Proposed Amendment to the Ocean Water Quality Control Plan for Desalination Intakes and Brine Disposal

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Why is a new regulation needed?

Many new desalination projects have been proposed along the CA coast to alleviate water shortages.
Potential Impacts from Desalination Facilities

**Intakes:** Withdrawal of ocean or estuarine water will entrain and/or impinge aquatic life.

**Discharge:** Brine wastes discharged into the ocean may form a dense plume that settles on the ocean floor, harming benthic marine life.
Current Regulations

• The California Ocean Plan does not address intakes or brines discharges from desalination facilities.

• Desalination facilities are currently regulated under the NDPES permits by Regional Boards on a project-specific basis.
Previous Steps

Scoping Meetings
June 26, 2007
March 30, 2012

Public Stakeholder Meeting
April 18, 2011

Start Draft SED and Proposed Amendments

Last TR Workplan
Adopted
March 15, 2011

Three scientific studies completed and presented at Board Workshop
August 22, 2012
ERP Recommendations - Intakes

- **Track 1- Subsurface (below ground seabed)**
  - Wells – brackish or saline groundwater
  - Below substrate- infiltration galleries
ERP Recommendations - Intakes

- Track 2- Surface water
  - Limit intake velocity to 0.5 ft/s (15 cm/s)
  - Use of fine Screens
Recommendations on Intake Impacts and Mitigation

How should any remaining IM&E be mitigated after the best site, design and technology are determined for a new desalination plant intake?

• A fee, based on Area of Production Foregone, could be used to fund mitigation for entrainment losses
Recommendations – Process and Mitigation

**Process:** Best site and design for a new facility to be determined by the Water Boards following a collaborative process with other state agencies involved in facility permitting.

**Mitigation:** For residual impacts after intake controls, mitigation based on Area of Production Foregone, determined using Empirical Transport Model.
Potential Discharge Impacts

• The effects of exposing benthic marine life to a dense, highly saline plume are not very well understood.

• Granite Canyon Brine Toxicity Study investigated sensitivity of red abalone, purple urchin, sand dollars, mussels, mysid shrimp, giant kelp and topsmelt to elevated salinity
Potential Discharge Impacts

Granite Canyon Brine Toxicity Study Results:

• Invertebrates are sensitive to elevated salinity.

• Red abalone were most sensitive (observed effect at \(~5\%\) above ‘average’ seawater).

• Implications for endangered black abalone?
Brine Panel Recommendations on Brine Fate and Disposal

• A salinity increase of no more than 5 percent (2 ppt) in the receiving waters around the discharge appears protective to biota.

• Monitoring programs should be required for all discharges (effluent and receiving environment).

• The use of multiport diffusers for discharging undiluted brine
Project Status

Interagency Meetings
- April 24, 2012
- March 12, 2013
- May 22, 2013
- August 6, 2013

Targeted Stakeholder Meetings-2013
- June 12- Costa Mesa
- June 17- San Francisco
- June 21-Santa Monica
- June 27-Santa Cruz

Reconvene Intake Panel
- April, 2013

Desal Workshop with Expert Review Panel
- Sept 23, 2013

Internal Review of Draft SED and Amendments

Stakeholder Meeting
- Jan 30, 2013
Board Meeting/Adoption Fall 2014

Release of Final Drafts Summer 2014

Response to Public Comments

Release of Drafts to the Public and Public Comment Period Winter 2014

Public Hearing Spring 2014

US EPA Submittal

OAL Submittal and Approval

Next Steps
Contact Information

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