenance of a subsurface system. (SR/SED, pp. 184-189; Exhibit A, pp. 17-18.) Alternative 2 (Project) includes only a brief list of construction related impacts from subsurface intakes to onshore habitats such as “[c]onversion of riparian or wetland habitat supporting a variety of resident and migratory species,” “[a]dverse impacts to migratory bird nesting and feeding habitat,” and “[d]isturbance of marine and onshore habitat through generation of noise and vibration.” (SR/SED, p. 186.) These and other impacts should be further developed for an adequate Project-related impact analysis. In addition, we invite the State Board to consider the results of the 2005 Cumulative Impacts Study prepared as a Conditions of Certification for the AES HBGS Retool Project as described on page 18 (Section 12.1.4 Biological Resources) of Exhibit A.

³ The SR/ SED should specifically discuss areas where the Regulations deviate from Expert Panel recommendations, and provide a substantive scientific basis for any deviation.

b. Hydrology and Water Quality

Perhaps the most profound example of inadequate analysis is the one paragraph purporting to contain the entire hydrology and water quality impact analysis for Alternative 2 (Project). As explained below, this section must be augmented to include impacts from subsurface intakes on: (a) groundwater supplies; (b) drainage patterns; and (c) water quality. (See CEQA Guidelines, Appendix G, § IX [Hydrology and Water Quality].) Some of the impacts resulting from subsurface intakes are discussed in Alternative 1. For example, the SR/SED explains that it is “possible that a subsurface intake could cause or exacerbate saltwater intrusion into freshwater wells” and recognizes that “pumping from the subsurface intakes has the potential to alter groundwater flow to freshwater aquifers and wells.” (SR/SED, pp. 190-191.) However, it fails to include a more comprehensive discussion of the consequences of saltwater intrusion, and the types of impacts normally discussed for hydrology and water quality, which then lead to the appropriate mitigation which may be required.

To illustrate this point, if a desalination facility’s use of its subsurface intake infrastructure (e.g., slant wells) interferes with production of neighboring wells in an inland groundwater basin, the well owner may sue the desalination plant to protect its rights. In order to bring a well interference claim or injunction to stop interference with a superior water right, the complaining party must simply demonstrate that she possesses a senior water right and that the junior user—here the desalination plant—is impairing the use of that senior water right. (*Peabody v. City of Vallejo* (1935) 2 Cal.2d 351, 374-375; *Monolith Portland Cement Co. v. Mojave Public Utility District* (1970) 4 Cal.App.3d 840, 847-48.)

Under California water law, the general rules of water right priority are based upon a descending ranking of priority. In this priority scheme, riparian or overlying rights, which are based on the location of property in relation to a water source, are of higher priority than appropriative rights. (*City of Los Angeles v. City of San Fernando* (1975) 14 Cal.3d 199, 282-286; *City of Alhambra v. City of Pasadena* (1949) 33 Cal.2d 908, 925-926.) As between appropriators, first in time is first in right. (*Tulare Irr. Dist. v. Lindsay-Strathmore Irr. Dist.* (1935) 3 Cal.2d 489.) These general rules of priority govern the allocation of water from both surface and subsurface flow and percolating groundwater. (*Prather v. Hoberg* (1944) 24 Cal.2d 549; *Rancho Santa Margarita v. Vail* (1938) 11 Cal.2d 501.) If operation of a desalination plant’s subsurface intake wells interferes with an overlying or appropriative right holder’s extraction of groundwater pursuant to those valid rights, the desalination plant could face litigation. The fundamental remedies available to the holder of that primary and paramount right are damages, injunction and declaratory relief.

c. Six (6) Additional Unidentified Impacts Require Analysis for Subsurface Intakes

In addition to providing additional analysis for biological resources and hydrology and water quality, the SR/SED’s impact analysis should be revised to depict known potential impacts based on review of available environmental documents (including those noted in Section III.B), as well as consider the potential subsurface intake issues. Specifically, the SR/SED and Regulations’ environmental findings rely in part on 9 past desalination projects spanning from 2006-2013, the majority of which are over 5 years old, but omit, or fail to adequately consider,

more recent coastal desalination projects which demonstrate there are at least 6 additional impacts requiring analysis for subsurface intake.

It would benefit the SR/SED to have Staff review and note subsurface intake impacts from publicly additional available CEQA documents⁴, including those for: (1) Camp Pendleton (feasibility study); (2) Doheny (MND and permits for a pilot plant, now built); (3) Long Beach (EA/FONSI for subsurface pilot project); (4) Cambria (EA/FONSI for beach geotechnical sampling program, and EIR for full-scale project); (5) Sand City (full scale EIR, project now built); (6) Monterey Peninsula Water Supply Project (full scale EIR, test well MND—in process); and (7) dozens of subsurface intake facilities around the world.

While subsurface intakes eliminate impingement (as do properly designed ocean intakes) and effectively eliminate entrainment (which properly designed ocean intakes can mitigate to less than significant levels), subsurface intakes have at least the following 6 additional potential environmental impacts that should be reflected throughout the SR/SED and Regulations, including:

(i) Coastal Hazards (Hydrology & Water Quality)

Subsurface intakes may be more susceptible to coastal hazards due to the need to be in close proximity to the ocean. These potential hazards are well documented in the Coastal Commission's Draft Sea Level Rise Guidance document (although the potential severity of these hazards is conservatively estimated and therefore likely overstated). As noted in the CalAm Coastal Water Project Final EIR for the Monterey Peninsula Water Supply Project (Monterey EIR), flooding due to potential sea level rise could occur under some conditions. (Monterey Peninsula Water Supply Project, CalAm Coastal Water Project Final EIR (Monterey EIR), pp. 4.1-11, 6.1-20.)

(ii) Groundwater (Hydrology & Water Quality)

Subsurface intakes could be sited further inland to reduce coastal hazard issues, although this may raise other issues, including the likelihood of drawing in a higher percentage of groundwater. This may in turn create impacts related to groundwater rights, groundwater quality, existing public or private groundwater wells, etc. For example, as described above, in California if a desalination well threatens to interfere with priority water rights, such as in the case of well interference issues, the fundamental remedies available to the holder of a primary and paramount right are damages, injunction and declaratory relief. This could subject a desalination facility to additional legal challenges.

⁴ Page 117 of the SR/SED lists the nine (9) projects, which should be supplemented to include West Basin Municipal Water District's "Temporary Ocean Water Desalination Demonstration Project EIR" (2008). In addition, on page 119 it is not clear what relationship Table 12-1 has to Tables 2-1 and 2-2. Table 12-1 is missing several ocean desalination facilities in the planning stages, including Camp Pendleton, Doheny, West Basin Municipal Water District, Santa Cruz and the Regional Desalination Project in the San Francisco Bay Area.

The Camp Pendleton Seawater Desalination Feasibility Study notes that use of a subsurface intake approach is more susceptible to local hydrogeology. (Camp Pendleton Seawater Desalination Feasibility Study (Pendleton Study), p. 8-17.) Specifically, the Pendleton Study states that pumping from coastal wells could potentially invoke a negative impact on nearby fresh groundwater aquifers, especially in light of the increased quantity of traditional onshore groundwater wells in confined coastal aquifers. (Pendleton Study, p. 3-31.) One of the possible impacts is saltwater intrusion. If the freshwater aquifer is depleted without being recharged through natural processes, saltwater intrusion from the ocean may occur. (*Id.*) Desalination has often been cited as a way to reduce saltwater intrusion by producing potable water without disturbing freshwater aquifers. (*Id.*) However, depending on the local groundwater profile, beach wells to supply the desalination plant could exacerbate intrusion problems. (*Id.*)

The Monterey EIR notes similar potential impacts due to construction and operation of one type of subsurface intake, slant wells. In this case, the EIR acknowledges that construction of subsurface wells (slant wells) may intercept shallow or perched groundwater. (Monterey EIR, pp. 4.1-32 to 4.1-33.) Operations of those slant wells are also expected to pull water from adjacent aquifers and to cause a local depression in groundwater level around the wells and within the shallow aquifer. (Monterey EIR, pp. 4.2-44 to 4.2-45, 4.2-48.) Neighboring wells screened in the same aquifer and within the local groundwater depression could be impacted by causing physical damage to the well if groundwater levels drop below the screens of neighborhood wells and/or by lowering the well yield of neighboring wells. (Monterey EIR, p. 4.2-45.) The Monterey EIR also explains the risk of increasing saltwater intrusion into the groundwater aquifer as a result of slant well operation. (Monterey EIR, p. 4.2-51.)

A more recent slant well test study stated that a subsurface intake system related to desalination facilities in the Monterey area could cause drawdown of freshwater supplies and potentially interfere with water levels in neighboring wells. (Draft Initial Study and Mitigated Negative Declaration for the California American Water Slant Test Well Project (May 2014), pp. 112-113.)

Similarly, the Draft Environmental Impact Report for the Sand City desalination plant also acknowledged the potential for use of the subsurface intake method to cause saltwater intrusion. (Sand City Desalination Facility, Draft Environmental Impact Report, p. 49.) The test well assessment for the Doheny Ocean Desalination Project indicated that operation of the subsurface intake slant wells could induce increased saltwater intrusion into the adjacent coastal aquifer. (Final Summary Report, Doheny Ocean Desalination Project, Phase 3 Investigation, Extended Pumping and Pilot Plant Test Regional Watershed and Groundwater Modeling Full Scale Project Conceptual Assessment (Jan. 2014) (Doheny Report), p. 22.)

(iii) Water Quality (Hydrology & Water Quality)

Subsurface intakes, while generally found to reduce pretreatment requirements, may in some cases have greater water quality impacts than an ocean intake, and require additional pretreatment or result in additional environmental impacts. Potential water quality impacts include marine water quality impacts associated with potentially lower dissolved oxygen, potential for groundwater contaminants, and potential for pumping “ancient water” or water with otherwise higher levels of iron, manganese or other constituents.

Installation of the extraction wells and related infrastructure has the potential to impact water quality and the marine environment by introducing boring spoils, mechanized equipment, and hydrocarbons into the nearshore marine environment. (California Coastal Commission, Substantial Issue and De Novo Staff Report, Sand City Desalination Facility (May 2005), p. 56.)

Differing levels of water quality were found during pumping of a test slant well related to development of the Doheny Ocean Desalination Project. It was discovered that the water extracted contained a high level of dissolved iron and manganese contained in the pocket of old marine groundwater that lies under the ocean. This water was anoxic (devoid of oxygen) and slightly acidic, and was found to be about 7,500 years old. The initial groundwater modeling work suggested that under full production capacity, the old marine groundwater would be mostly pumped out and replaced by ocean water within a year or so. (Doheny Report, pp. 13-14, 15-16.) Therefore, until the initial period of pump out of the old marine groundwater, it would be necessary to install a system to remove iron/manganese to levels that can meet discharge requirements through the ocean outfall. (*Id.* at p. 20.)

(iv) Nearshore Freshwater Bodies (Hydrology & Water Quality)

Subsurface intakes have the potential to create a drawdown upon nearby freshwater bodies, such as estuaries, lagoons or rivers. For example, the Pendleton Study notes that operation of slant wells (subsurface intake method) could have the indirect effects of dewatering an adjacent river estuary, which could be a concern for freshwater aquatic species and anadromous fish. (Pendleton Study, p. 3-31.)

(v) Sensitive Coastal Habitat and Species (Biological Resources)

Subsurface intakes located on or near the beach may affect sensitive coastal habitat or species, including coastal dunes, snowy plover, etc. As noted in the Pendleton Study, the subsurface intake option involves installing infrastructure in in close proximity to the coastal dunes and the Santa Margarita River, where several sensitive bird species have been identified. (Pendleton Study, p. 8-17.)

(vi) Local Coastal Program Consistency (Land Use & Planning)

Because subsurface intakes represent “new construction” and are by nature located in the Coastal Zone, they may create additional potential for conflict with Coastal Act or LCP policies, including but not limited to:

- Proximity to environmental sensitive habitat areas (E.S.H.A.)
- Coastal Access
- Visual Impacts

- Coastal parking facilities (for intakes sited in parking lots)
- Agricultural Land Impacts—subsurface intakes sited off of the beach, to reduce coastal hazard issues, may require agricultural land or otherwise adversely affect agricultural interests through groundwater or other effects.

Accordingly, the SR/SED fails to “demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action,” especially as they relate to subsurface intakes. (*Laurel Heights I*, 47 Cal.3d at 392.) Not only is the SR/SED an accountability document, but it serves to protect the environment and foster “informed self-government.” (*Id.*)

H. The SR/SED Errs by Analyzing the Project (Amendment) as an Alternative and By Not Analyzing A Reasonable Range of Alternatives (Sections 12.2, 12.3 and 12.4)

For unknown reasons, the SR/SED analyzes the Project as an Alternative, rather than as the project, and thus is missing a comparison of each alternative to the Project. The SED regulations require an “analysis of reasonable alternatives to the project...to avoid or reduce any significant or potentially significant adverse environmental impacts.” (Cal. Code Regs., tit. 23, § 3777(b)(3), emphasis added.) It does not allow short-cutting a complete project analysis by erroneously including the proposed project as an alternative (less in depth analysis) to avoid the required comprehensive environmental review. To be clear, the SR/SED should be revised to analyze the Project against the alternatives instead of classifying the Project as an alternative. (The “Project” alternative did not receive full analytical treatment in the SR/SED (detailed in section 12.4).) To compound the issue, the proposed Project is not accurately described in Alternative 2. (SR/SED, pp. 174-175 [identifying Alternative 2 as the Project (Amendment)].)

Specifically, Alternative 2 is described as “an amendment to the Ocean Plan that would allow greater flexibility in intake and discharge methods than identified in Alternative 1. Facilities could use subsurface intake, surface intakes screened and operated at low intake velocities, or intake using an alternative method....” (SR/SED, p. 174.) It further states that this alternative would require that brine discharge achieve a receiving water limit of no more than 2 ppt above background salinity. (*Id.*) This description is misleading as the actual proposed Amendment establishes subsurface intakes as the preferred technology and provides that surface intakes will only be allowed if subsurface intakes are shown to be infeasible. (See SR/SED, p. 58 [describing Option 3].) While Mesa Water agrees that Alternative 2 as written is more reasonable than the actual Amendment, the SR/SED should be revised to accurately characterize the Project.

In addition, Alternative 2 (Project) states that it “would require desalination facilities to fully mitigate for all marine life mortality associated with construction and operational activities.” (SR/SED, p. 175.) The requirement for “full” mitigation contradicts the SR/SED elsewhere, including existing State policy which only requires “minimizing” adverse effects (Coastal Act and Porter-Cologne), and CEQA, which requires mitigation to “less than significant” levels. (Pub. Resources Code, § 30231 [Coastal Act]; Wat. Code, § 13142.5(b) [Porter-Cologne provision that applies to coastal power plants and other industrial facilities that use seawater, including

desalination]; CEQA Guidelines, § 15370; Pub. Resources Code, § 21000(g); *Friends of Mammoth v. Bd. of Supervisors* (1972) 8 Cal.3d 247, 254-56.) It would be helpful to clarify the Board's intent and regulatory basis regarding "full mitigation."

1. The three underlying Project goals preclude a more appropriate range of alternatives to the project.

The range of alternatives presented in the SR/SED is not reasonable, and violates CEQA and the SED regulations. The SED regulations require an "analysis of reasonable alternatives to the project...to avoid or reduce any significant or potentially significant adverse environmental impacts." (Cal. Code Regs., tit. 23, § 3777(b)(3).) "A major function of an EIR is to ensure that all reasonable alternatives to proposed projects are thoroughly assessed by the responsible official." (*Save Round Valley Alliance v. County of Inyo* (2007) 157 Cal.App.4th 1437, 1456.) Likewise, an EIR must "describe a range of reasonable alternatives to the project . . . which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." (CEQA Guidelines, § 15126.6(a); see also Pub. Resources Code, § 21001(g).)

In evaluating whether there are an adequate range of alternatives, a review of the three underlying Project goals illustrates their narrowness precludes an adequate range of alternatives. The first objective is to "[p]rovide a consistent statewide approach for minimizing intake and mortality of marine life, protecting water quality, and related beneficial uses of ocean waters." (SR/SED, p. 21.) This objective ignores onshore impacts and by so doing, elevates the importance of marine impacts. A lead agency may not preordain the outcome of the alternative analysis by defining the project's objectives in an unreasonably restrictive manner. (See *County of Inyo v. City of Los Angeles* (1981) 124 Cal.App.3d 1, 9; Remy, Thomas, Moose, Manley, Guide to CEQA (Solano Press 11th ed., 2006) p. 589 ["The case law makes clear . . . that overly narrow objectives may unduly circumscribe the agency's consideration of project alternatives."].)

The second and third goals are fundamental – "support the use of ocean water as a reliable supplement to traditional water supplies and promote interagency collaboration for siting, design, and permitting of desalination facilities" (see SR/SED pp. 22-23) – but cannot overcome the effect of avoiding onshore impacts necessarily excludes other viable alternatives.

Courts have found that when a project and its objectives are defined too narrowly, an EIR's treatment of alternatives is inadequate. (See *City of Santee*, 214 Cal.App.3d at 1455 [inadequacy of the project description caused the EIR to discuss inadequate, unduly narrow project alternatives]; *Rural Land Owners Association v. City Council of Lodi* (1983) 143 Cal.App.3d 1013, 1024 [respondent agency defined its project too narrowly and thus avoided analyzing the full range of impacts that would follow from the proposed action].) There is a direct relationship between project objectives and the formulation of alternatives. The court in *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, held that an agency cannot "avoid an objective consideration of an alternative simply because, prior to commencing CEQA review, an applicant made substantial investments in the hope of gaining approval for a particular alternative. . . ." (*Id.* at 736.)

In light of the three objectives, the SR/SED identifies five alternatives, including the Project itself, and “no project”: (1) Alternative 1 would require that new desalination facilities use subsurface intakes and discharge brine by commingling effluent to achieve no more than 2 ppt above background salinity; (2) Alternative 2 claims to be the Proposed Desalination Amendment (Project); (3) Alternative 3 would provide for more flexibility by allowing new facilities to have an “open, uncontrolled intake and a simple large diameter outfall;” (4) Alternative 4 is the same as Alternative 2 (Project) but would allow a discharge that would achieve a receiving water limit of no greater than five percent above natural background salinity; and (5) Alternative 5 is the “no project alternative” under which there would be no Amendment of the Ocean Plan to address intakes and outfalls associated with new desalination facilities.

The range of alternatives in an EIR should allow informed decision-making and public participation. (CEQA Guidelines, § 15126.6(a)-(f).) The EIR must focus on alternatives to the project that “are capable of avoiding or substantially lessening any significant effects of the project, even if [those] alternatives would impede to some degree the attainment of the project objectives.” (CEQA Guidelines, § 15126.6(b).) The reasonableness of alternatives is considered in light of the nature of the project, the nature and extent of the project’s impacts, and other material facts. (*San Bernardino Valley Audubon Society v. County of San Bernardino* (1984) 155 Cal.App.3d 738, 750.)

The SR/SED’s lack of a reasonable range of alternatives ensures that Alternative 2 (Project) is chosen as the preferred alternative. For example, while Alternative 1 purports to lessen the significant effects of the project by requiring subsurface intakes and thereby resulting in the “least intake and discharge related aquatic life mortality,” the analysis demonstrates that subsurface impacts will increase onshore construction impacts. (SR/SED, p. 174.) The analysis of Alternative 1 throughout this section supports Mesa Water’s position that subsurface intakes may have numerous onshore impacts, and therefore should not be identified as the preferred method of ocean water intake. (See SR/SED, pp. 174, 184, 190.) Alternative 1 is also closer to the actual Project, which mandates subsurface intakes unless infeasible.

In addition, Alternative 3—which boldly provides that new facilities would use an open, unscreened ocean intake—is a strawman. (SR/SED, p. 175-176.) This alternative is flawed by design, unreasonable and as written would not meet the main Project goals of safeguarding marine life or protecting water quality and related beneficial uses of ocean waters. The basis for this alternative is not substantiated, as a more appropriate version of this alternative could either be inferred from the various coastal desalination facilities being planned, or simply assumed and required as part of the alternative for State Board consideration. As explained in the SR/SED, “[t]here are numerous technologies that can help reduce or avoid impingement and entrainment of marine life, including intake structure design, configuration of screening systems, passive intake system, and fish diversion and avoidance technologies.” (SR/SED, p. 46.) The inclusion of a clearly infeasible alternative allows the State Board to reject this alternative and choose the Project alternative. This violates the informational purpose of this document, and transforms it to one of advocacy.

An appropriate alternative for consideration, which meets the third goal of taking into consideration siting, design, and permitting, would be to allow the applicant flexibility in determining whether to use a surface or subsurface intake. This simple addition would have been

more viable and created a meaningful option for decision makers to consider in light of all three goals of the Project. Given CEQA Guidelines section 15204(a) states that comments on an EIR are particularly helpful if they suggest “additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate the significant environmental effects,” Mesa Water respectfully requests consideration be given to evaluate this as a new alternative, or modify Alternative 3, to allow for the best site, design and technology on a site-specific basis. This alternative is feasible, satisfies most of the Project objectives, is environmentally responsible, and makes rational sense. An alternative is feasible if it is “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.” (CEQA Guidelines, § 15364.) For analysis purposes, this alternative could include use of either subsurface intakes, or use of appropriately designed ocean intakes, including use of a passive wedgewire screen. The discharge can be assumed as either commingled with wastewater and/or dispersed via a diffuser jet.

IV. THE SR/SED FAILS TO HARMONIZE THE COASTAL ACT WITH THE AMENDMENT

Everyone in the State of California—including the State itself—is subject to the Coastal Act (Act) (Pub. Resources Code, §§ 21066, 30111, 30600; see also 65 Ops. Atty.Gen. 88). This includes all public agencies. (Pub. Resources Code, § 30003.)

While the SR/SED includes a policy discussion of the Act, as well as a few brief references elsewhere in the document, it fails to discuss the fundamental ways in which the amendment could harm local land planning by mandating only one intake method unless proven infeasible. Nor does the SR/SED provide guidance to those agencies on how infeasibility can be shown to satisfy the Amendment’s preference for a single preferred intake method. Therefore, while it acknowledges that new desalination facilities in the coastal zone will require a Coastal Development Permit (at page 31), there is no analysis environmentally or otherwise as to demonstrate when “infeasibility” would occur.

Similarly, at page 57, under the heading “Should the State water board identify a preferred method of seawater intake?”, the SR/SED again acknowledges that the Act requires issuing a permit, without any discussion of how mandating one technology (subsurface intake) may conflict with other applicable Act requirements dealing with ESHA, visual impacts, coastal access, coastal parking, and site-specific Local Coastal Program requirements.

These two points illustrate how the SR/SED violates the essential principle of the Act which is the importance of public participation in planning decisions involving the coast:

“The Legislature further finds and declares that the public has a right to fully participate in decisions affecting coastal planning, conservation, and development; that achievement of sound coastal conservation and development is dependent upon public understanding and support; and that the continuing planning and implementation of programs for coastal conservation and development should include the widest opportunity for public participation.” (Pub. Res. Code, sec. 30006). This principle is a

fundamental part of the Coastal Commission's regulations for public works projects (14 Cal. Code Regs., sec. 13353.5), which require that a local public hearing on a public works plan be held "within a reasonable time prior to submission of the plan . . . such that the public is afforded an adequate and timely comment period on the proposed plan. . . ."

By remaining silent on environmental analysis which should be considered to demonstrate infeasibility, the standards for public participation have not been met.

V. RECIRCULATION IS REQUIRED BECAUSE THE SR/SED FAILED TO EVALUATE THE SUBSTANTIAL ENVIRONMENTAL AND ECONOMIC IMPACTS OF THE PROJECT REQUIRED BY LAW

The SED regulations mandate that a Draft SED be recirculated for additional public comment if "significant new information" is added to the Draft SED. (Cal.Code Regs., tit. 23, § 3779(e).) These regulations mirror CEQA's: Recirculation is required if significant new information is added to an EIR after notice of public review has been given, but before final certification of the EIR. (Pub. Resources Code, § 21092.1; CEQA Guidelines, § 15088.5; *Vineyard Area Citizens*, 40 Cal.4th at 447). Recirculation is required when the addition of new information deprives the public of a meaningful opportunity to comment on substantial adverse project impacts or feasible mitigation measures or alternatives that are not adopted. (*Laurel Heights Improvement Assn. v. Regents of Univ. of Cal.* (1993) 6 Cal.4th 1112 (*Laurel Heights II*); CEQA Guidelines, § 15088.5(a).) The new information may include changes in the project or environmental setting as well as additional data or other information. (CEQA Guidelines, § 15088.5(a).) Recirculation is also required if "[t]he draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded." (CEQA Guidelines, § 15088.5(a)(4); *Mountain Lion Coalition v. Fish & Game Com.* (1989) 214 Cal.App.3d 1043.)

Specifically, as set forth above, the SR/SED did not adequately analyze the potential impacts associated with the Amendment's onshore environmental impacts and the economic cost when determining the significance of physical impacts and when considering feasible mitigation measures and alternatives. This information should be included and the Draft SED recirculated so informed decision making can occur. Further, Mesa Water has provided additional information about desalination projects using environmentally sensitive ocean water intakes and the potential adverse impacts of subsurface intakes on coastal areas. This significant new information must be incorporated into the SR/SED and recirculated for public review.

VI. CONCLUSION

Mesa Water believes that by addressing its substantive concerns the SR/SED can be redrafted to fully disclose all impacts of the Project to the public. As presently drafted, the Amendment could adversely impact development of desalination projects in California. Therefore, the SR/SED should be revised to include fully address the responses to comments, provide the required additional analysis, and include the missing analysis of impacts where absent. It should then be recirculated for the benefit of the community and decision-makers.

Thank you for your consideration of these comments.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Diane C. De Felice', with a stylized, flowing script.

Diane C. De Felice

DCD:ibc

Attachments: Exhibits A-B

cc: Paul E. Shoenberger, Gen. Manager Mesa Water District

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EXHIBIT A

15 August 2014

Paul Shoenberger, PE
General Manager
Mesa Water District
1965 Placentia Ave.
Costa Mesa, California 92627
(949) 631-1206
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Re: Comments on Ocean Plan Amendment

Dear Mr. Shoenberger:

Attached are MBC Applied Environmental Sciences' comments on the proposed Ocean Plan Amendment covering desalination intakes and brine discharges (proposed policy). MBC is an environmental consulting firm that was established in 1969, and has been involved with more than a dozen desalination projects in the last 15 years. Our participation has included entrainment/impingement studies, environmental impact analyses, CEQA support, interfacing with Regional Board staff, and toxicity studies. In addition, MBC has performed the NPDES receiving water monitoring for most of southern California's coastal power plants since the 1970s. This has included water quality surveys (including temperature and salinity measurements), biological surveys, and permitting support. We have also performed 316(b) entrainment and impingement assessments at southern California's coastal power plants. MBC operates an ELAP-certified toxicity laboratory, and has performed toxicity tests on discharge samples from desalination pilot plants. We have worked on multiple desalination projects, and served on the following:

- WaterReuse Research Foundation, Technical Advisor (DSB) "*Improvements to Minimize Impingement Mortality and Entrainment at Existing Intakes*" (2011-2012)
- WaterReuse Research Foundation, Project Advisory Committee (DSB) "*Methodology for Development of an IM&E Mitigation Program*" (2013-present)

We identified several areas of concern within the proposed policy, including:

- Inaccurate definitions,
- Mischaracterizations,
- Unsupported claims, and
- Omission of relevant data

The State Board has classified subsurface intakes as the preferred option for design, but did not discuss the various types of construction/operational impacts associated with those intakes, or the magnitude of those impacts, in any detail. Their justification of the brine discharge limits (and potential effects to larvae) is also weak. The following pages include our comments to specific sections or language within the proposed policy. We have copied language from the policy in italics, and our comments follow in normal font.

Comments on the Draft Staff Report and Draft SED

Section 2.2 Impacts to Aquatic Life Related Beneficial Uses

“No direct estimates exist for the amount of invertebrate larvae, zooplankton, or phytoplankton entrained within this same period, although the numbers are likely orders of magnitude larger (on a per organism basis) based on the relative abundance of plankton in seawater compared to fish larvae.”

This is incorrect, and we note that this assertion is repeated in Section 8.3.1.1.2. We recommend deleting this sentence. The year-long entrainment studies conducted at most of California’s power plants analyzed effects due to entrainment of “target” invertebrate species (e.g., market squid, California spiny lobster, rock crabs, etc.). These direct estimates were published in reports and submitted to multiple agencies, including Regional Water Quality Control Boards. Entrainment studies for Los Angeles area power plants can be viewed online at:

http://www.waterboards.ca.gov/losangeles/water_issues/programs/power_plants/

“In addition to impacts from the intake of ocean water, the discharge from a desalination facility can also impair beneficial uses.”

The text following this statement provides no supporting information on what beneficial uses are impaired, or how these impairments occur. Industrial service supply (IND) is also considered a beneficial use. We recommend deleting this sentence.

Section 6 Regulatory Setting for Desaliantion in Ocean Water

“Desaliantion” is spelled incorrectly. The correct spelling is “Desalination”.

Section 6.2 Porter-Cologne Authority over Seawater Intakes

“The Porter-Cologne provision is both broader and narrower than CWA section 316(b), which governs cooling water intake structures. Section 13142.5(b) addresses only new or expanded facilities, unlike CWA section 316(b), which does not differentiate between new or existing intakes.”

This is incorrect. The §316(b) rule that was released in May 2014 applies to existing facilities, including new units at existing facilities. However, new facilities are still regulated by the Phase I §316(b) rule that was enacted in 2001. The compliance pathways are different between the two phases. We recommend deleting the two sentences excerpted above.

Section 7.1.1 Kelp beds

*“Kelp beds are common in areas with rocky substrates because kelp often attaches to hard substrates. Kelp reproduces by releasing spores into the water column that are carried by currents before the spores settle to the bottom and germinate. Giant kelp, *Macrocystis pyrifera*, releases spores continuously from spring to fall in California’s coastal waters. The spores differentiate into sperm and eggs and fertilization occurs in the water column. Many of the spores, sperm, and eggs become food for other organisms in the marine food web. The planktonic reproductive life stages of kelp are at risk of entrainment in surface water systems. Fertilized eggs that avoid predation and entrainment develop into the adult organisms that make up kelp beds.”*

The last sentence is incorrect and should be deleted. Not all eggs that avoid predation and entrainment develop into adult kelp. Only those that first settle onto suitable substrate (i.e., cobble or rocky reef) that is not already colonized have the potential to develop into adult kelp plants. While spore supply could potentially limit growth of kelp beds, this would be more likely to occur during years when kelp beds are eliminated due to prolonged warm-water events (such as during 1983-4 and 1997-8), and there is no local supply of spores.

Note that the San Onofre kelp bed, which is just downcoast from the intake structures at San Onofre Nuclear Generating Station, reached a larger size in 2008 (when the plant was operating) than it did in the 1960s and 1970s before the plant was operating.

Section 7.1.2 Surfgrass and Eelgrass Beds

“Seagrass beds are critical near shore habitats for a variety of species because the beds serve as nursery grounds for many invertebrates and fishes. (Larkum et al. 2006)”

In order to fully inform the governing board and the public, it should be clarified that seagrass (*Phyllospadix*) and eelgrass (*Zostera* spp.) beds are very limited in their distribution in California due to the specific habitat requirements of each. We recommend adding the following: “However, seagrass and eelgrass have specific habitat requirements that generally limit their distribution in California.”

Section 7.1.6 The Need for Special Considerations or Protections of Sensitive Habitats

“Eggs, larval organisms, and juvenile organisms are at the highest risk of entrainment at surface intakes. Most larval and juvenile organisms are not developed enough to swim and avoid entrainment and may be susceptible to entrainment through even small slot sized intake screens.”

We recommend deleting the first sentence. The proposed policy has not yet defined by Section 7.1.6 what a “surface” intake is, but we presume it is an intake above the seafloor (i.e., such as a vertical riser or bulkhead intake). There is no known data to support the statement that eggs and larvae “are at the highest risk of entrainment at surface intakes”. To our knowledge, there have been no published studies in California examining the biological effects (or potential effects) due to the operation of a subsurface intake. Fish and invertebrates that use the seafloor (such as gobies) could be more susceptible to entrainment/impingement depending on the intake design.

Section 7.2.1 Broadcast Spawners and Larval Recruitment

“Dispersal of larvae from spawning grounds occurs via ocean currents and the planktonic stage can be as short as a few days or as long as a month depending on the species, meaning larvae can travel many miles away from where they were originally spawned. (Strathmann 1993; Swearer et al. 1999)”

Larval duration—the period of time larvae can potentially be susceptible to entrainment—has exceeded one month. For example, the Probability of Mortality (P_M) for northern anchovy at the AES Huntington Beach Generating Station was estimated (based on the range of larval sizes and published growth rates) to be 38 days (MBC and Tenera 2005). We recommend changing “as long as a month” to “to more than one month”.

Section 7.2.2 Fisheries in California

“Additionally, squid larvae have a high probability of entrainment through screened surface

intakes due to their small size. Consequently, squid nurseries should be protected from unnecessary environmental disturbances to ensure the sustainability of the market squid fishery.”

Note that market squid fishery landings increased almost ten-fold--from 12,000 metric tons in 1977 to 119,000 metric tons in 2000—during which time cooling water flows from coastal power plants and wastewater discharges from POTWs increased. The market squid is managed under a fishery management plan that regulates the fishery, including among other restrictions the implementation of fishery closures to ensure uninterrupted spawning (Sweetnam 2007). The seasonal catch limit in California’s Market Squid Fishery Management Plan (CDFG 2005) is 118,000 tons (236 million pounds). There are no population estimates available for market squid, but the fishery has been sustained for the last nine years under the limits of the Fishery Management Plan. We recommend deleting all discussion pertaining to the special status of market squid and their spawning areas.

The SED does not provide a reference for the statement in the SED “...*spawning grounds commonly occur within a few hundred meters of the same location year after year*” and on review appears to be a misstatement of work by Young et al. (2011). The actual wording in Young et al. (2011) is:

“... it is clear that while D. opalescens do return to spawn in the same general area each year, the precise location (i.e. within a few hundred meters) of their egg laying within the well-known historical spawning area off of Monterey cannot be predicted in advance” and “Because they do not show a strong association with specific habitat features, we are unable to predict exactly where they will spawn each year” (our emphasis). There is no mention of spawning site fidelity in the State Market Squid Fishery Management Plan (CDFG 2005) or the Coastal Pelagic Species Fishery Management Plan (PFMC 1998). We recommend deleting all discussion pertaining to the special status of market squid and their spawning areas.

The assertion that “*brine discharge associated with desalination facilities has the potential to significantly impact the viability and survivorship of squid offspring*” is unsupported and should be deleted. The statement is based on email communication without supporting evidence. If toxicity evaluation work has been conducted to support this claim the results should be presented, the protocols used need to be made available to evaluate methods and techniques, and statistical evaluation of multiple tests needs to be referenced to make a claim of “potentially significant impact”. Yang, et al. (1986) were able to raise California market squid from eggs to successfully reproductive mature individuals in laboratory conditions in water that ranged in salinity from 34 to 37 ppt. This range is within the limits proposed by this amendment, suggesting that squid do not need special consideration for brine impacts at the levels proposed in the policy.

The citation for Hixon (1983) (p. 38) is not included in the References section. This citation should be added to the References.

The citation for Young (2011) (p. 38) should be “Young, et al. (2011)”. This citation should be corrected.

Section 8.1 What Types of Facilities Should the Amendment Cover?

“Oil and gas refineries, pulp and paper mills, iron and steel manufacturers, and OTC facilities are well established in California and the number of these industrial facilities is not expected to increase dramatically in coming years. However, the number of desalination facilities in California is expected to more than double in the near future.”

While the number of OTC facilities is not expected to increase dramatically in the coming years, the volume of cooling water used will be substantially reduced to comply with the State Water Resource Control Boards' OTC policy. Power plants at El Segundo, Redondo Beach, Long Beach, and Huntington Beach have all proposed compliance measures that eliminate the use of ocean water for cooling. It is therefore misleading to state that the number of facilities is not expected to increase with the knowledge that cooling water withdrawal and discharge will substantially decrease. We recommend modification as follows: "...and OTC facilities are well established in California and the number of these industrial facilities is not expected to increase dramatically in coming years. However, OTC use will be substantially reduced in the near future (10-15 years) as facilities comply with the State's OTC policy."

Section 8.1.2 Options

"Option 2 would result in clear and consistent application of the Amendment among all regions and facilities. However, there is not enough information about the types of impacts from all industrial facilities using seawater for cooling, heating, or industrial processing. There is a risk that the Amendment provisions would be inappropriately applied to non-desalination facilities in a way that could lead to unintended consequences for facility operations or ineffective regulatory controls. The Amendment may restrict specific needs or prohibit necessary steps in a facility's process. Given the currently available information, it would not be appropriate to broadly apply the Amendment to all facilities using seawater for cooling, heating, or industrial processing."

The justification for eliminating Option 2 is not clear. The State Board should be a little more open about what restricting specific needs or prohibiting necessary steps in a facility's process means. An example of the prohibition of "necessary steps in a facility's process" would be useful in determining why this option is not feasible.

Section 8.3 Should the State Water Board identify a preferred method of seawater intake?

"In 2005, coastal facilities in California withdrew approximately 12.5 billion gallons of seawater per day. More than 95 percent of that water was used for power plant cooling purposes, with the remainder used by other industrial sources such as desalination facilities. (Kenny et al. 2009)."

The authors (Kenny et al.) noted the level of precision in their estimates varied, and their listed sources (US Census Bureau, US Dept. of Agriculture, etc.) would probably not provide reliable estimates of actual cooling water used. The Regional Water Quality Control Boards require discharge volumes to be reported by coastal power plants; the State Board could gather that information and compile it for a more accurate estimate of cooling water use.

"The OTC Policy establishes a technology-based standard for power plants, allows for no impingement, and requires a 93 percent reduction of the intake flow rate."

The State's OTC Policy allows for impingement. The policy requires reduction in the intake velocity to 0.5 feet per second, which is presumed to lower impingement. To accurately and completely inform the Board and the public, the phrase "allows for no impingement" should be replaced with "requires an intake velocity of 0.5 feet per second or less, or a reduction in impingement" to a level that could be achieved through conversion to a closed-cycle cooling system. However, there is no scientific information presented in the policy to indicate that a reduction in velocity to 0.5 feet per second would reduce (or eliminate) impingement. In EPA's Phase II regulations, they state: *"As discussed in that notice, EPA compiled data from three swim speed studies (University of Washington study, Turnpenny, and EPRI) and these data indicated*

that a 0.5 ft/s velocity would protect at least 96 percent of the tested fish. As further discussed, EPA also identified federal documents (Boreman, DCN 1–5003–PR; Bell (1990); and National Marine Fisheries Service (NMFS), (1997)), an early swim speed and endurance study performed by Sonnichsen et al. (1973), and fish screen velocity criteria that are consistent with this approach.” The proposed policy does not indicate if any of the species in these three studies are from the West Coast, or if the data are applicable to fish species in California. The Board should determine if the swim speed studies used as the basis for this requirement were derived from any species in California, and if not, why the species used are applicable.

Section 8.3.1.1 Effects of surface water intakes on the intake and mortality of marine life

“Construction-related intake and mortality of marine life is relatively limited, and can be minimized if construction occurs away from sensitive habitats and areas of high habitat productivity.”

This section does not identify what the components of a surface intake include, how they would be constructed, over what time frame they would be constructed and the types of “marine life” considered in the State’s analysis.

“During 2000 to 2005, power plants in California annually entrained on average 19.4 billion fish larvae with estimated intakes of 78-2,670 MGD. (SWRCB 2010).... During the same time period, approximately 2.7 million fish (84,250 pounds) annually were impinged at power plants, along with a number of marine mammals and sea turtles. (SWRCB 2010)”

These estimates are now 9 to 14 years old. With the retirement of San Onofre Nuclear Generating Station Units 2 and 3, it is likely impingement and entrainment are substantially lower. For instance, SWRCB (2010) reported that San Onofre accounted for roughly 40% of the estimated impingement abundance and 31% of the impingement biomass. Likewise, entrainment at San Onofre represented about one-third of the state-wide estimate. However, both Units 2 and 3 have since been retired from service. Three of the four units at El Segundo Generating Station have also been retired. Therefore, the estimates listed in the proposed policy are misleading and do not represent current conditions. We recommend adding the following sentence above:

“However, these estimates are now 9–14 years old, and many of the generating units have since been removed from service or retired, including the two units at San Onofre, which accounted for roughly 40% of the state-wide impingement and about one-third of the state-wide entrainment.”

The entrainment and impingement estimates should also be placed into context. Nineteen billion fish larvae seems like a large number, but a single female California halibut (*Paralichthys californicus*) can produce more the 50 million eggs per year, and captive females can spawn 13 times per season (which would be equivalent to 650 million eggs, so only 30 individuals could potentially produce more than 19 billion eggs in a single year). Likewise, the 84,000 pounds of fish impinged is a small percentage of the commercial fish landed in California. In 2012 alone, there was almost 353 million pounds of fish/invertebrates landed commercially in California (more than 4,000 times higher than the statewide impingement).

Section 8.3.1.2 Approaches to Reduce Impingement and Entrainment at Surface Water Intakes

“There are numerous technologies that can help reduce or avoid impingement and entrainment of marine life, including intake structure design, configuration of screening systems, passive intake systems, and fish diversion and avoidance technologies. (U.S. EPA 1976).”

This statement is correct. However, the document cited from 1976 is outdated, and was updated as part of EPA's §316(b) Phase I and Phase II regulation processes. The performance/efficacy and feasibility information in the 2004 document would be more applicable. The 2004 Technical Development Document can be viewed online at:

http://water.epa.gov/lawsregs/lawsguidance/cwa/316b/upload/Cooling-Water_Phase-2_TDD_2004.pdf .

Section 8.3.1.2.2 Reducing Through-Screen Intake Flow Velocity

"Based on many swim speed studies, the State Water Board's OTC Policy also requires that through-screen velocities must be limited to 0.5 ft/s (0.15 m/s) or less for existing power plant seawater or estuarine water intakes in order to reduce impingement mortality."

EPA's 0.5 feet per second criteria was indeed based on available information regarding swimming speed of fishes. However, it is not clear if any of the species included in that analysis occurs in California. The State's OTC Policy mirrored the EPA criterion of 0.5 feet per second, but it was not based on any relevant swimming speed data. The State's OTC Policy explains *"The 0.5 ft/sec threshold is based on numerous swim speed studies and has been used in several federal regulations, including the Phase I rule."* There is no evidence that reducing intake velocity to 0.5 feet per second would reduce or eliminate impingement mortality. We recommend deleting *"Based on many swim speed studies,"*.

Section 8.3.1.2.3 Installing Intake Screens

"While fine-meshed screens can reduce entrainment of adult and juvenile fish, they still allow phytoplankton, zooplankton, eggs, and fish and invertebrate larvae to pass through."

Fine-meshed screens would eliminate entrainment of adult and juvenile fish; these fish would be impinged. However, fine-meshed screens can be equipped with mesh as fine as 0.5-mm, which could retain most larvae at some facilities. We recommend modifying the sentence as follows: *"While fine-meshed screens can reduce entrainment, they still allow some phytoplankton, zooplankton, and ichthyoplankton to pass through."*

"The only pilot study that has implemented wedgewire screens on an intake is at West Basin Municipal Water District's (WBMWD) pilot desalination facility. (Tenera Environmental 2013b)"

Wedgewire screens were also tested at the scwd2 (San Cruz Water Dept. and Soquel Creek Water District) intake site. Results can be viewed online at:

http://scwd2desal.org/documents/Draft_EIR/Appendices/AppendixG.pdf

The section on wedgewire screens is fairly long, lists a lot of information from studies, and concludes with the following statement *"Consequently, there is only an approximate one percent reduction in entrainment mortality between screened and unscreened intakes. (Foster et al. 2013)"* This is in disagreement with Table 2 of Appendix 3 (Desalination Plant Intake Review) in Foster et al. (2013); the calculated reduction in Age-1 equivalents from use of 1-mm wedgewire in southern California was 75% for northern anchovy and 40% for CIQ gobies.

"Section 13142.5(b) requires that the Ocean Plan consider all forms of marine life, regardless of size. Subsurface intakes are more protective of marine life than surface water intakes." There is no data to justify this statement. "Marine life" presumably includes organisms living on the seafloor (epibenthos), in the seafloor (benthos), and the organisms that rely on the benthic and epibenthic community. In order to make a comparative statement regarding the effects of subsurface intakes versus other types of intakes, the State Board must provide some analysis of

the types of reasonably foreseeable environmental effects associated with each. In the absence of this, it cannot be concluded that “*subsurface intakes are more protective of marine life than surface water intakes.*” Before reaching this conclusion, the Board should consider the range of effects associated with subsurface intake structures, including:

- Construction-related impacts, such as habitat disturbance, effects to water quality such as increased turbidity and suspension of contaminants, visual impacts, and increased air emissions, and
- Operational impacts, such as habitat modifications and changes in benthic/epibenthic biological communities, and the associated larval production from those communities..

Section 8.3.1.2.4 Velocity Caps

The section on velocity caps summarizes some of the data available, including data from the 1950s, but omits the results of a comprehensive study of velocity cap effectiveness at Scattergood Generating Station (Los Angeles County). The study can be viewed online at: http://www.waterboards.ca.gov/losangeles/water_issues/programs/power_plants/scattergood/08_0128/Velocity_Cap_Report.pdf

Section 8.3.2 Subsurface Intakes

“Beach galleries specifically have design potential for large scale facilities, and have been demonstrated to be able handle large volumes of water. (Missimer et al. 2013)”

What is a “large volume”? This should be explained further.

This section should also discuss intake water quality as a factor in the decision process for subsurface intakes. Legacy pollutants, high oxygen demand, or naturally occurring mineral constituents could make subsurface water difficult or expensive to treat.

Section 8.3.2.1.2 Slant Wells

“Like vertical intake wells, the wellheads of slat wells are generally buried in a vault beneath the ground to maintain shoreline aesthetics.”

The reference to “slat” well should be “slant” well.

Section 8.3.2.1.4 Infiltration Galleries

The decision to utilize engineered sediments should include a discussion on possible changes to the benthic and epibenthic communities based on changes in sediment grain size as a result of the construction (and subsequent operation). Benthic community assemblages are reflective of the substrate in which they live (Johnson, 1970, Gray 1974). Usually, coarse sediments support smaller and less diverse infaunal communities than do finer sediments (Barnard 1963). Also the decision process should include an evaluation of local littoral cells and known regional sediment movement (longshore drift), including nearby dredging and beach replenishment projects. Based on these it should be possible to estimate maintenance requirements to determine the potential frequency of disturbance to the benthic and epibenthic communities.

Section 8.3.4 Options

The State Board is recommending Option 3, requiring subsurface intakes unless deemed infeasible. Option 3 is recommended without any analysis (general or specific) of the types of impacts associated with installation and operation of subsurface intakes. For example, a surface intake could be installed on an existing cooling water intake riser, thereby limiting any effects to seafloor habitat. However, installation of a subsurface intake could disrupt dozens (or hundreds) of acres of seafloor during construction and during maintenance.

While Option 3 allows surface intakes if subsurface intake is not feasible, it does not include a provision on the decision and constraints to locating land-based operations. These could be considerable and should be addressed here. Otherwise this option could result in a de-facto adoption of Option 2, requiring subsurface intake in all cases, by saying that the facility needs to be relocated to an area where subsurface intakes are feasible since they are considered here to be inherently superior (BTA). The onshore constraints for a desalination plant could be considerable, such as:

- Land availability,
- Zoning,
- Access to nearby utilities, and
- Access to water transmission lines.

Based on the information presented in the SED, and on our knowledge of the marine biological resources, Option 1 is the superior option. As summarized earlier in our comments to Section 8.3.1.2.3, wedgewire screens were calculated to be considerably effective in reducing entrainment of fishes, and can be designed to eliminate impingement if they are properly maintained. Environmental impacts during installation of wedgewire screens at existing power plants would likely be much lower than those associated with the installation of subsurface intakes, and wedgewire screens would not substantially alter the seafloor.

The State Board is also recommending the requirement of a single maximum slot size. I would refer the State Board back to the section Installing Intake Screens – the effectiveness of screens depends on the size distribution of the organisms at risk of entrainment. The State could recommend 1.0-mm slot size as the maximum, but what if an entrainment study shows that 2.0-mm would reduce entrainment to some acceptable level, and reduce cost considerably?

Section 8.4.1 U.S. EPA Phase I Rule

It should be clarified that this section refers to the "Clean Water Act §316(b)" Phase I Rule.

Section 8.4.2 Surface and Subsurface Considerations

"Subsurface intakes typically have greater construction-related effects but negligible intake-related mortality. (Missimer et al. 2013; Hogan 2008; Pankratz 2004; Water Research Foundation 2011)"

This is the first place in the document that the scale of effects from subsurface intakes is discussed.

"For example, construction may take two years, but the facility will be operational for 30 years and the marine life mortality associated with the construction of subsurface intakes will be for a short

duration relative to intake-related mortality that would occur at surface intakes as long as a facility is operating.”

This does not consider or mention the operation and maintenance activities associated with subsurface intakes.

The Fukuoka desalination facility in Japan uses a subsurface intake that has an area of 217,330 ft² (approximately five acres) (proposed policy p. 57). The installation of this intake may have substantially reduced or eliminated the potential for entrainment and impingement, but installation of a similar intake in southern California could permanently alter the seafloor habitat through changes in sediment particle size, which could subsequently alter the benthic and epibenthic community. This would affect production, yet this was not considered by the State Board in their proposed policy. The five-acre intake at Fukuoka can withdraw up to 13 million gallons per day (mgd). Therefore, approximately 40 acres of seafloor would be required for a comparable facility that could withdraw up to 100 mgd. For comparison, the size of the intake riser at the Huntington Beach Generating Station is 336 ft² (0.0077 acres).

Section 8.4.3 Siting of Discharges

“Discharge at sites with high advection and ambient mixing will increase dilution, and may be more protective of the surrounding environment. Conversely, siting a brine discharge near a bathymetric depression can result in the formation of a dense anoxic layer that smothers marine life on the sea floor. (Roberts et al. 2012)”

The potential for anoxia and smothering of marine life is unlikely and overstated. Roberts et al. (2012) described the effects of the shoreline discharge of a dense, undiluted concentrate discharge within a bay on the Gulf Coast. They also stated: *“Other far field bathymetric features to be avoided for the siting of a negatively buoyant brine discharge are bathymetric depressions (hollows). These are not generally features found along the exposed open coast of California, but can be common in embayments, either from natural shoaling effects or from man-induced activities such as the dredging of navigation channels and berthing areas,”* and *“This is unlikely to occur with a well-designed discharge, however”* (our emphasis). The precautionary inclusion of this information is appropriate, including the statement: *Depending on the mixing rates with ambient waters outside of the density layer, the dissolved oxygen (DO) supply to the density layer may not meet the net oxygen demand of the benthic fauna within the layer. In this case, DO will decrease over time and, if the layer persists long enough, hypoxia or anoxia within the bottom layer can produce lethal effects in the far field well away from the discharge.* However, the wording *“smothers marine life on the sea floor”* was not included in the original report. We recommend deleting the sentence that begins with “Conversely,”.

Sections 7.2 Marine Biodiversity and 8.4.5 Sensitive Species and Habitats

California’s diverse habitats support complex ecosystems with high species diversity. These biologically diverse species are extremely valuable from an ecosystem standpoint as well as being a key contributor to California’s economy (discussed further in section 7.2.2). A sample of the algal, invertebrate, and fish diversity is provided in Appendix C. Some of the species in Appendix C may be sensitive species, which are species that can only live in a narrow range of environmental conditions. The presence of sensitive species can be used as an indicator of a healthy ecosystem and the absence may be an indicator of environmental changes. The types of sensitive species will vary among biogeographic regions in California and with habitats. Section 12 discusses state and federally listed threatened or endangered species that are also of interest when siting and designing a desalination facility.

Appendix C does not include any fish. *Table C-3. Life History Information for Selected California Marine Fishes* repeats the information presented in *Table C-2. Life History Information for Selected California Marine Invertebrates*. This should be corrected.

In addition, the definition of sensitive species utilized in the SED is extremely narrow, without reference, and to the extent we can determine, incorrectly presented:

Section 7.2: *“Some of the species in Appendix C may be sensitive species, which are species that can only live in a narrow range of environmental conditions. The presence of sensitive species can be used as an indicator of a healthy ecosystem and the absence may be an indicator of environmental changes. The types of sensitive species will vary among biogeographic regions in California and with habitats.”*

And later:

Section 8.4.5: *“Sensitive species are organisms that can only survive within a narrow range of environmental conditions. The absence of sensitive species in an area can be used as an indicator of pollution or change from the “natural” environmental conditions.”*

It appears that this definition was incorrectly quoted from an online information source *Biology Online* (http://www.biology-online.org/dictionary/Sensitive_species). This quote is:

“Sensitive species

sensitive species

(Science: ecology, zoology) species that can only survive within a narrow range of environmental conditions and whose disappearance from an area is an index of pollution or other environmental change.”

An essential difference here is that in the case of the source quote, it is implied that the *disappearance* of a species previously known to occur in an area is an indicator of impairment or change, not the mere *absence* of *any* species designated as sensitive in an area. Still this definition of sensitive species is too narrow.

The California Department of Fish and Wildlife maintains a list of “Special Animals” with the California Natural Diversity Database (CNDDB; <http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/spanimals.pdf>). According to the list ““Special Animals” is a general term that refers to all of the taxa the CNDDB is interested in tracking, regardless of their legal or protection status. This list is also referred to as the list of “species at risk” or “special status species”. The Department of Fish and Game considers the taxa on this list to be those of greatest conservation need.

The species on this list generally fall into one or more of the following categories:

- Officially listed or proposed for listing under the State and/or Federal Endangered Species Acts.
- State or Federal candidate for possible listing.
- Taxa which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act Guidelines.
- Taxa considered by the Department to be a Species of Special Concern (SSC)
- Taxa that are biologically rare, very restricted in distribution, declining throughout their range, or have a critical, vulnerable stage in their life cycle that warrants monitoring.

- *There may be taxa that fall into this category but are not included on this list because their status has not been called to our attention.*
- *Populations in California that may be on the periphery of a taxon's range, but are threatened with extirpation in California."*

Similar lists for plants are also available. This definition of "special" is essentially equivalent to the more typically used term "sensitive" as referenced in the SED. As can be seen above, inclusion on the list is considerably more comprehensive than the definition presented in the SED. Utilizing the absence of any sensitive species at a locale as an indication of impairment at that location is not appropriate.

To address the several concerns we recommend that the paragraph above from Section 7.2 be modified to:

California's diverse habitats support complex ecosystems with high species diversity. These biologically diverse species are extremely valuable from an ecosystem standpoint as well as being a key contributor to California's economy (discussed further in section 7.2.2). Life history information for selected California marine species is provided in Appendix C, which includes some sensitive species. Section 12 discusses state and federally listed threatened or endangered species that are also of interest when siting and designing a desalination facility.

We also recommend that the sentences "*Sensitive species are organisms that can only survive within a narrow range of environmental conditions. The absence of sensitive species in an area can be used as an indicator of pollution or change from the "natural" environmental conditions*" from Section 8.4.5 be deleted.

Section 8.4.6 Co-Location

"The use of the power plant's cooling water discharge does not result in incremental marine life mortality because any organism in the cooling water is presumably already dead due to the use of the water within the power plant."

This is incorrect. Entrainment survival studies have demonstrated survival of ichthyoplankton, zooplankton, and phytoplankton after passage through once-through cooling water systems (see <http://carlsbaddesal.com/Websites/carlsbaddesal/images/eir/Tenera.pdf>). While survival of ichthyoplankton may be low, it is probably not 0%. In the entrainment study for the Carlsbad Desalination Project, entrainment survival ranged from 0% to 9%, and averaged 2.4%. At Scattergood Generating Station, thermal/mechanical stresses due to passage through the once-through cooling water system in winter resulted in an initial survival of 91% and a latent survival of 67% for adults of the copepod *Acartia* spp. (IRC 1981). In summer, survival of *Acartia* was 95%. We recommend the following wording: "*The use of the power plant's cooling water discharge would result in some incremental marine life mortality because some organisms survive transit through power plant cooling water systems. The survival rate varies by organism type and species, but ichthyoplankton survival is generally very low.*"

Section 8.4.8 Options

Option 3: "*All other things being equal, locations where subsurface intakes are feasible would be considered the best because subsurface intakes do not impinge or entrain marine life. Desalination facilities could be sited at locations where subsurface intakes are infeasible as long as the regional water board determines it is otherwise the best site and in combination with the*

best design, technology and mitigation measures results in the least amount of marine life intake and mortality.”

This makes no mention of potential effects from brine discharge. While co-location may employ a surface intake, it could also result in increased dilution with effluent streams (potentially from wastewater dischargers). The policy presumes co-location is with power plants, but it could also occur at wastewater treatment or reclamation facilities.

Section 8.5 Should the State Water Board provide direction in the Ocean Plan on mitigating for desalination-related impacts?

“Section 13142.5(b) (see section 8.1.1 of this staff report) requires an owner or operator of a new or expanded facility to mitigate for all intake and mortality of marine life, including mortality associated with facility’s construction, intakes, and discharges.”

That is the State Board’s interpretation of Section 13142.5(b), which requires using “feasible” measures to “minimize” and “mitigate”. Section 13142.5(b) states:

“For each new or expanded coastal powerplant or other industrial installation using seawater for cooling, heating, or industrial processing, the best available site, design, technology, and mitigation measures feasible shall be used to minimize the intake and mortality of all forms of marine life.”

The State Board should reference Section 13142.5(b) as it is written, not according to its interpretation.

Section 8.5.1 Marine Life Mortality Assessment

AEL and FH

“AEL and FH place a higher value on larger and older fish because older individuals have lower mortality rates than younger fish and consequently a higher probability of reaching reproductive maturity and reproducing.”

This is poorly worded. AEL and FH do not “place values” on fish. They convert the numbers of eggs and/or larvae into numbers of equivalent adults or reproductive females. One of the advantages of AEL and FH is putting larval loss estimates into the context of numbers of adult fish. The end product can be the number of Age-1 equivalents, in which case the entrainment of a five-year-old fish (for example only) could equal several Age-1 equivalents. In contrast, entrainment of a 4-day-old larva could be equivalent to 0.05 Age-1 equivalents. The general public could benefit from knowing if the loss of several million larvae from a single species was equal to two adult fish or 200,000 adult fish. We recommend changing the wording to: “AEL and FH are commonly used to convert the numbers of eggs and/or larvae into numbers of equivalent adults (AEL) or the number of adult females whose reproductive output was eliminated by entrainment (FH).”

“AEL and FH discount the importance of the younger, smaller fish from a population standpoint and the methods do not assess the indirect impacts of the entrained organisms.”

See response above. We recommend deleting this sentence.

“The loss of younger, smaller fish may seem inconsequential from a population standpoint because they have high natural mortality rates; however, AEL and FH do not quantify the loss of organisms from an ecosystem standpoint and how they.”

This incomplete sentence does not make sense. We recommend deleting this sentence.

ETM/APF

“A key assumption in the APF method is that the production forgone for a subset of species is a representative sample of all species present at that location, even those that are not directly measured.”

This is not a key assumption of the APF. This is how APF has been applied at power plant and desalination siting cases in California for the past 10 years, but it is not part of the actual method. The APF used for mitigation could be the highest value instead of the average. We recommend revising this sentence to: *“A key assumption in how the APF method has been applied to date in California is that the production forgone for a subset of species is a representative sample of all species present at that location, even those that are not directly measured.”*

There is also no discussion regarding the type of habitat to be created.

“The creation of habitat benefits all species in the food web regardless of whether or not they were assessed in the ETM/APF model.”

This statement uses the term “creation of habitat” instead of “restoration of habitat”, and the two are not the same. This could imply the State Board will not consider the restoration of one acre to be equivalent to the creation of one acre. Restoration of habitat also needs to consider the organisms to be replaced. That is, restoration of wetlands will do little to directly replace the loss of coastal fish taxa, such as anchovies and croakers, but it will produce species such as gobies. It will also provide additional out-of-kind benefits, such as improvements to water quality, habitats for threatened and endangered species, and recreational opportunities. We recommend changing “creation of habitat” to “creation and restoration of habitat”.

Section 8.5.1.2 Discharge-related Mortality

“To date, there is no empirical data showing the level of mortality caused by multiport diffusers. Foster et al. (2013) hypothesized that the actual level of mortality associated with multiport diffusers was very low, in part because the exposure time to organisms was very low. However, until additional data is available, we assume that larvae in 23 percent of the total entrained volume of diffuser dilution water are killed by exposure to lethal turbulence. The actual percentage of killed organisms will likely change as more desalination facilities are built and more studies emerge. Future revisions or updates to the Ocean Plan may reflect additional data that becomes available.”

The State Board has no data on discharge-related mortality, but is assuming 23 percent mortality based on Foster et al. (2013). See Philip J. Roberts’ comments on the Tenera report (in Foster et al. [2013]):

- Only 23-38% of the larvae in this water would likely be affected and only for short times;
- Although the exit velocity in the jets is quite high, this velocity attenuates rapidly with distance from the diffuser to near background level within a few meters.

- Any larvae entrained into the jets will travel along the jet axis and eventually be expelled; at most, they will be exposed to high turbulence levels for tens of seconds. Most larvae will only be exposed to low turbulence levels. The smallest scales of this turbulence are generally smaller than the smallest organisms, suggesting little effect.
- These have been extensively monitored, and show little environmental impact within a few tens of meters from the diffuser. It is not clear why Tenera did not include actual experience with brine diffusers in their report.
- While it is true that some damage to larvae may occur due to turbulence in the diffuser jets, it is probable that only a small fraction of those entrained will be subject to damaging levels and for durations long enough to cause significant impact.

In the absence of reliable estimates of potential mortality associated with diffuser discharges, the State Board should not impose their “best guess” as a regulatory requirement. If the State Board is requiring studies to determine entrainment estimates, then it should require some scientifically valid estimate of discharge-related mortality in lieu of the 2.0-ppt area/volume estimation.

“However, the volume of water susceptible to high shear stress should always be less than the volume of water where salinity exceeds 2.0 ppt above natural background salinity. Thus, shearing-related mortality would only occur within the area that exceeds 2.0 ppt above natural background salinity, and mitigating an area equivalent to the area that exceeds 2.0 ppt above natural background salinity would also compensate for shearing-related mortality.”

There is no reference or justification for the 2 ppt assertion. If the State Board does not have a scientific basis for this requirement, then it should be included in study requirements of the facility owner/operator.

Section 8.5.2.2 Discharge-related Mortality

See response to Section 8.5.1.2. The comparison of larval mortality potential within a diffuser plume to a mortality assessment of 100% for water used for in-plant dilution was not included in this section of the SED.

Section 8.5.4 Adding Certainty to Mitigation Projects

Care should be taken when analyzing entrainment/source water data. We recommend deleting the requirement for analysis of confidence intervals. There are several other important steps to consider before reaching this step, such as: which species to analyze, how source waters will be calculated, how larval duration will be calculated, etc. In addition, there are questions to ask when applying APF estimates to a mitigation project, including the compatibility of habitat types.

Section 8.5.6 Options

“Because it does not provide a consistent statewide approach for minimizing intake and mortality of marine life, protecting water quality, and related beneficial uses of ocean waters.”

This sentence is incomplete.

“Intake-related impacts would be assessed using an ETM/APF approach and the final APF would be calculated using a 90 percent confidence level. Although a 90th percentile confidence interval may appear to require a very high level of statistical certainty, the confidence level is less than other types of current Board requirements (e.g. Instream Flow Policy, cleanup standards). In

practice, the amount of additional acreage needed for a 90th percentile confidence level is relatively low in comparison to the total size of a mitigation project.”

In 2011, Dr. Peter Raimondi prepared a report for the CEC entitled “VARIATION IN ENTRAINMENT IMPACT ESTIMATIONS BASED ON DIFFERENT MEASURES OF ACCEPTABLE UNCERTAINTY”, available online at: <http://www.energy.ca.gov/2011publications/CEC-500-2011-020/CEC-500-2011-020.pdf>. In this report, he illustrates several examples of using different confidence intervals in calculating restoration. Based on the examples provided in that report, if the 90% confidence interval was used instead of the mean (50%) confidence interval (note: these numbers are estimated because raw data were not included, only illustrations), estimated mitigation projects could potentially triple in size. While this is dependent on the use of mean density versus species-specific density, and mean larval duration versus species-specific larval duration, mitigation may not always be “relatively low”. Statistical outliers (anomalous data points) can greatly affect the confidence intervals. We recommend deleting references to the 90 percent confidence interval.

“Discharge-related impacts would be estimated by determining the area or volume in which salinity exceeds 2.0 ppt above natural background salinity (or an alternative facility-specific alternative receiving water limit).”

As stated before, there is no basis for the 2.0 ppt limit.

Section 8.6.2.2.1 Marine Life Entrainment at Multiport Diffusers

“Multiport diffusers are designed to increase turbulent mixing (Roberts et al. 1997) and as a result, organisms that are entrained into the brine discharge may experience high levels of shear stress for short durations, which is thought to cause some mortality.”

The State Board is considering high-velocity multiport diffusers to facilitate mixing and dispersion. However, if shear stress is such an issue, why not consider low-velocity multiport diffusers that would minimize shear stress and still provide mixing. It would require more ports and a larger area, but why limit the discussion?

Section 8.7.1 Background: Effects of Saline Discharges on the Marine Environment.

In reference to Roberts et al. (2012), the SED states *“that the Panel reviewed scientific literature that addressed impacts of elevated salinity on marine organisms and found that most marine organisms started to show signs of stress when salinity was elevated by 2 to 3 ppt...”*. This is an overstatement of the Panel's conclusions which is worded as *“...based on existing information, a salinity increase of no more than 2 to 3 ppt in the receiving waters around the discharge appears to be protective of marine biota”* (our emphasis).

8.7.2 Natural Background Salinity

Natural background salinity should be evaluated for each facility by averaging historical salinity data at the proposed facility location from at least 20 years prior. When historical data are not available, natural background salinity should be determined by measuring salinity at the depth of the proposed discharge for several years at relatively high frequency. Background salinity should be determined prior to discharging brine in order to best establish natural conditions.

If “natural background salinity” is to be measured, it should be measured at the location *and depth* of the proposed discharge. We would also suggest that the salinity of a reference location

of similar depth and bathymetric characteristics be established outside of the area of potential influence of the discharge to determine similarity of salinity characteristics for comparison after initiation of discharge. A 20-year data set of salinity at depth at the discharge location is not practical. Instead we suggest that long-term data be acquired from the nearest location(s) where the bottom salinity data is available for the period required. The Shore Station Program (<http://shorestation.ucsd.edu/>) would be a suggestion for one source of data, but there are others. Intensive sampling over a relatively short period of time of at least one year is sufficient to make meaningful comparisons of local salinity characteristic to those at established monitoring stations.

We recommend that the paragraph be reworded: *“Natural background salinity should be evaluated for each facility by averaging historical salinity data from the nearest available source of long-term salinity data (preferably 20 years prior). High frequency salinity testing at the proposed location and depth of the discharge, and at a nearby reference site expected to be outside of the area of influence of the proposed discharge, should occur over a one-year period. Comparison of this data between sites and to the historical data source will allow for the determination of natural background salinity in the project area and establish a site for later comparison and determination of naturally occurring variability.”*

Section 8.7.5 Options

“Using laboratory or farm raised animals increases the accuracy and reproducibility of the studies. Wild-caught species will have different levels of physical fitness, which can result in inconsistencies in the toxicity test results. If toxicity tests are run on wild species any differences detected may be a result of environmental variability and not actual differences. There is a high probability toxicity studies on wild caught species will result in inconclusive results.”

We note that one of the species required for toxicity testing (giant kelp [*M. pyrifera*]) is presently not raised in a lab due to its size. Instead, giant kelp is harvested by individuals with proper permits, and sold to laboratories for testing. Our ELAP-certified laboratory runs toxicity tests on this species on a regular basis. It should be clarified that giant kelp can be “wild caught”. We recommend adding the sentence: “When possible, toxicity test organisms should be laboratory- or farm-raised; however, these organisms may not always be available.”

There is an inconsistency to the approach to defining the maximum salinity limits in these options. Options 2, 3, and 4 utilize a maximum salinity limit of 2 ppt at the edge of the ZID, while Option 5 references a limit 3 ppt as being protective. Option 6 includes a reference to a range of 1.7 to 3 ppt, again stating the 3 ppt limit would be protective based on the Expert Review Panel. Since the limit of 3 ppt is justified as being protective for some of the options it is suggested that the 3 ppt limit be accepted for all options.

We recommend that the limit of 3 ppt be utilized for all options.

Section 12.1.4 Biological Resources

“Surface and Subsurface intake construction related impacts are compared in section 8.4.2 describing that although subsurface intakes could potentially have more construction related impacts, the construction period is much shorter and much less severe to the long term operation impacts caused by surface water intakes.”

The State Board never describes (even conceptually) the types of organisms, numbers of organisms, area or type of habitat that could be affected during construction, operation, and maintenance of a subsurface intake system.

“Although the analysis for the four facilities described above results in few significant impacts, it is unlikely that all future facilities would result in similar impacts to biological resources for the following reasons. The abundance and distribution of state and federally listed marine and terrestrial threatened and endangered species vary significantly throughout the coast. Further, critical habitat designated for federally listed species and Essential Fish Habitat designated for fisheries management encompass significant portions of California’s nearshore marine waters. In addition, entrainment studies conducted for the Huntington Beach and Marin facilities indicated that fish and invertebrates are entrained by surface water intakes. While these studies concluded that the observed entrainment would have a less than significant impact, it cannot be concluded that all future facilities will also result in no impact on the sustainability of local species, or the recovery and propagation of state and federally listed species. Further, the limited research conducted by the four proponents considered in this analysis did not attempt to evaluate potential impacts to the food web.”

The State Board should consider the results of the Cumulative Impacts Study prepared as a Conditions of Certification for the AES HBGS Retool Project (MBC and Tenera 2005). The Cumulative Impacts Study analyzed impingement and entrainment impacts from the coastal power plants in southern California. The cumulative mortality due to entrainment ranged between 0 and 2% depending on location and larval duration. It should be noted that the estimates were calculated using the maximum permitted flow volumes of 13 power plants. Due to facility retirement (Long Beach, South Bay, and San Onofre) and repowering projects (El Segundo 1&2, Haynes 3-6), the flow volume has likely been reduced by 40%. In addition, the effects from some of the projects (San Onofre and Huntington Beach 3&4) were mitigated with agency oversight.

Based on the information presented by the State Board, and on our extensive studies with California’s nearshore marine biological communities, surface intakes (if properly sited, constructed, and maintained) could minimize environmental impacts without large-scale, long-term impacts to biological communities associated with the seafloor and/or beaches. Without an example of what a likely or preferred subsurface intake would look like, the most likely comparison is that of the Fukuoka plant in Japan; a similar intake would alter 40 acres of seafloor to withdraw 100 mgd. The SED did not provide a any estimate of the area of seafloor disturbed due to construction of wedgewire; however, we can only conclude it would be much less. For example, it was estimated that 20 wedgewire screens would be required for approximately 500 mgd of cooling water at the AES Huntington Beach Generating Station (EPRI 2008). Each screen would be supported to the cooling water pipe by a 7-foot-diameter riser. Even if there were still 20 screens for a 100-mgd desalination facility, the footprint of the risers would only be about 770 ft² (or about 1.8 acres). Assuming a linear reduction between intake flow and screen area, the estimated footprint would be one-fifth of that, or 0.35 acres (more than 110 times smaller than the area required for a subsurface intake).

Comments on the Draft Amendment

L.2.5.b.(2). *“...that avoid impacts to sensitive habitats”* and sensitive species.” The definition of sensitive habitats includes “market squid nurseries”. Market squid spawn in waters from 3 to 180 m deep, but primarily at 15 m (MBC 1986). The definition of market squid nursery has been misconstrued and is incorrect (see comments above to Section 7.2.2). Squid do not necessarily return to the same areas to spawn. The way nursery is defined, any place where squid spawn could be classified as a nursery. We recommend deleting references to market squid nurseries and their designation as a special habitat.

L.2.d.1.(a).i In the consideration of criteria for determining feasibility of subsurface intakes, we would recommend the following additions: source water quality, impacts to benthic and epibenthic communities, habitat replacement, and littoral cell characteristics.

L.2.d.1.(c).ii It is unclear why the State Board is picking a slot size but has not yet presented any data on effectiveness of slot sizes (which will vary by location, season, etc.). The State Board should consider the trade-offs between slot size and affected habitat. For instance, for any given intake, reducing the slot size will require an increase in the surface area to maintain a low through-screen velocity (i.e., narrower slots require more surface area to achieve the same through-screen velocity). Therefore, there would be an incremental amount of seafloor habitat affected by requiring a smaller slot compared to a larger slot. Because the flow requirements (and marine life affected) will vary from site to site, the State Board should not require any particular slot size.

L.2.d.1.(c).iii *“An owner or operator may use an alternative method of preventing entrainment so long as the alternative method provides equivalent protection of eggs, larvae, and juvenile organisms as is provided by....”* This should be limited to fish, not all marine organisms. Otherwise, this would encompass all plankton. The requirement for 36 consecutive months of data is also excessive. The use of the *ETM* model accounts for year-to-year variability in larval densities.

L.2.d.1.(d) The justification for a through-screen velocity of 0.5 fps is not clear (see comments to Section 8.3).

L.2.d.2.(b) Multiport diffusers are to be engineered to “maximize dilution...and minimize marine life mortality.” However, based on the information presented, the maximum dilution occurs at high jet velocity, which increases mortality.

L.2.d.2.(c) The term “marine life” is used in this section, and is not defined.

L.2.d.2.(d) The policy requires evaluation of *“all of the individual and cumulative effects of the proposed alternative discharge method on marine life mortality, including (Where applicable); intake-related entrainment, osmotic stress, turbulence that occurs during water conveyance and mixing, and shearing stress at the point of discharge.”* Note that it may not be possible to parse out the contribution of different stresses to organism death. If we collected plankton in the field, how would one identify if the organism died from osmotic stress, turbulence during mixing, or shear stress? We recommend deleting the reference to individual effects.

L.2.d.2.(e).iv This process was not discussed in the Staff Report/SED. The option recommended by Staff allows for flexibility in design-based and site-specific constraints. If mitigation is based on flow augmentation, discharge impacts should be properly offset.

L.2.e.(1).a Thirty-six months is excessive for an entrainment study. The use of the *ETM* model accounts for year-to-year variability in larval densities. A study period of 12 to 24 months would be sufficient. The use of 200-micron mesh for “a broader characterization” is also excessive and this requirement should be deleted. The State Board staff attempted to include this into the Once-through Cooling Water Policy. We also recommend deleting references to the use of the 90 percent confidence interval (CI).

L.2.e.(1).b This section sets a salinity threshold of +2 ppt above background salinity. However, Roberts et al. (2013) recommended an increase of “no more than 2 to 3 ppt”. This section requires use of “any acceptable approach for evaluating mortality that occurs due to shearing stress resulting from the facility’s discharge” (?).

We recommend that the limit of 3 ppt be utilized.

L.2.e.3.b.ii “The owner or operator shall do modeling to evaluate the areal extent of the mitigation project’s production area* to confirm that it overlaps the facility’s source water body.* Impacts on the mitigation project due to entrainment by the facility must be offset by adding compensatory acreage to the mitigation project.”

This language should be deleted. Here the State Board is (1) requiring evaluation of the mitigation project’s “production area” , (2) requiring this area to overlap the source water body, and then (3) penalizing a facility for subsequent entrainment impacts. The alongshore length of the source water at the HBGS (for one species) extended about 85 km (53 miles). First, the term “production area” is not defined. Second, if the source water overlaps with the area that larvae from the mitigation site are ultimately transported to, the owner/operator should not be penalized for potential entrainment. This could be a never-ending cycle of penalization, as some percentage from each incremental offset could be entrained. It is not possible to determine where the true source of larvae are – for facilities on the open coast, the calculation of larval duration (the period of time larvae are exposed to entrainment) used in conjunction with ocean current data allow the determination of a length the larvae could have traveled. However, due to the complexity of ocean currents, the confidence in determining an actual source “point” would be low. Recently, high-frequency radar (CODAR) has been used to measure surface currents during source water studies, but we have not seen any data regarding the accuracy of this method. CODAR data may not be available for some areas of California. In addition, at HBGS a large fraction of the larvae entrained may not have originated in the nearshore waters, but instead were likely exported out of bays, estuaries, and harbors, and their point of origin could not be determined.

The goal of the mitigation project should be to create habitat sufficient to offset losses due to entrainment; the discharger should not be liable for what happens to larvae produced from the mitigation site. The State Board should also allow some flexibility in determining the best methods for determination of source waters.

“The regional boards may require additional habitat be mitigated to compensate for the annual entrainment of organisms between 200 and 335 microns.” This sentence should be deleted. In Section 8.5.1.1 of the Staff Report, the use of ETM/APF is required because:

- It compensates for all entrained species and not just commercially valuable fish taxa,
- Requires less life history data for species compared to other methods (e.g., AEL and FH),
- Utilizes representative species that can be used as proxy species for rare, threatened, or endangered species, which may be challenging to acquire adequate data for, and
- The creation of habitat benefits all species in the food web regardless of whether or not they were assessed in the ETM/APF model.

Additional mitigation is not necessary with use of the APF. In Section L.2.e.1.a it is noted that the 200-micron mesh is for a “broader characterization”.

L.2.e.3.b.iii “...shall restore one acre of habitat unless the regional water board determines that a mitigation ratio greater than 1:1 is needed.” There will be issues with out-of-kind mitigation. At the HBGS, which intakes and discharges from nearshore, sandy habitat, the CEC required mitigation of wetlands. There should be flexibility in determining ratios, and it should not be limited to numbers greater than one. For instance, 0.5 acres of wetlands could offset losses of 1.0 acres of nearshore, sandy habitat. The same should apply to the next section regarding construction-related habitat.

L.3.b.1 It is not clear why the limit is expressed in “ppt” but measurements are required in “TDS”. We can measure salinity *in situ* using instrumentation (moored sensors, profilers, water quality probes) in practical salinity units (psu; 1 psu \approx 1 ppt, as stated in the SED). However,

determination of TDS requires collection of grab samples, and delivery to an analytical lab. This requirement makes no sense. We recommend measurements using ppt/psu.

L.3.c.1.a. The 36-month requirement is excessive and should be deleted.

L.3.c.1.b. The policy requires toxicity testing using five species. We note that these species are not always available from suppliers and several of these may not spawn for several months during the year, including mussels, purple urchin, and red abalone. Inclusion of three invertebrate species for testing seems excessive and is not consistent with current testing requirements in the Ocean Plan. We recommend utilizing the test approach described in the Ocean Plan (Appendix III) that utilizes three species (a fish, an invertebrate and an aquatic plant, if possible) to measure compliance with the toxicity objective. In addition we recommend that WET testing allow a tiered approach to use of the species required for testing as presented in Table III-1 of the Ocean Plan (SWRCB 2012). This approach is a practical method to ensure that test organisms are available throughout the year

L.3.c.4. If a facility uses toxicity data and shows no effect, but the monitoring data or BACI study or “any other information” isn’t to the Board’s liking, they can “eliminate” or “revise” a facility-specific alternative receiving water limitation. This is fairly broad and open to interpretation (and potentially misuse). We recommend deleting L.3.c.4.

Definitions:

Eelgrass Beds: This definition is limited to *Z. marina* even though there are other *Zostera* species in California.

Empirical Transport Model (ETM): The ETM definition is incorrectly presented. The ETM provides an estimate of the probability of entrainment due to desalination (or power plant) intake. The source water body is not determined by the ETM, but is determined either *a priori* using available data, or it can be measured using current data. The ETM calculates the conditional mortality due to entrainment on an estimate of the population of organisms in the source water that are potentially subject to entrainment. See Steinbeck et al. (2007) for a more accurate definition.

Market Squid Nurseries: This should be deleted from the policy. The last sentence in the definition has been misquoted, and is incorrect. (see Comment to Section 7.2.2 of the Staff Report).

Natural Background Salinity: The requirement to use 20 years of background data is excessive. Weekly basis for three years is also excessive.

Salinity: The switch from ppt to TDS is strange. As described above, measurements of TDS and ppt are very different. Codify that “psu” and “ppt” can be used interchangeably for the presentation of monitoring reports.

Sensitive Habitats: Market squid nurseries should be deleted from this section. Market squid can spawn over sandy, nearshore habitat, and not necessarily in the same location from year to year. This definition could mean large stretches of sand would be “sensitive habitats”.

Additional References

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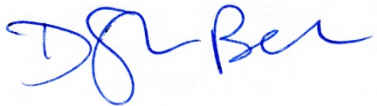
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Conclusion

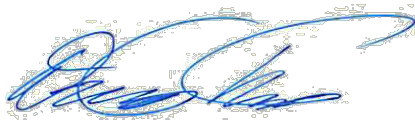
Please feel free to call myself (sbeck@mbcnet.net) or David Vilas (dvilas@mbcnet.net) if you have any questions or need anything else.

Respectfully,

MBC *Applied Environmental Sciences*



Shane Beck
President



David Vilas
Senior Scientist

EXHIBIT B

5 August 2014

Paul Shoenberger, PE
General Manager
Mesa Water District
1965 Placentia Ave.
Costa Mesa, California 92627
(949) 631-1206
PaulS@MesaWater.org

Re: Comments on Ocean Plan Amendment Supporting Material

Dear Mr. Shoenberger:

Attached are MBC Applied Environmental Sciences' comments on the supporting material for the proposed Ocean Plan Amendment. Most of my concerns and comments were summarized in the letter transmitted earlier today on the actual amendment and SED. Excerpts from the supporting material are in italics, and my response/comment is in normal font.

Comments on Jenkins et al. (2013) – Recommendations for brine discharge

California Biota - Data on the effects of elevated salinity and concentrate discharges on California biota are extremely limited, often not peer-reviewed, not readily available, or have flaws in the study design. Only one published study has documented impacts of a concentrate discharge on marine biota of California in the laboratory (Voutchkov 2006).

Jenkins et al. (2013) notes the flaws in Voutchkov (2006), but does not mention the hyper-salinity studies that were underway (and finalized one month later) at West Basin.

Comments on Foster et al. (2013) – Mitigation and Fees

A.3 - "The APF method is preferred because creation and restoration of coastal habitats compensates for all organisms impacted by entrainment, not just select groups such as fishes."

This may not necessarily be true. If entrainment included larval lobster, and APF was used to calculate an area of 50 acres, the restoration of 50 acres of wetlands would do little to compensate directly for losses of larval lobster. Differences in productivity between the affected habitat and the restored/created habitat need to be taken into consideration.

C.8 – "However, any biological impacts associated with a properly designed, constructed, and operated subsurface intake should be minimal since the withdrawal velocity through the sediment is very low....Large beach galleries or seabed filtration systems may have low IM&E impacts but large construction impacts on benthic organisms. Such construction impacts should be thoroughly evaluated for any projects proposing such intakes."

This logic was not carried forward into the proposed policy.

C.9. – *“Other entrainment reduction technologies for surface intakes have not been evaluated in the coastal waters of California.”*

SCE conducted field and laboratory tests of fine mesh screens and wedgewire screens at their Redondo Beach R&D lab in the 1970s (LMS 1981).

Reference: Lawler, Matusky, and Skelly Engineers (LMS). 1981. Larval exclusion study. Final Report. Prepared for Southern California Edison Company, Rosemead, CA. Research and Development Series 81-RD-30.

Appendix 1 – The appendix (Raimondi 2013) omits the project name, which is used in the text, so there is no way to verify the data.

Appendix 3 – This appendix (Steinbeck 2011) highlights how effective wedgewire could be in reducing entrainment of Age-1 equivalents. While this technology may not be as effective as a subsurface intake, benthic habitat would not be affected (or much less habitat would be affected) during construction/operation. *“The use of indirect or subsurface intake systems will likely be restricted to very site-specific application or low volume plants due to the high construction and maintenance costs, operational challenges, and uncertainty in using these intake designs for larger capacity desalination plants. The potential environmental effects of these intakes are largely unknown. There are likely to be impacts on later stage fish larvae for species that settle to the bottom to complete development (Jahn and Lavenberg 1986).”* This logic was not carried forward into the proposed policy.

Comments on Foster et al. (2013)—Entrainment and Mitigation

1.A – *“Turbulence will likely be low because only 23-38% of the entrained water is exposed to potentially damaging turbulence, and exposure to such turbulence is on the order of seconds. Literature reports of damage to larvae caused by turbulence are generally based on longer exposure times. Moreover, the need for and efficacy of diffuser designs suggested by Jenkins (2013) to reduce turbulence are questionable (review in Appendix 3).”* This logic was not carried forward into the proposed policy.

Appendix 3 – Regarding exposure of larvae to shear stress during diffuser entrainment: *“The experiments on which the criteria are based consisted of injection of juvenile freshwater fish into the zone of flow establishment close to the nozzle at the edge of the jet where shear rates are much higher. This is a quite artificial situation for actual fish behavior, which would not be expected to enter this zone.”* This logic was not carried forward into the proposed policy.

Appendix 4 – The table (Raimondi) includes the project name that was absent above in Appendix 1 of Foster et al. (2013). Note that the HBGS mitigation is listed as 66 acres, but it was actually 66.8. The amount listed in the table (\$4.927 million) is also lower than required by the CEC (\$5.511 million). See:

http://www.energy.ca.gov/sitingcases/huntingtonbeach/compliance/2006-09-27_COMMISSION_ORDER.PDF

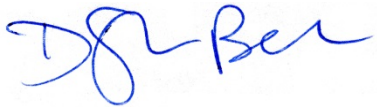
Appendix 5 – Jenkins recommends measuring photosynthetically active radiation (PAR), but does not give a reason. There are multiple methods for measuring turbidity in the water column, including measurements of NTUs, light transmission, suspended solids, PAR, and colored dissolved organic materials (CDOM). While PAR may be the most appropriate, the reasoning is not spelled out.

Conclusion

Please feel free to call me or email me (sbeck@mbcnet.net) if you have any questions or need anything else.

Respectfully,

MBC *Applied Environmental Sciences*

A handwritten signature in blue ink, appearing to read "Shane Beck". The signature is fluid and cursive, with the first name "Shane" written in a stylized, looped manner and the last name "Beck" written in a more straightforward cursive style.

Shane Beck
President

Status of Ongoing MWDOC Reliability and Engineering and Planning Projects

August 27, 2014

Description	Lead Agency	Status % Complete	Scheduled Completion Date	Comments
Baker Treatment Plant or Expansion of Baker Water Treatment Plant	IRWD, MNWD, SMWD, ETWD Trabuco CWD		On line date is late 2016	MWDOC has been asked to help secure MET's concurrence on the quality of water being introduced into the South County Pipeline. Staff is awaiting a draft of an amendment from MET staff and legal counsel. A meeting has been scheduled for September 10 with MET Operations and Legal Staff.
Doheny Desalination Project	MWDOC			Staff members from the Doheny Desal Participants group met to discuss the current status of events. The meeting provided an opportunity for South Coast Water District to discuss their planned work activities; Andy Brunhart passed out a schedule of work over the next several years that would result in completion of CEQA and permitting for a 5 mgd facility that could ultimately be expanded to a 15 mgd facility. Andy expressed the desire to explore concepts for the formation of a JPA that would include provisions for other agencies coming in at a later time, say after completion of the Foundational Action Program work. The other Participants expressed an interest in the concept. Questions were raised on the need for a JPA versus proceeding under a Contractual Arrangement similar to the way the Baker Project was developed. The group agreed to meet again in several weeks to continue the discussions, including how to address the Lease with the State Parks.

Description	Lead Agency	Status % Complete	Scheduled Completion Date	Comments
Poseidon Resources Ocean Desalination Project in Huntington Beach				Karl Seckel participated in several meetings with OCWD's Financial Consultant, Clean Energy Capital. MWDOC is assisting in the efforts in developing information on MET's future water rates and in helping to evaluate the reliability benefits of the project. The work is scheduled to be completed and released at the September OCWD Board meeting.
OC-88 Metering Issue on the South County Pipeline				MWDOC staff worked with MET to complete the analysis of the refund for the OC-88 metering problem on an agency by agency basis. A letter was released on August 25 with the Final Refund calculations for the South County Pipeline participants. Upon confirmation with the Participants, a letter will be sent out to the remaining MWDOC agencies who will receive part of the Tier 2 refund resulting from the meter/billing reconciliation process.
Orange County Water Reliability Study				Proposals are due August 27. A report will be included in the September 2 P&O Committee packet.
Other Meetings/Work				
				Richard Bell has been participating in discussions with Cal Desal regarding the recently released Ocean Plan Amendments. He attended the August 6 workshop with the State Water Resources Control Board and has helped to draft MWDOC

Description	Lead Agency	Status % Complete	Scheduled Completion Date	Comments
				Comments as well as comments from CALDESAL. A full report is included in the September 2 P&O Committee packet.
				Karl Seckel met with District Engineer Phil Laurie and CFO Andrew Hamilton from Mesa Water to discuss county and MET water issues.
				Karl Seckel met with the Executive Director of Operations at IRWD to get a briefing on MWDOC's activities.
				Karl Seckel and Joe Berg met with a Landscape Architect to discuss design features around the main building entrance and to update the MWDOC Atrium area.
				Rob Hunter, Karl Seckel and Harvey De La Torre met with Will Boschman to discuss Semitropic Groundwater Banking Storage arrangements to better understand the options and costs for storage capacity in the Central Valley. Assuming water could be secured at a cost of \$350 per AF for storage purposes, the overall cost for the storage program and the costs for MET treatment and wheeling come out to about \$1700 per AF. This work will be incorporated into the OC Water Reliability Study.
				MWDOC Director Brett Barbre along with Karl Seckel and Heather Baez provided a tour for Jaquelyn Gonzalez and Eduardo Lerma from Congresswoman Loretta Sanchez's Office. They were very interested in the project.

**Status of Ongoing WEROC Projects
August 2014**

Description	Comments
General Activities	<p>Kelly Hubbard attended the California Emergency Services Association (CESA) Southern Chapter Annual Awards Luncheon and Program on August 14. The program included 2 speakers on the potential use of drones for emergency response and the legal ramifications of using unmanned aerial vehicles. A third speaker was from the County of San Diego Operational Area and she shared lessons learned from their response to a fire storm earlier this year.</p>
Member Agency Coordination	<p>Ongoing - Kelly participated in the August MET Exercise Design meeting to assist in the development of a disaster exercise that will be coordinated between MET, the three MET cities, WEROC and its member agencies. The group worked on disaster scenario develop and communication tools that would be utilized during the exercise. This meeting was held at the OC EOC and Kelly provided the group a tour of the facility.</p> <p>WEROC held its quarterly member agency emergency coordinator meeting in August. A representative of Irvine Ranch Water District provided an overview and lessons learned from working with Orange County Fire Authority (OCFA) Hazmat Response Team in response to a gaseous chlorine leak at one of their facilities. Additionally the group, had a good discussion about the upcoming MET exercise in which OC water utilities are being invited to participate.</p> <p>Karl Seckel, Lisa Parson, and Kelly met with the City of Huntington Beach, Moulton Niguel Water District and Irvine Ranch Water District (IRWD) individually to receive feedback on the Draft WEROC/MWDOC Generator and Fuel Supply Member Agency Survey. The purpose of the survey is to utilize the results to enhance our regional Fuel and Power Supply Plan and coordination efforts. Good feedback was received and will be incorporated into the survey before it is sent to all 35 agencies.</p> <p>Kelly provided the IRWD Human Resources Manager, Safety Compliance Manager and their Emergency Coordinator, along with Lisa Parson, a tour of the Operational Area (OA) Emergency</p>

Description	Comments
	<p>Operations Center (EOC).</p> <p>Kelly provided the Costa Mesa Sanitary District (WEROC Member Agency) with a presentation on WEROC and general emergency response within OC and the state. This presentation was provided at the WEROC South EOC and so a tour and explanation of the facility was also provided.</p> <p>During budget discussions several agencies suggested that they would be interested in having their staff contribute to the WEROC program more and requested a presentation on how they might be able to do so. At the August MWDOC Member Agency Manager's meeting Kelly provided a brief presentation on WEROC and discussed ways the agencies could support the program. First, was a reminder and request to give their staff the time and direction to participate in the WEROC activities already being provided to support the member agencies. Then there was a discussion on staffing needs for the WEROC EOC. She explained the number of staff needed for a large extended event response (approx. 70 people for full activation!) and the number of hours involved in training as a WEROC EOC staff member. Agencies agreed to the idea of committing more staff time to WEROC EOC training and offering their staff for response, when their own agency is not impacted.</p>
<p>Coordination with the County of Orange</p>	<p>Kelly attended the OA Executive Board Meeting on August 13th as the voting member of the Independent Special Districts of Orange County (ISDOC) to this board. The group heard several reports and approved two emergency plans, most importantly the OA Emergency Response Plan.</p> <p>Kelly and Lisa attended the Ready Orange County and the See Something Say Something (typically abbreviated: ROC/S4) Steering Committee. This is a grant funded public outreach campaign that includes natural disaster response, as well as terrorism prevention.</p>
<p>Coordination with Outside Agencies</p>	<p><i>Ongoing (last month's report as reference): Kelly was asked to join the California Office of Emergency Services Southern Region Drought Conference Calls as the Region 1 Mutual Aid Coordinator for the California Water and Wastewater Agency Response Network (CalWARN). This is a weekly conference call to provide an update to the Southern Region and the State</i></p>

Description	Comments
	<p><i>Operations Center (SOC) on drought impacts, activities and needs. Currently a lot of the coordination is centered on identifying small private wells that serve small areas and have run dry. These areas are in need of support for well drilling, water hauling and often financial assistance. The conference calls are serving as a way to share methods for assisting this group within the southern region.</i></p> <p>Kelly has been coordinating with the California Water and Wastewater Response Network (CaWARN) State Steering Committee in response to the 6.0 magnitude Napa Earthquake. The group provided the coordination of mutual aid teams for water utility recovery. Kelly will provide a verbal report at the September 2nd Planning and Operations Committee Meeting.</p>
<p>WEROC Emergency Operations Center (EOC) Readiness</p>	<p>Kelly successfully participated in the scheduled OA Radio and MARS radio test this month. Kelly provided two EOC Staff Trainings titled WEROC's Role as a Liaison. This training is one of four being offered to EOC staff to prepare for the November Disaster exercise with Met. This training focused on the purpose of WEROC. Future trainings will get more into the details and tools of response.</p> <p>Significant progress has been made in the development and formatting of the MWDOC Continuity of Operations Plan that will be uploaded to the new In Case of Crisis phone application. Final reviews and corrections should be completed this month and the application launched to MWDOC staff.</p>

Status of Water Use Efficiency Projects

September 2014

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
Smart Timer Rebate Program	MWDSC	Ongoing	September 2015	For July 2014, 32 smart timers were installed in the residential sector and 5 in the commercial sector. For program water savings and implementation information, see MWDOC Water Use Efficiency Program Savings and Implementation Report.
Rotating Nozzles Rebate Program	MWDSC	Ongoing	June 2015	For July 2014, 756 residential and 1,787 commercial rotating nozzles were installed in Orange County. For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.
Water Smart Landscape Program	MWDOC	On-going	September 2014	In June 2014, a total of 12,386 meters received monthly irrigation performance reports comparing actual water use to a landscape irrigation budget customized to each meter. For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.
SoCal WaterSmart Residential Indoor Rebate Program	MWDSC	On-going	June 2015	In July 2014, 514 high efficiency clothes washers and 570 high efficiency toilets were installed through this program. For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.
SoCal WaterSmart Commercial Rebate Program	MWDSC	On-going	On-going	In July 2014, 67 high efficiency flushometer toilets, 7 high efficiency toilets, and 40 laminar flow restrictors were installed through this program.

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
SoCal Water\$mart Commercial Rebate Program (cont.)				For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.
Industrial Process Water Use Reduction Program	MWDOC	84%	December 2014	<p>Survey scheduling is ongoing. A total of 40 Focused Surveys and 19 Comprehensive Surveys have been completed or are in progress. To date, 12 companies have signed Incentive Agreements. Updated discharger lists have been obtained, and outreach is continuing to sites with feasible water savings potential.</p> <p>Fabrica Fine Carpets has signed an Implementation Agreement for a water reuse project. Additionally, UCI Medical Center in Orange is in the process of signing an Implementation Agreement for water reduction devices.</p>
MWDOC Conservation Meeting	MWDOC	On-going	Monthly	This month's meeting was held on August 7, 2014 and was hosted by the City of San Clemente. The next meeting will be on September 4, 2014 at the City of Santa Ana.
Metropolitan Conservation Meeting	MWDOC	On-going	Monthly	This month's meeting was held on August 21, 2014. The next meeting will be September 18, 2014 at Metropolitan.
Water Smart Hotel Program	MWDOC	75%	June 2015	<p>MWDOC was awarded a Bureau of Reclamation grant, to be matched with Metropolitan funds, to conduct up to 30 commercial and landscape audits of hotels. Enhanced financial incentives will be provided to augment the current SoCal Water\$mart rebates.</p> <p>No surveys were scheduled in August. Staff has finalized reports for the Best Western Anaheim and the Best Plus Pavilions and is developing a postcard marketing piece to be sent to hotels and assisted living facilities to encourage participation</p>
Turf Removal Program	MWDOC	On-going	Ongoing	In July 2014, 50 rebates were paid, representing 103,384 square feet of turf removed in Orange County. To date, the

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
Turf Removal Program (cont.)				<p>Turf Removal Program has removed approximately 1,733,360 square feet of turf.</p> <p>For program savings and implementation information, please see MWDOC Water Use Efficiency Program Savings and Implementation Report.</p>
California Sprinkler Adjustment Notification System	MWDOC	95%	September 2014	<p>MWDOC was awarded a grant from the Bureau of Reclamation to develop the California Sprinkler Adjustment Notification System (CSANS). This system will e-mail or “push” an irrigation index to assist property owners with making global irrigation scheduling adjustments. Participants will voluntarily register to receive this e-mail and can unsubscribe at any time.</p> <p>On August 22, 2014, staff submitted its final report to Metropolitan summarizing the development and implementation of CSANS.</p> <p>Pilot implementation was completed in August 2014, and broad implementation will begin throughout Orange County in September 2014.</p>
Public Spaces Program	MWDOC	10%	December 2015	<p>Through the Integrated Regional Watershed Management (IRWM) process, MWDOC is implementing a Proposition 84 grant to target the installation of comprehensive landscape improvements for publicly owned landscape properties throughout the South Orange County IRWM Plan area.</p> <p>The program encourages the removal of non-functional turfgrass, the upgrade of antiquated irrigation timers, and the conversion of high-precipitation-rate fixed spray irrigation to low-precipitation-rate rotating nozzles and/or drip irrigation.</p>

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
Public Spaces Program (cont.)				To date, 10 cities, water districts, or other special districts (i.e., school districts) have applied for funding through this program, and 4 project proposals have been received.
Home Certification Program	MWDOC	9%	July 2015	This program will provide single-family sites with indoor and outdoor audits to identify areas for water savings improvements and opportunities. The program will also provide rebates for the installation of residential water efficiency devices, including smart timers and high efficiency rotating nozzles. In July 2014, MWDOC received nine (9) applications for the Home Certification Program. Eight (8) surveys were conducted, and survey results are pending.
Landscape Irrigation Survey Program	MWDSC	Ongoing	June 2016	Through this program, Metropolitan offers, at no cost, the services of a certified landscape irrigation auditor who will survey and provide written recommendations for qualifying non-residential properties within Metropolitan's service area. Eligible landscapes include commercial and industrial sites, homeowner association common areas, and institutional sites such as schools, parks, and government facilities. To date, 114 sites in the MWDOC service area have contacted Metropolitan to request surveys.
Spray to Drip Conversion Pilot Program	MWDOC	15%	October 2014	This is a pilot program designed to test the efficacy of replacing conventional spray heads in shrub beds with low-volume, low-precipitation drip technology. Through a rebate program format, residential sites will be encouraged to convert their existing spray nozzles to drip. To date, 47 residential applications and 4 commercial applications have been received, and the conversions are currently underway.

Description	Lead Agency	Status % Complete	Scheduled Completion or Renewal Date	Comments
Commercial, Industrial, and Institutional Performance-Based Water Use Efficiency Program	MWDOC	2%	December 2015	This program will provide enhanced rebate incentives to commercial, industrial, and institutional sites and large-landscape properties (landscapes ≥ 1 acre). The program is scheduled to launch during the second Quarter of 2014.
Landscape Training and Outreach	MWDOC	5%	Ongoing	<p>The Orange County Garden Friendly (OCGF) Pilot Program promotes the use of climate appropriate plants and water efficient irrigation practices, with the overall goals of reducing water runoff and improving outdoor water use efficiency. The OCGF Pilot Program is a collaborative effort of the Orange County Stormwater Program (OCSP) and the University of California Cooperative Extension (UCCE). Each partner plays a role in planning and implementing the Program.</p> <p>After the completion of the Pilot Program, the steering committee met to review the Program's successes and lessons learned. An information item will be presented to the MWDOC P&O Committee in August. The OCGF program is set to continue with three events during Fall 2014 and three more events in Spring 2015.</p>

Orange County

Water Use Efficiency Programs Savings and Implementation Report

Item 4d

Retrofits and Acre-Feet Water Savings for Program Activity

Program	Program Start Date	Retrofits Installed in	Month Indicated		Current Fiscal Year		Overall Program		
			Interventions	Water Savings	Interventions	Water Savings	Interventions	Annual Water Savings[4]	Cumulative Water Savings[4]
High Efficiency Clothes Washer Program	2001	July-14	514	1.18	514	1.18	97,241	2,686	17,535
Smart Timer Program - Irrigation Timers	2004	July-14	37	0.42	37	0.40	11,269	3,788	23,490
Rotating Nozzles Rebate Program	2007	July-14	2,543	0.85	2,543	10.17	374,945	2,006	8,413
SoCal Water\$mart Commercial Plumbing Fixture Rebate Program	2002	July-14	114	0.34	114	0.34	45,473	3,406	30,386
Water Smart Landscape Program [1]	1997	June-14	12,386	883.86	12,386	10,524.86	12,386	10,378	57,826
Industrial Process Water Use Reduction Program	2006	July-14	0	0.00	0	0.00	11.00	252	962
Turf Removal Program ^[3]	2010	July-14	103,384	1.21	103,384	14	1,733,360	243	718
High Efficiency Toilet (HET) Program	2005	July-14	570	2.02	570	2.02	32,750	1,211	8,550
Home Water Certification Program	2013	July-14	8	0.016	8	0.172	86	2,023	1,835
Synthetic Turf Rebate Program	2007		0	0	0	0	685,438	96	469
Ultra-Low-Flush-Toilet Programs ^[2]	1992		0	0	0	0	363,926	13,452	162,561
Home Water Surveys ^[2]	1995		0	0	0	0	11,867	160	1,708
Showerhead Replacements ^[2]	1991		0	0	0	0	270,604	1,667	19,083
Total Water Savings All Programs				890	119,556	10,554	3,639,356	39,345	331,704

⁽¹⁾ Water Smart Landscape Program participation is based on the number of water meters receiving monthly Irrigation Performance Reports.

⁽²⁾ Cumulative Water Savings Program To Date totals are from a previous Water Use Efficiency Program Effort.

⁽³⁾ Turf Removal Interventions are listed as square feet.

^[4] Cumulative & annual water savings represents both active program savings and passive savings that continues to be realized due to plumbing code changes over time.

HIGH EFFICIENCY CLOTHES WASHERS INSTALLED BY AGENCY through MWDOC and Local Agency Conservation Programs

Agency	FY 01/02	FY 02/03	FY 03/04	FY 04/05	FY 05/06	FY 06/07	FY 07/08	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY13/14	FY14/15	Total	Current FY Water Savings Ac/Ft (Cumulative)	Cumulative Water Savings across all Fiscal Years
Brea	17	107	178	132	143	132	175	156	42	186	144	93	115	9	1,629	0.02	292.59
Buena Park	9	45	88	81	84	85	114	146	59	230	145	105	106	8	1,305	0.02	217.44
East Orange CWD RZ	3	8	20	20	11	18	22	17	3	23	10	10	8	1	174	0.00	32.78
El Toro WD	21	88	108	103	83	91	113	130	32	162	112	134	121	3	1,301	0.01	220.06
Fountain Valley	36	127	209	196	178	205	219	243	72	289	158	115	102	14	2,163	0.03	399.93
Garden Grove	39	173	278	243	243	238	304	332	101	481	236	190	162	9	3,029	0.02	544.59
Golden State WC	37	195	339	374	342	339	401	447	168	583	485	265	283	33	4,291	0.08	759.51
Huntington Beach	114	486	857	738	680	761	750	751	211	963	582	334	295	33	7,555	0.08	1,423.59
Irvine Ranch WD	159	626	1,087	1,093	1,445	1,972	2,052	1,844	1,394	2,621	2,170	1,763	1,664	151	20,041	0.35	3,407.53
La Habra	8	40	86	81	66	96	136	83	22	179	128	82	114	8	1,129	0.02	190.04
La Palma	3	5	13	21	18	33	35	51	25	76	46	34	25	1	386	0.00	64.48
Laguna Beach CWD	17	88	119	84	68	57	77	77	27	96	57	38	37	2	844	0.00	155.84
Mesa Water District	24	117	228	240	212	239	249	246	73	232	176	114	86	5	2,241	0.01	430.52
Moulton Niguel WD	158	630	841	640	570	652	716	742	250	1,127	679	442	421	32	7,900	0.07	1,412.37
Newport Beach	17	144	343	277	243	243	270	259	57	197	142	116	92	7	2,409	0.02	469.31
Orange	58	247	304	358	330	366	365	403	111	349	262	218	163	19	3,553	0.04	671.36
Orange Park Acres	-	-	-	-	-	4	8	-	-	-	-	-	-	-	12	0.00	2.76
San Juan Capistrano	16	95	120	107	102	109	103	127	43	190	110	76	73	10	1,281	0.02	228.54
San Clemente	32	182	235	170	136	204	261	278	63	333	206	140	94	13	2,347	0.03	420.23
Santa Margarita WD	140	510	743	573	592	654	683	740	257	1,105	679	553	662	78	7,969	0.18	1,374.32
Seal Beach	13	28	57	39	46	47	46	57	7	81	51	31	29	2	534	0.00	95.47
Serrano WD	9	16	54	39	39	30	31	23	7	21	20	13	10	1	313	0.00	61.95
South Coast WD	35	138	165	97	103	107	130	148	43	183	112	89	79	3	1,432	0.01	253.36
Trabuco Canyon WD	10	63	76	58	44	69	60	62	28	82	62	30	45	1	690	0.00	124.08
Tustin	21	89	152	138	127	152	146	144	45	174	97	78	59	4	1,426	0.01	269.10
Westminster	37	159	235	196	186	213	171	233	74	329	208	121	82	11	2,255	0.03	411.84
Yorba Linda	36	214	342	355	333	288	350	367	117	394	273	181	167	12	3,429	0.03	643.38
MWDOC Totals	1,069	4,620	7,277	6,453	6,424	7,406	7,987	8,106	3,331	10,686	7,350	5,365	5,094	470	81,638	1.08	14,576.95

Anaheim	917	677	904	1,364	701	854	847	781	860	910	477	331	285	26	9,934	0.06	1,910.39
Fullerton	40	196	369	289	263	269	334	330	69	397	270	200	186	13	3,225	0.03	567.78
Santa Ana	15	69	188	269	244	236	235	257	87	355	190	163	131	5	2,444	0.01	480.02
Non-MWDOC Totals	972	942	1,461	1,922	1,208	1,359	1,416	1,368	1,016	1,662	937	694	602	44	15,603	0.10	2,958.19

Orange County Totals	2,041	5,562	8,738	8,375	7,632	8,765	9,403	9,474	4,347	12,348	8,287	6,059	5,696	514	97,241	1.18	17,535.13
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SMART TIMERS INSTALLED BY AGENCY

through MWDOC and Local Agency Conservation Programs

Agency	FY 08/09		FY 09/10		FY 10/11		FY 11/12		FY 12/13		FY 13/14		FY 14/15		Total Program		Cumulative Water Savings across all Fiscal Years
	Res	Comm	Res	Comm	Res	Comm	Res	Comm	Res	Comm	Res	Comm	Res	Comm	Res	Comm.	
Brea	3	9	0	0	2	0	8	0	9	8	4	0	1	0	38	66	339.86
Buena Park	3	1	0	0	0	0	4	19	3	0	0	0	0	0	10	20	57.99
East Orange CWD RZ	0	0	0	0	1	0	5	0	2	0	0	0	0	0	11	0	2.86
El Toro WD	0	25	2	18	5	5	26	2	7	2	11	0	0	0	65	321	1,743.93
Fountain Valley	1	0	0	6	2	2	8	2	3	2	4	0	0	0	38	17	87.60
Garden Grove	2	1	6	0	5	4	7	0	5	2	9	0	1	0	51	13	73.52
Golden State WC	1	2	9	22	7	4	13	3	9	49	9	25	0	1	95	128	411.07
Huntington Beach	13	1	6	27	6	36	15	4	18	33	20	35	3	0	126	160	547.19
Irvine Ranch WD	29	56	14	145	28	153	267	71	414	135	71	59	4	0	1,123	1,349	6,540.34
La Habra	0	0	0	21	0	0	3	0	4	7	2	0	0	0	17	29	109.57
La Palma	0	0	0	0	0	0	1	0	1	0	2	0	0	0	4	0	0.51
Laguna Beach CWD	2	0	2	14	4	1	109	2	76	2	71	0	0	0	298	19	123.04
Mesa Water District	6	7	13	7	7	22	21	0	10	2	15	2	1	0	117	73	392.73
Moulton Niguel WD	21	23	17	162	36	60	179	31	51	74	40	45	8	0	477	477	1,862.54
Newport Beach	10	27	7	58	6	0	275	12	242	26	168	75	0	0	969	345	1,648.48
Orange	5	2	2	13	5	8	25	0	20	24	13	9	1	0	148	111	542.94
San Juan Capistrano	10	0	7	49	13	1	103	2	14	18	6	11	1	0	175	90	352.50
San Clemente	81	20	13	209	46	11	212	17	26	7	28	2	2	0	962	334	1,747.69
Santa Margarita WD	25	44	10	152	61	53	262	7	53	171	64	93	1	0	587	694	2,632.44
Santiago CWD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Seal Beach	0	0	0	1	0	0	0	3	1	0	1	36	0	0	2	40	60.81
Serrano WD	0	0	11	0	4	0	3	0	1	0	0	0	0	0	19	0	4.66
South Coast WD	11	6	3	10	13	3	78	10	13	16	8	4	0	0	158	128	627.39
Trabuco Canyon WD	1	0	2	0	2	10	12	0	6	0	2	0	0	1	68	104	621.30
Tustin	7	9	10	14	10	0	11	0	8	4	9	1	1	0	60	35	164.51
Westminster	3	0	3	0	1	1	2	0	1	1	2	0	1	0	29	14	95.99
Yorba Linda	8	5	5	21	25	0	22	0	20	0	12	5	2	1	175	84	459.09
MWDOC Totals	242	238	142	949	289	374	1,671	185	1,017	583	571	402	27	3	5,822	4,651	21,250.54

Anaheim	9	59	5	46	12	11	23	60	19	10	9	26	0	0	120	361	1,624.89
Fullerton	2	2	2	39	9	33	22	51	9	29	8	0	5	0	79	154	492.18
Santa Ana	2	4	1	8	8	0	6	5	8	19	7	8	0	2	36	46	122.25
Non-MWDOC Totals	13	65	8	93	29	44	51	116	36	58	24	34	5	2	235	561	2,239.32
Orange County Totals	255	303	150	1,042	318	418	1,722	301	1,053	641	595	436	32	5	6,057	5,212	23,490

ROTATING NOZZLES INSTALLED BY AGENCY
through MWDOC and Local Agency Conservation Programs

Agency	FY 09/10			FY 10/11			FY 11/12			FY 12/13			FY 13/14			FY 14/15			Total Program			Cumulative Water Savings across all Fiscal Years
	Res	Comm.	Large	Small	Res	Comm.	Large	Small	Res	Comm.	Large	Small	Res	Comm.	Large	Small	Res	Comm.	Large	Small		
Brea	8	100	0	32	0	130	0	65	120	0	84	0	0	0	0	0	341	220	0	0	7.65	
Buena Park	0	0	2,535	29	0	32	0	65	0	0	53	0	0	15	0	0	231	75	2,535	448.41		
East Orange	0	0	0	0	0	340	0	55	0	0	30	0	0	0	0	0	530	0	0	7.50		
El Toro	145	2,874	890	174	0	357	76	23	6,281	0	56	3,288	0	0	1,410	0	843	14,219	890	341.14		
Fountain Valley	21	0	0	83	0	108	0	35	0	0	0	0	0	20	0	0	401	0	0	6.96		
Garden Grove	151	45	0	38	0	119	0	95	0	0	80	0	0	62	0	0	742	151	0	15.43		
Golden State	280	29	0	303	943	0	294	0	257	2,595	0	192	0	34	0	0	1,604	3,567	0	72.01		
Huntington Beach	39	3,420	305	203	625	0	458	0	270	0	120	0	0	17	0	0	1,522	4,909	2,681	720.98		
Irvine Ranch	1,034	54,441	1,479	2,411	2,861	0	1,715	4,255	0	25,018	1,014	0	11,010	4,257	0	123	0	43,515	79,371	2,004	2,470.20	
La Habra	0	273	0	0	0	33	90	0	0	0	15	0	0	0	0	0	72	898	900	213.77		
La Palma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0.24		
Laguna Beach	191	0	0	156	0	763	0	3,596	0	0	2,948	878	0	0	0	0	7,870	925	0	95.96		
Mesa Water District	195	83	0	118	0	297	277	0	270	0	361	0	0	27	0	0	1,549	385	343	112.70		
Moulton Niguel	234	0	959	1,578	0	1,225	0	512	1,385	0	361	227	0	39	257	0	4,672	8,872	2,945	845.13		
Newport Beach	92	4,781	0	337	1,208	0	640	3,273	0	25,365	50	19,349	6,835	0	0	0	45,870	16,886	0	705.48		
Orange	129	0	0	135	30	343	0	264	0	264	0	245	120	0	42	120	2,277	433	0	47.45		
San Clemente	729	1,299	0	2,612	851	0	4,266	117	1,343	631	172	0	415	5,074	0	0	9,237	7,538	1,343	358.12		
San Juan Capistrano	656	5,709	0	1,452	0	949	0	684	30	0	370	0	0	0	0	0	4,615	7,399	0	225.57		
Santa Margarita	1,731	937	611	3,959	3,566	0	4,817	0	983	0	389	0	0	199	0	0	13,322	4,571	611	386.22		
Seal Beach	0	291	0	0	0	0	0	0	0	0	0	0	0	0	0	0	115	291	0	8.58		
Serrano	1,498	0	0	364	0	58	0	190	0	190	0	105	0	0	0	0	2,333	0	0	42.79		
South Coast	0	0	0	318	1,772	0	688	359	0	435	0	70	0	0	0	0	1,700	2,264	0	60.31		
Trabuco Canyon	1,357	791	0	0	0	379	0	34	0	0	0	0	0	0	0	0	1,900	791	0	51.53		
Tustin	314	0	0	512	0	476	1,013	0	378	0	329	0	0	0	0	0	2,581	1,013	0	53.31		
Westminster	80	0	0	0	0	26	0	15	0	0	0	0	0	0	0	0	232	0	0	4.75		
Yorba Linda	371	3,256	0	529	0	559	0	730	0	0	40	990	0	0	0	0	3,232	4,359	500	238.69		
MWDOC Totals	9,255	78,329	6,779	15,343	11,856	0	19,072	9,460	1,343	59,970	11,647	0	36,622	21,669	0	578	1,787	0	151,316	159,137	14,752	7,540.89
Anaheim	273	164	105	372	382	0	742	38,554	0	459	813	0	338	0	0	0	2,581	39,913	105	538.28		
Fullerton	48	0	1,484	416	0	0	409	0	0	119	0	0	107	0	0	71	1,711	64	1,484	289.67		
Santa Ana	48	572	0	53	0	0	22	65	0	99	0	0	86	2,533	0	107	656	3,226	0	44.55		
Non-MWDOC Totals	369	736	1,589	841	382	0	1,173	38,619	0	677	813	0	531	2,533	0	178	4,948	43,203	1,589	872.50		
Orange County Totals	9,624	79,065	8,368	16,184	12,238	0	20,245	48,079	1,343	60,647	12,460	0	37,153	24,202	0	756	1,787	0	156,264	202,340	16,341	8,413.39

SOCAL WATER\$MART COMMERCIAL PLUMBING FIXTURES REBATE PROGRAM^[1]

INSTALLED BY AGENCY

through MWDOC and Local Agency Conservation Programs

Agency	FY 02/03	FY 03/04	FY 04/05	FY 05/06	FY 06/07	FY 07/08	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	Totals	Cumulative Water Savings across all Fiscal Years
Brea	51	0	22	52	2	27	113	24	4	1	234	0	2	532	300
Buena Park	83	28	55	64	65	153	432	122	379	290	5	23	0	1,709	796
East Orange CWD RZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
El Toro WD	23	73	42	5	2	0	92	143	1	137	0	212	0	753	452
Fountain Valley	94	2	59	35	63	17	35	0	2	314	0	0	0	622	463
Garden Grove	199	51	297	34	136	5	298	130	22	0	4	1	0	1,198	1,171
Golden State WC	197	34	232	80	531	46	414	55	68	135	0	1	0	1,804	1,522
Huntington Beach	191	73	185	82	209	48	104	126	96	156	104	144	5	1,528	1,213
Irvin Ranch WD	1,085	87	325	1,044	429	121	789	2,708	1,002	646	1,090	451	9	10,092	5,150
La Habra	37	52	45	60	16	191	75	53	4	0	0	0	0	543	429
La Palma	0	0	0	5	0	0	140	21	0	0	0	0	0	166	65
Laguna Beach CWD	30	2	18	9	12	20	137	189	0	0	0	27	0	446	250
Mesa Water District	155	22	130	241	141	141	543	219	669	41	6	0	58	2,790	1,621
Moulton Niguel WD	74	65	172	3	0	9	69	151	6	0	0	0	0	580	659
Newport Beach	230	9	77	24	94	98	27	245	425	35	0	0	0	1,268	985
Orange	144	22	553	127	88	18	374	67	1	73	1	271	0	1,823	1,400
San Juan Capistrano	34	21	181	0	6	2	1	1	0	0	0	14	0	260	337
San Clemente	36	5	95	40	173	2	18	43	0	19	0	0	0	431	318
Santa Margarita WD	16	3	56	0	0	6	23	11	0	0	0	0	0	115	165
Santiago CWD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Seal Beach	34	44	40	61	45	1	2	124	0	0	0	0	0	354	346
Serrano WD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Coast WD	31	8	54	8	4	9	114	56	422	84	148	0	0	938	356
Trabuco Canyon WD	1	0	6	0	0	0	4	0	0	0	0	0	0	11	13
Tustin	114	16	82	14	7	115	145	25	230	0	0	0	0	757	645
Westminster	109	32	153	57	104	40	161	16	63	35	1	28	0	815	814
Yorba Linda	36	12	42	4	118	10	24	8	30	0	1	0	0	285	447
MWDOC Totals	3,004	661	2,921	2,049	2,245	1,079	4,134	4,537	3,424	1,966	1,594	1,172	74	29,820	19,918
Anaheim	400	947	362	1,113	780	766	3,298	582	64	48	165	342	40	9,949	5,442
Fullerton	41	138	270	91	96	133	579	29	4	0	94	0	0	1,503	1,276
Santa Ana	153	589	227	624	373	493	815	728	39	12	16	17	0	4,201	3,750
Non-MWDOC Totals	594	1,674	859	1,828	1,249	1,392	4,692	1,339	107	60	275	359	40	15,653	10,468
Orange County Totals	3,598	2,335	3,780	3,877	3,494	2,471	8,826	5,876	3,531	2,026	1,869	1,531	114	45,473	30,386

[1] Retrofit devices include ULF Toilets and Urinals, High Efficiency Toilets and Urinals, Zero Water Urinals, High Efficiency Clothes Washers, Cooling Tower Conductivity Controllers, Ph Cooling Tower Conductivity Controllers, Flush Valve Retrofit Kits, Pre-rinse Spray heads, Hospital X-Ray Processor Recirculating Systems, Steam Sterilizers, Food Steamers, and Water Pressurized Brooms.

Water Smart Smart Landscape Program

Total Number of Meters
in Program by Agency

Agency	FY 04-05	FY 05-06	FY 06-07	FY 07-08	FY 08-09	FY 09-10	FY 10-11	FY 11-12	FY 12/13	FY 13/14	Overall Water Savings To Date (AF)
Brea	0	0	0	0	0	0	0	22	22	22	39.25
Buena Park	0	0	0	0	0	17	103	101	101	101	347.38
East Orange CWD RZ	0	0	0	0	0	0	0	0	0	0	0.00
El Toro WD	88	109	227	352	384	371	820	810	812	812	3,929.83
Fountain Valley	0	0	0	0	0	0	0	0	0	0	0.00
Garden Grove	0	0	0	0	0	0	0	0	0	0	0.00
Golden State WC	0	0	0	14	34	32	34	32	32	32	164.06
Huntington Beach	0	0	0	0	0	31	33	31	31	31	113.03
Invine Ranch WD	277	638	646	708	1,008	6,297	6,347	6,368	6,795	6,797	30,586.88
Laguna Beach CWD	0	0	0	0	57	141	143	141	124	124	591.50
La Habra	0	0	0	0	23	22	24	22	22	22	111.61
La Palma	0	0	0	0	0	0	0	0	0	0	0.00
Mesa Water District	191	170	138	165	286	285	288	450	504	511	2,358.35
Moulton Niguel WD	80	57	113	180	473	571	595	643	640	675	3,349.32
Newport Beach	32	27	23	58	142	171	191	226	262	300	1,158.66
Orange	0	0	0	0	0	0	0	0	0	0	0.00
San Clemente	191	165	204	227	233	247	271	269	269	299	1,937.90
San Juan Capistrano	0	0	0	0	0	0	0	0	0	0	0.00
Santa Margarita WD	547	619	618	945	1,571	1,666	1,746	1,962	1,956	2,274	11,540.01
Seal Beach	0	0	0	0	0	0	0	0	0	0	0.00
Serrano WD	0	0	0	0	0	0	0	0	0	0	0.00
South Coast WD	0	0	0	62	117	108	110	118	118	118	655.79
Trabuco Canyon WD	0	0	0	12	49	48	62	60	60	60	282.01
Tustin	0	0	0	0	0	0	0	0	0	0	0.00
Westminster	0	0	0	10	18	18	20	18	18	18	95.91
Yorba Linda WD	0	0	0	0	0	0	0	0	0	0	0.00
MWDOC Totals	1,406	1,785	1,969	2,733	4,395	10,025	10,787	11,273	11,766	12,196	57,261.5
Anaheim	0	0	0	0	0	142	146	144	190	190	564.59
Fullerton	0	0	0	0	0	0	0	0	0	0	0.00
Santa Ana	0	0	0	0	0	0	0	0	0	0	0.00
Non-MWDOC Totals	0	0	0	0	0	142	146	144	190	190	564.59
Orange Co. Totals	1,406	1,785	1,969	2,733	4,395	10,167	10,933	11,417	11,956	12,386	57,826.09

INDUSTRIAL PROCESS WATER USE REDUCTION PROGRAM

Number of Process Changes by Agency

Agency	FY 07/08	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	Overall Program Interventions	Annual Water Savings[1]	Cumulative Water Savings across all Fiscal Years[1]
Brea	0	0	0	0	0	0	0	0	0	0	0
Buena Park	0	1	0	0	0	0	0	0	1	54	302
East Orange	0	0	0	0	0	0	0	0	0	0	0
El Toro	0	0	0	0	0	0	0	0	0	0	0
Fountain Valley	0	0	0	0	0	0	0	0	0	0	0
Garden Grove	0	0	0	0	0	0	0	0	0	0	0
Golden State	1	0	0	0	0	0	0	0	1	3	19
Huntington Beach	0	0	0	0	0	2	0	0	2	54	110
Irvine Ranch	0	0	2	1	1	1	1	0	6	98	252
La Habra	0	0	0	0	0	0	0	0	0	0	0
La Palma	0	0	0	0	0	0	0	0	0	0	0
Laguna Beach	0	0	0	0	0	0	0	0	0	0	0
Mesa Water District	0	0	0	0	0	0	0	0	0	0	0
Moulton Niguel	0	0	0	0	0	0	0	0	0	0	0
Newport Beach	0	0	0	0	0	0	0	0	0	0	0
Orange	1	0	0	0	0	0	0	0	1	43	280
San Juan Capistrano	0	0	0	0	0	0	0	0	0	0	0
San Clemente	0	0	0	0	0	0	0	0	0	0	0
Santa Margarita	0	0	0	0	0	0	0	0	0	0	0
Seal Beach	0	0	0	0	0	0	0	0	0	0	0
Serrano	0	0	0	0	0	0	0	0	0	0	0
South Coast	0	0	0	0	0	0	0	0	0	0	0
Trabuco Canyon	0	0	0	0	0	0	0	0	0	0	0
Tustin	0	0	0	0	0	0	0	0	0	0	0
Westminster	0	0	0	0	0	0	0	0	0	0	0
Yorba Linda	0	0	0	0	0	0	0	0	0	0	0
MWDOC Totals	2	1	2	1	1	3	1	0	11	252	962

[1] Acre feet of savings determined during a one year monitoring period.

If monitoring data is not available, the savings estimated in agreement is used.

TURF REMOVAL BY AGENCY^[1]
through MWD OC and Local Agency Conservation Programs

Agency	FY 10/11		FY 11/12		FY 12/13		FY 13/14		FY 14/15		Total Program		Cumulative Water Savings across all Fiscal Years
	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	
Brea	0	0	3,397	9,466	7,605	0	5,697	0	0	0	16,699	9,466	11.99
Buena Park	0	0	0	0	0	0	0	0	0	0	0	0	-
East Orange	0	0	0	0	0	0	1,964	0	0	0	1,964	0	0.55
El Toro	0	0	4,723	0	4,680	72,718	4,582	0	1,512	2,975	15,497	75,693	37.06
Fountain Valley	0	0	1,300	0	682	7,524	4,252	0	0	0	6,234	7,524	5.36
Garden Grove	0	46,177	14,013	0	4,534	0	8,274	0	0	0	26,821	46,177	44.39
Golden State	0	0	42,593	30,973	31,813	3,200	32,725	8,424	4,794	0	111,925	42,597	68.09
Huntington Beach	801	3,651	27,630	48,838	9,219	12,437	20,642	0	968	37,650	59,260	102,576	66.22
Irvine Ranch	5,423	12,794	6,450	1,666	32,884	32,384	36,584	76,400	3,049	0	84,390	123,244	76.77
La Habra	0	7,775	0	8,262	0	0	0	0	0	0	0	16,037	10.07
La Palma	0	0	0	0	0	0	0	0	0	0	0	0	-
Laguna Beach	978	0	2,533	0	2,664	1,712	4,586	226	0	0	10,761	1,938	5.29
Mesa Water District	0	0	6,777	0	10,667	0	22,246	0	6,928	0	46,618	0	15.47
Moulton Niguel	956	16,139	4,483	26,927	11,538	84,123	14,739	40,741	2,242	0	33,958	167,930	85.58
Newport Beach	0	0	3,454	0	3,548	2,346	894	0	777	0	8,673	2,346	4.77
Orange	0	0	12,971	0	15,951	8,723	11,244	0	4,338	21,024	44,504	29,747	24.33
San Clemente	0	0	21,502	0	16,062	13,165	18,471	13,908	4,274	0	60,309	27,073	33.98
San Juan Capistrano	0	0	22,656	103,692	29,544	27,156	12,106	0	1,203	0	65,509	130,848	98.12
Santa Margarita	4,483	5,561	1,964	11,400	10,151	11,600	17,778	48,180	6,457	0	40,833	76,741	43.02
Seal Beach	0	0	0	0	3,611	0	0	0	0	0	3,611	0	1.52
Serrano	0	0	0	0	0	0	2,971	0	0	0	2,971	0	0.83
South Coast	0	16,324	6,806	0	9,429	4,395	15,162	116,719	2,447	1,980	33,844	139,418	58.59
Trabuco Canyon	0	0	272	0	1,542	22,440	2,651	0	766	0	5,231	22,440	11.07
Tustin	0	0	0	0	9,980	0	1,410	0	0	0	11,390	0	4.59
Westminster	0	0	0	0	0	0	0	0	0	0	0	0	-
Yorba Linda	11,349	0	0	0	0	0	0	0	0	0	11,349	0	7.94
MWD OC Totals	23,990	108,421	183,524	241,224	216,104	303,923	238,978	304,598	39,755	63,629	702,351	1,021,795	715.62
Anaheim	0	0	0	0	0	0	0	0	0	0	0	0	-
Fullerton	0	0	0	0	0	0	0	9,214	0	0	0	9,214	2.58
Santa Ana	0	0	0	0	0	0	0	0	0	0	0	0	-
Non-MWD OC Totals	0	0	0	0	0	0	0	9,214	0	0	0	9,214	2.58
Orange County Totals	23,990	108,421	183,524	241,224	216,104	303,923	238,978	313,812	39,755	63,629	702,351	1,031,009	718.20

[1] Installed device numbers are listed as square feet

HIGH EFFICIENCY TOILETS (HETs) INSTALLED BY AGENCY

through MWDOC and Local Agency Conservation Programs

Agency	FY05-06	FY 06-07	FY 07-08	FY 08-09	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	Total	Cumulative Water Savings across all Fiscal Years
Brea	0	2	7	43	48	8	0	0	38	4	150	33.32
Buena Park	0	1	2	124	176	7	0	0	96	20	426	93.46
East Orange CWD RZ	0	0	10	12	1	0	0	0	13	1	37	8.38
El Toro WD	0	392	18	75	38	18	0	133	218	18	910	228.46
Fountain Valley	0	69	21	262	54	17	0	0	41	5	469	132.74
Garden Grove	0	14	39	443	181	24	0	0	63	49	813	209.39
Golden State WC	2	16	36	444	716	37	80	2	142	10	1,485	368.60
Huntington Beach	2	13	59	607	159	76	0	0	163	28	1,107	278.59
Irvine Ranch WD	29	1,055	826	5,088	2,114	325	0	1,449	810	110	11,806	3,081.06
Laguna Beach CWD	0	2	17	91	28	11	0	0	45	17	211	47.71
La Habra	0	3	18	296	34	20	0	0	37	8	416	111.89
La Palma	0	1	10	36	26	13	0	0	21	1	108	25.75
Mesa Water District	0	247	19	736	131	7	0	0	174	6	1,320	370.35
Moulton Niguel WD	0	20	104	447	188	46	0	0	400	53	1,258	270.34
Newport Beach	0	5	19	163	54	13	0	0	49	7	310	77.97
Orange	1	20	62	423	79	40	0	1	142	23	791	197.09
San Juan Capistrano	0	10	7	76	39	11	0	0	35	1	179	44.18
San Clemente	0	7	22	202	66	21	0	0	72	16	406	98.48
Santa Margarita WD	0	5	14	304	151	44	0	0	528	93	1,139	194.07
Seal Beach	0	678	8	21	12	1	0	2	17	5	744	273.87
Serrano WD	2	0	1	13	5	0	0	0	2	0	23	6.51
South Coast WD	2	2	29	102	41	12	23	64	102	9	386	76.05
Trabuco Canyon WD	0	0	4	23	23	0	0	0	10	1	61	14.98
Tustin	0	186	28	387	479	17	0	0	64	15	1,176	328.09
Westminster	0	17	25	541	167	23	0	0	35	7	815	227.01
Yorba Linda WD	0	14	89	323	96	18	0	0	40	19	599	164.45
MWDOC Totals	38	2,779	1,494	11,282	5,106	809	103	1,651	3,357	526	27,145	6,962.79

Anaheim	0	255	78	2,771	619	114	0	0	156	31	4,024	1,146.67
Fullerton	0	4	28	286	60	23	0	0	61	9	471	122.06
Santa Ana	0	11	25	925	89	23	0	0	33	4	1,110	318.90
Non-MWDOC Totals	0	270	131	3,982	768	160	0	0	250	44	5,605	1,587.62

Orange County Totals	38	3,049	1,625	15,264	5,874	969	103	1,651	3,607	570	32,750	8,550.41
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HOME WATER SURVEYS PERFORMED BY AGENCY

through MWDOC and Local Agency Conservation Programs

Agency	FY 13/14		FY 14/15		Total		Cumulative Water Savings
	Surveys	Cert Homes	Surveys	Cert Homes	Surveys	Cert Homes	
Brea	1	0	0	0	1	0	0.02
Buena Park	0	0	0	0	0	0	0.00
East Orange	19	0	0	0	19	0	0.45
El Toro	0	0	0	0	0	0	0.00
Fountain Valley	3	0	0	0	3	0	0.07
Garden Grove	0	0	0	0	0	0	0.00
Golden State	0	0	0	0	0	0	0.00
Huntington Beach	2	0	1	0	3	0	0.05
Irvine Ranch	1	0	0	0	1	0	0.02
La Habra	0	0	0	0	0	0	0.00
La Palma	0	0	0	0	0	0	0.00
Laguna Beach	4	0	0	0	4	0	0.09
Mesa	0	0	0	0	0	0	0.00
Moulton Niguel	4	0	1	0	5	0	0.09
Newport Beach	2	0	0	0	2	0	0.05
Orange	2	0	0	0	2	0	0.05
San Clemente	15	0	3	0	18	0	0.35
San Juan Capistrano	4	0	1	0	5	0	0.09
Santa Margarita	15	0	0	0	15	0	0.35
Serrano	0	0	0	0	0	0	0.00
South Coast	6	0	2	0	8	0	0.14
Trabuco Canyon	0	0	0	0	0	0	0.00
Tustin	0	0	0	0	0	0	0.00
Westminster	0	0	0	0	0	0	0.00
Yorba Linda	0	0	0	0	0	0	0.00
MWDOC Totals	78	0	8	0	86	0	1.83

Anaheim	0	0	0	0	0	0	0.00
Fullerton	0	0	0	0	0	0	0.00
Santa Ana	0	0	0	0	0	0	0.00
Non-MWDOC Totals	0	0	0	0	0	0	0.00

Orange County Totals	78	0	8	0	86	0	1.835
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SYNTHETIC TURF INSTALLED BY AGENCY^[1] through MWDOC and Local Agency Conservation Programs

Agency	FY 07/08		FY 08/09		FY 09/10		FY 10/11		Total Program		Cumulative Water Savings across all Fiscal Years
	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	
Brea	0	0	2,153	2,160	500	0	0	0	2,653	2,160	3.30
Buena Park	0	0	1,566	5,850	0	0	0	0	1,566	5,850	5.19
East Orange	0	0	0	0	983	0	0	0	983	0	0.55
El Toro	3,183	0	2,974	0	3,308	0	895	0	10,360	0	6.98
Fountain Valley	11,674	0	1,163	0	2,767	0	684	0	16,288	0	12.46
Garden Grove	1,860	0	0	0	3,197	0	274	0	5,331	0	3.47
Golden State	6,786	0	13,990	0	15,215	0	2,056	0	38,047	0	24.88
Huntington Beach	15,192	591	12,512	0	4,343	1,504	0	0	32,047	2,095	25.29
Irvine Ranch	11,009	876	13,669	0	2,585	0	0	0	27,263	876	21.00
La Habra	0	0	0	0	0	0	0	0	0	0	-
La Palma	429	0	0	0	0	0	0	0	429	0	0.36
Laguna Beach	3,950	0	3,026	0	725	0	0	0	7,701	0	5.84
Mesa Water District	4,114	0	3,005	78,118	4,106	0	2,198	0	13,423	78,118	63.46
Moulton Niguel	14,151	0	25,635	2,420	7,432	0	0	0	47,218	2,420	35.69
Newport Beach	2,530	0	6,628	0	270	0	0	0	9,428	0	6.92
Orange	4,169	0	7,191	0	635	0	0	0	11,995	0	8.89
San Clemente	9,328	0	11,250	455	2,514	1,285	500	0	23,592	1,740	18.37
San Juan Capistrano	0	0	7,297	639	2,730	0	4,607	0	14,634	639	9.02
Santa Margarita	12,922	0	26,069	0	21,875	0	7,926	0	68,792	0	44.68
Seal Beach	0	0	817	0	0	0	0	0	817	0	0.57
Serrano	7,347	0	1,145	0	0	0	0	0	8,492	0	6.97
South Coast	2,311	0	6,316	0	17,200	0	1,044	0	26,871	0	16.43
Trabuco Canyon	1,202	0	9,827	0	0	0	0	0	11,029	0	7.89
Tustin	6,123	0	4,717	0	2,190	0	0	0	13,030	0	9.67
Westminster	2,748	16,566	8,215	0	890	0	0	0	11,853	16,566	22.47
Yorba Linda	11,792	0	12,683	0	4,341	5,835	0	0	28,816	5,835	24.48
MWDOC Totals	132,820	18,033	181,848	89,642	97,806	8,624	20,184	0	432,658	116,299	384.83

Anaheim	4,535	0	7,735	20,093	13,555	65,300	4,122	0	29,947	85,393	69.18
Fullerton	4,865	876	5,727	0	6,223	0	105	0	16,920	876	12.36
Santa Ana	0	0	2,820	0	525	0	0	0	3,345	0	2.27
Non-MWDOC Totals	9,400	876	16,282	20,093	20,303	65,300	4,227	0	50,212	86,269	83.81

Orange County Totals	142,220	18,909	198,130	109,735	118,109	73,924	24,411	0	482,870	202,568	468.63
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[1] Installed device numbers are calculated in square feet

ULF TOILETS INSTALLED BY AGENCY
through MWDOC and Local Agency Conservation Programs

Agency	Previous Years	FY 95-96	FY 96-97	FY 97-98	FY 98-99	FY 99-00	FY 00-01	FY 01-02	FY 02-03	FY 03-04	FY 04-05	FY 05-06	FY 06-07	FY 07-08	FY 08-09	Total	Cumulative Water Savings across all Fiscal Years
Brea	378	189	299	299	122	144	867	585	341	401	26	48	17	4	0	3,720	1,692.64
Buena Park	361	147	331	802	520	469	524	1,229	2,325	1,522	50	40	18	9	0	8,347	3,498.37
East Orange CWD RZ	2	0	33	63	15	17	15	50	41	44	19	18	13	2	0	332	138.23
El Toro WD	1,169	511	678	889	711	171	310	564	472	324	176	205	61	40	0	6,281	3,091.16
Fountain Valley	638	454	635	858	1,289	2,355	1,697	1,406	1,400	802	176	111	58	32	0	11,911	5,383.10
Garden Grove	1,563	1,871	1,956	2,620	2,801	3,556	2,423	3,855	3,148	2,117	176	106	67	39	0	26,298	12,155.41
Golden State WC	3,535	1,396	3,141	1,113	3,024	2,957	1,379	2,143	3,222	1,870	167	116	501	43	0	24,607	11,731.47
Huntington Beach	3,963	1,779	2,600	2,522	2,319	3,492	3,281	2,698	3,752	1,901	367	308	143	121	0	29,246	13,854.70
Irvine Ranch WD	4,016	841	1,674	1,726	1,089	3,256	1,534	1,902	2,263	6,741	593	626	310	129	0	26,700	11,849.23
La Jolla Beach CWD	283	93	118	74	149	306	220	85	271	118	32	26	29	6	0	1,810	845.69
La Habra	594	146	254	775	703	105	582	645	1,697	1,225	12	31	6	7	0	6,782	2,957.73
La Palma	65	180	222	125	44	132	518	173	343	193	31	27	20	17	0	2,090	927.52
Mesa Water District	1,610	851	1,052	2,046	2,114	1,956	1,393	1,505	2,387	988	192	124	56	14	0	16,288	7,654.27
Moulton Niguel WD	744	309	761	698	523	475	716	891	728	684	410	381	187	100	0	7,607	3,371.14
Newport Beach	369	293	390	571	912	1,223	438	463	396	1,883	153	76	36	16	0	7,219	3,166.77
Orange	683	1,252	1,155	1,355	533	2,263	1,778	2,444	2,682	1,899	193	218	88	53	4	16,600	7,347.93
San Juan Capistrano	1,234	284	193	168	323	1,319	347	152	201	151	85	125	42	39	0	4,663	2,324.42
San Clemente	225	113	191	65	158	198	667	483	201	547	91	66	37	34	0	3,076	1,314.64
Santa Margarita WD	577	324	553	843	345	456	1,258	790	664	260	179	143	101	29	0	6,522	3,001.01
Seal Beach	74	66	312	609	47	155	132	81	134	729	29	10	6	12	0	2,396	1,073.80
Serrano WD	81	56	68	41	19	52	95	73	123	98	20	15	14	2	0	757	338.66
South Coast WD	110	176	177	114	182	181	133	358	191	469	88	72	32	22	0	2,305	990.05
Trabuco Canyon WD	10	78	42	42	25	21	40	181	102	30	17	20	12	14	0	634	273.02
Tustin	968	668	557	824	429	1,292	1,508	1,206	1,096	827	69	89	26	12	0	9,571	4,423.88
Westminster	747	493	969	1,066	2,336	2,291	2,304	1,523	2,492	1,118	145	105	70	24	0	15,683	7,064.28
Yorba Linda WD	257	309	417	457	404	1,400	759	1,690	1,155	627	158	136	81	41	0	7,891	3,409.49
MWDOC Totals	24,256	12,879	18,778	20,765	21,136	30,242	24,918	27,175	31,827	27,568	3,654	3,242	2,031	861	4	249,336	113,878.61

Anaheim	447	1,054	1,788	3,661	1,755	7,551	4,593	6,346	9,707	5,075	473	371	462	341	1	43,625	18,359.52
Fullerton	1,453	1,143	694	1,193	1,364	2,138	1,926	2,130	2,213	1,749	172	77	44	23	2	16,321	7,435.23
Santa Ana	1,111	1,964	1,205	2,729	2,088	8,788	5,614	10,822	10,716	9,164	279	134	25	5	0	54,644	22,887.95
Non-MWDOC Totals	3,011	4,161	3,687	7,583	5,207	18,477	12,133	19,298	22,636	15,988	924	582	531	369	3	114,590	48,682.70

Orange County Totals	27,267	17,040	22,465	28,348	26,343	48,719	37,051	46,473	54,463	43,556	4,578	3,824	2,562	1,230	7	363,926	162,561.30
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