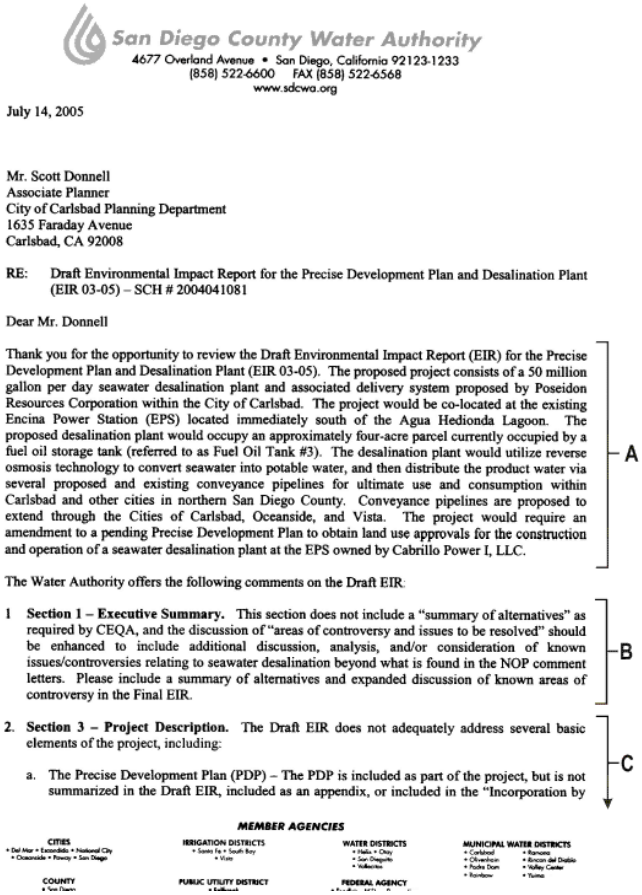
Comment No. 55



San Diego County Water Authority
4677 Overland Avenue • San Diego, California 92123-1233
(858) 522-6600 FAX (858) 522-6568
www.sdcwa.org

July 14, 2005

Mr. Scott Donnell
Associate Planner
City of Carlsbad Planning Department
1635 Faraday Avenue
Carlsbad, CA 92008

RE: Draft Environmental Impact Report for the Precise Development Plan and Desalination Plant (EIR 03-05) – SCH # 2004041081

Dear Mr. Donnell

Thank you for the opportunity to review the Draft Environmental Impact Report (EIR) for the Precise Development Plan and Desalination Plant (EIR 03-05). The proposed project consists of a 50 million gallon per day seawater desalination plant and associated delivery system proposed by Poseidon Resources Corporation within the City of Carlsbad. The project would be co-located at the existing Encina Power Station (EPS) located immediately south of the Agua Hedionda Lagoon. The proposed desalination plant would occupy an approximately four-acre parcel currently occupied by a fuel oil storage tank (referred to as Fuel Oil Tank #3). The desalination plant would utilize reverse osmosis technology to convert seawater into potable water, and then distribute the product water via several proposed and existing conveyance pipelines for ultimate use and consumption within Carlsbad and other cities in northern San Diego County. Conveyance pipelines are proposed to extend through the Cities of Carlsbad, Oceanside, and Vista. The project would require an amendment to a pending Precise Development Plan to obtain land use approvals for the construction and operation of a seawater desalination plant at the EPS owned by Cabrillo Power I, LLC. A

The Water Authority offers the following comments on the Draft EIR:

1 **Section 1 – Executive Summary.** This section does not include a "summary of alternatives" as required by CEQA, and the discussion of "areas of controversy and issues to be resolved" should be enhanced to include additional discussion, analysis, and/or consideration of known issues/controversies relating to seawater desalination beyond what is found in the NOP comment letters. Please include a summary of alternatives and expanded discussion of known areas of controversy in the Final EIR. B

2. **Section 3 – Project Description.** The Draft EIR does not adequately address several basic elements of the project, including: C

a. The Precise Development Plan (PDP) – The PDP is included as part of the project, but is not summarized in the Draft EIR, included as an appendix, or included in the "Incorporation by

MEMBER AGENCIES

CITIES
• Del Mar • Escondido • National City • Oceanside • Poway • San Diego

IRRIGATION DISTRICTS
• Santa Fe • South Bay • Vista

WATER DISTRICTS
• Helix • Otay • San Dieguito • Vallecitos

MUNICIPAL WATER DISTRICTS
• Carlsbad • Olivenhain • Padre Dam • Rainbow • Ramona • Rincon del Diablo • Valley Center • Yuima

COUNTY
• San Diego

PUBLIC UTILITY DISTRICT

FEDERAL AGENCY

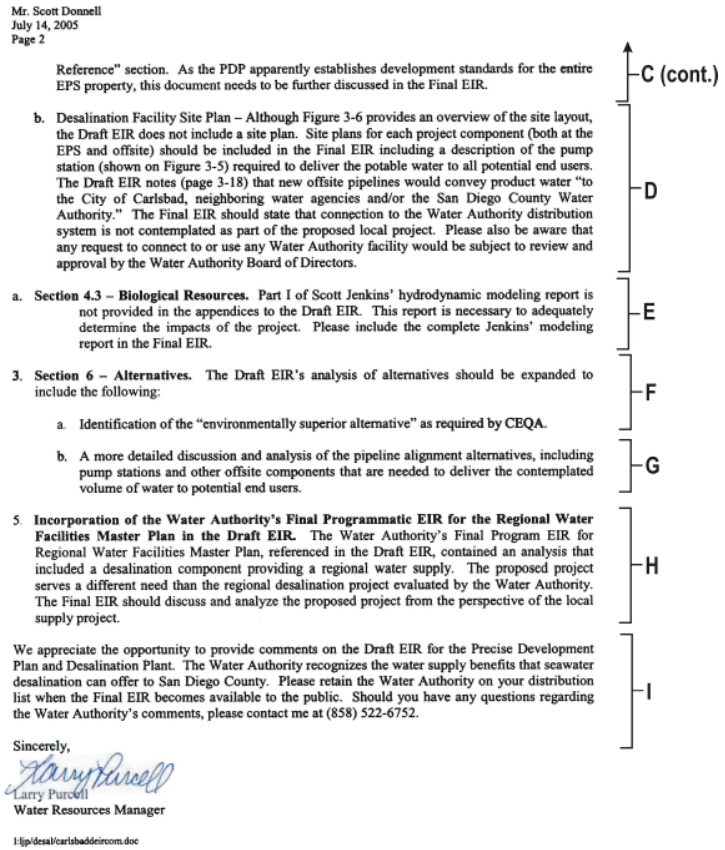
RESPONSE TO COMMENT NO. 55
San Diego County Water Authority Larry Purcell
(Letter dated July 14, 2005)

55A This comment reiterates the project description, as described in Section 3.0 of the Draft EIR. No response is necessary.

55B The Final EIR includes a summary of project alternatives in Section 1 of the document. The Draft EIR identified all issues and areas of controversy known to the Lead Agency at the time of publication of the Draft EIR. The Final EIR also contains a reference to the comments received on the Draft EIR, to include any additional issues or areas of controversy identified in those comments.

55C The PDP is a proposed document prepared as required by and in accordance with Zoning Ordinance Chapter 21.36. It is available for public review through the City of Carlsbad Planning Department. In 2000, Cabrillo Power I LLC submitted a draft of the PDP; this draft was subsequently amended in 2002 to include the proposed desalination plant as the PDP is the primary land use mechanism to approve the proposal. The PDP remains in draft form and is one of the applications the City of Carlsbad will consider in it deliberations of this project.

A summary of the PDP is provided in Draft EIR Section 3.1 (page 3-1). A more detailed discussion and analysis of the proposed PDP is provided in Draft EIR Section 4.8, *Land Use and Planning*. This section describes in part the PDP's relationship to the Zoning Ordinance and Public Utilities (P-U) Zone, its role in documenting existing conditions at the EPS, its proposed development standards, and its procedures for processing



Mr. Scott Donnell
July 14, 2005
Page 2

Reference" section. As the PDP apparently establishes development standards for the entire EPS property, this document needs to be further discussed in the Final EIR.

b. Desalination Facility Site Plan – Although Figure 3-6 provides an overview of the site layout, the Draft EIR does not include a site plan. Site plans for each project component (both at the EPS and offsite) should be included in the Final EIR including a description of the pump station (shown on Figure 3-5) required to deliver the potable water to all potential end users. The Draft EIR notes (page 3-18) that new offsite pipelines would convey product water "to the City of Carlsbad, neighboring water agencies and/or the San Diego County Water Authority." The Final EIR should state that connection to the Water Authority distribution system is not contemplated as part of the proposed local project. Please also be aware that any request to connect to or use any Water Authority facility would be subject to review and approval by the Water Authority Board of Directors.

a. **Section 4.3 – Biological Resources.** Part I of Scott Jenkins' hydrodynamic modeling report is not provided in the appendices to the Draft EIR. This report is necessary to adequately determine the impacts of the project. Please include the complete Jenkins' modeling report in the Final EIR.

3. **Section 6 – Alternatives.** The Draft EIR's analysis of alternatives should be expanded to include the following:

   a. Identification of the "environmentally superior alternative" as required by CEQA.

   b. A more detailed discussion and analysis of the pipeline alignment alternatives, including pump stations and other offsite components that are needed to deliver the contemplated volume of water to potential end users.

5. **Incorporation of the Water Authority's Final Programmatic EIR for the Regional Water Facilities Master Plan in the Draft EIR.** The Water Authority's Final Program EIR for Regional Water Facilities Master Plan, referenced in the Draft EIR, contained an analysis that included a desalination component providing a regional water supply. The proposed project serves a different need than the regional desalination project evaluated by the Water Authority. The Final EIR should discuss and analyze the proposed project from the perspective of the local supply project.

We appreciate the opportunity to provide comments on the Draft EIR for the Precise Development Plan and Desalination Plant. The Water Authority recognizes the water supply benefits that seawater desalination can offer to San Diego County. Please retain the Water Authority on your distribution list when the Final EIR becomes available to the public. Should you have any questions regarding the Water Authority's comments, please contact me at (858) 522-6752.

Sincerely,

Larry Purcell
Water Resources Manager

l:\jp\desal\carlsbaddeircom.doc

C (cont.) D E F G H I

improvements other than the desalination plant that may be proposed at the EPS in the future.

As discussed in the Draft EIR, Section 3.4.1 (page 3-18) the project does not include any physical modifications to PDP area, other than those modifications described in the Draft EIR to accommodate the desalination plant. The policies and development standards contained in the PDP are applicable to future projects within the PDP area. The PDP is available for review at the City of Carlsbad Planning Department. Any future proposal would be subject to future environmental review. There are no aspects of the policies and development standards contained in the PDP that would have the potential for an environmental effect in and of themselves, since their purpose is to provide guidance for consideration of future projects. Approval of the PDP would not allow for any physical development or changes in existing environmental conditions, other than permitting development of the desalination plant, which is fully analyzed in the Draft EIR. There is no development currently proposed with the PDP beyond the desalination plant.

55D The PDP includes detailed site plans and elevations of all proposed facilities located at the Encina Power Station and the proposed pump station. A brief description of the pump station can be found on page 4.1-10 of Section 4.1, *Aesthetics*, in the Draft EIR. In addition, pursuant to this comment, the Final EIR contains an explicit statement that the project as proposed does not include pipeline connections that would convey desalinated water to CWA distribution facilities. The comment regarding CWA approval of any future connection is noted.

55E This comment states that Part I of Jenkins hydrodynamic modeling report is not provided in the appendices to the Draft EIR. The Part I study is

referenced on page 2 of the Draft EIR Appendix E study entitled, *Hydrodynamic Modeling of Dispersion and Dilution of Concentrated Seawater Produced by the Ocean Desalination Project at the Encina Power Plant, Carlsbad, CA. Part II: Saline Anomalies Due to Theoretical Extreme Case Hydraulic Scenarios.* This study is dated March 7, 2005. Although not entitled "part I," the part I study is also found in Appendix E and is entitled *Hydrodynamic Modeling of Dispersion and Dilution of Concentrated Seawater Produced by the Ocean Desalination Project at the Encina Power Plant, Carlsbad, CA.*, and is dated December 1, 2001.

55F Language has been added to the Final EIR to clarify that the Reduced Project Capacity alternative is considered to be the environmentally superior alternative.

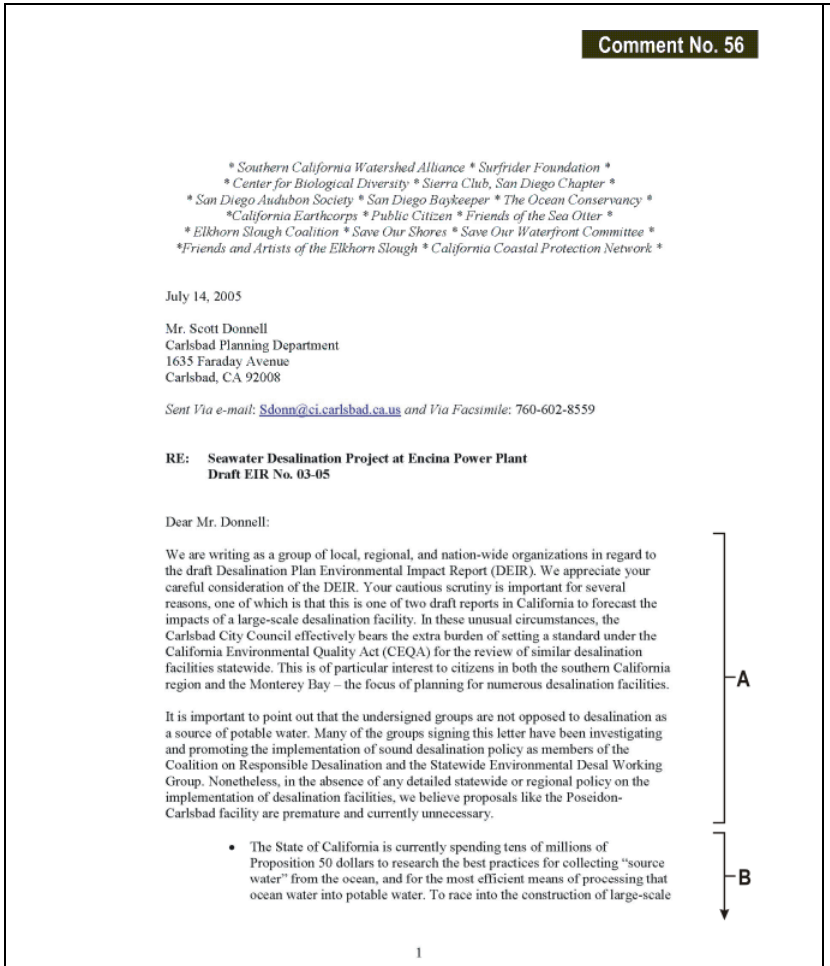
55G As noted in the Project Description (Section 3 of the Draft EIR), alignment options for the water delivery pipelines have been identified for purposes of providing flexibility in the ultimate alignment for the facilities. These are not considered to be alternatives as defined in Section 15126.6 of the CEQA Guidelines, and as such are not described and analyzed as project alternatives. A complete description of the proposed offsite facilities, including the offsite pump station, is contained in Section 3 of the Draft EIR.

55H As noted in Section 3.1 of the Draft EIR, in January 2004, the CWA Board concluded that it would be in the region's best interest to allow Carlsbad and Poseidon to work on developing a local project rather than to continue direct negotiations with Poseidon and Carlsbad. In February 2004, the CWA board chairman sent a letter to the City of Carlsbad in support of Carlsbad's efforts to develop a local seawater desalination project. During this period, CMWD negotiated a Water Purchase Agreement (Appendix B)

with Poseidon that was approved by the CMWD Board on September 28, 2004. Meanwhile, on August 12, 2004, the CWA Board approved a staff recommendation to reopen discussions with Carlsbad and Poseidon, and simultaneously continue independent planning and environmental studies for a regional seawater desalination facility at the EPS. Also on August 12, the CWA Board reaffirmed that successful development of a locally initiated seawater desalination plant at the Encina site would create a regional water reliability benefit, and would therefore support the City's efforts in processing such a facility. This is the approach that has been taken in developing the project proposal, and the Draft EIR analyzes the project from this perspective.

The primary reference to the Regional Water Facilities Master Plan Final Program EIR is in relation to growth-inducing effects. Section 9 of the Draft EIR appropriately characterizes the project in the context of regional planning by stating that, while the proposed project is being implemented on a local level and does not involve participation by the CWA, it represents local implementation of a planned regional water supply component. The CWA wholesales imported water to its member agencies, which in turn deliver the water to individual homes and businesses throughout the county. The Carlsbad Municipal Water District, the City of Oceanside, Vista Irrigation District and Vallecitos Water District, all of which are anticipated to be potential purchasers of desalinated seawater from the proposed project, are member agencies of the CWA. As such, implementation of the proposed project at a local level would have the same potential for growth inducement as the RWFMP, and no additional discussion of potential growth effects are required or necessary.

55I Comment noted, the CWA will be retained on the distribution list for the Final EIR.



Comment No. 56

* Southern California Watershed Alliance * Surfrider Foundation *
* Center for Biological Diversity * Sierra Club, San Diego Chapter *
* San Diego Audubon Society * San Diego Baykeeper * The Ocean Conservancy *
*California Earthcorps * Public Citizen * Friends of the Sea Otter *
* Elkhorn Slough Coalition * Save Our Shores * Save Our Waterfront Committee *
*Friends and Artists of the Elkhorn Slough * California Coastal Protection Network *

July 14, 2005

Mr. Scott Donnell
Carlsbad Planning Department
1635 Faraday Avenue
Carlsbad, CA 92008

Sent Via e-mail: Sdonn@ci.carlsbad.ca.us *and Via Facsimile*: 760-602-8559

RE: Seawater Desalination Project at Encina Power Plant
Draft EIR No. 03-05

Dear Mr. Donnell:

We are writing as a group of local, regional, and nation-wide organizations in regard to the draft Desalination Plan Environmental Impact Report (DEIR). We appreciate your careful consideration of the DEIR. Your cautious scrutiny is important for several reasons, one of which is that this is one of two draft reports in California to forecast the impacts of a large-scale desalination facility. In these unusual circumstances, the Carlsbad City Council effectively bears the extra burden of setting a standard under the California Environmental Quality Act (CEQA) for the review of similar desalination facilities statewide. This is of particular interest to citizens in both the southern California region and the Monterey Bay – the focus of planning for numerous desalination facilities.

It is important to point out that the undersigned groups are not opposed to desalination as a source of potable water. Many of the groups signing this letter have been investigating and promoting the implementation of sound desalination policy as members of the Coalition on Responsible Desalination and the Statewide Environmental Desal Working Group. Nonetheless, in the absence of any detailed statewide or regional policy on the implementation of desalination facilities, we believe proposals like the Poseidon-Carlsbad facility are premature and currently unnecessary.

- The State of California is currently spending tens of millions of Proposition 50 dollars to research the best practices for collecting "source water" from the ocean, and for the most efficient means of processing that ocean water into potable water. To race into the construction of large-scale

A

B

1

RESPONSE TO COMMENT NO. 56

Southern California Watershed Alliance, Surfrider Foundation, Center for Biological Diversity, Sierra Club- San Diego Chapter, San Diego Audubon Society, San Diego Baykeeper, The Ocean Conservancy, California Earthcorps, Public Citizen, Friends of the Sea Otter, Elkhorn Slough Coalition, Save Our Shores, Save Our Waterfront Committee, Friends and Artists of the Elkhorn Slough, California Coastal Protection Network
(Letter dated July 14, 2005)

56A This comment expresses an opinion of the importance of the Draft EIR in relation to future desalination projects. Since no issues relative to the environmental analysis are identified, no further response is required.

56B Consistent with voter intent, the Department of Water Resources is using funds allocated under Proposition 50 to simultaneously fund seawater desalination feasibility studies, research, pilot studies and construction projects. Three construction projects were approved for Prop 50 funding by the Department in May of this year, including one project that is similar in design to the proposed project. The Department would not have approved the funding for this project if it was concerned that more research was needed prior to the construction of a full-scale project.

56C Cabrillo Power LLC (Cabrillo), is the owner and operator of the Encina power plant, and is currently conducting impingement and entrainment studies pursuant to Phase II 316(b) requirements. Cabrillo intends to

production facilities that put our precious natural resources at risk, before the research is complete, is "putting the cart before the horse."

B (cont.)

- Similarly, the United States Environmental Protection Agency has promulgated regulations for the use of "cooling water intake structures" that will have to be applied at large facilities such as the Encina Power Station (EPS). These regulations mandate a dramatic reduction in the current mortality of marine life from "impingement" and/or "entrainment." It is unclear at the current time how the EPS intends to comply with these new regulations. But, reliance on the current cooling water intake for desalination source water is, again, premature and therefore unsound public policy.

C

- The California Department of Water Resources is currently assessing the projected demands on our limited water supplies and the several alternatives available for meeting an ever-growing demand. The niche in our water portfolio that can be filled with environmentally sensitive desalination facilities is still undefined.

D

It is in the best interest of ratepayers and the environment to make sure that the answers to these outstanding issues are resolved before approval of such a permanent and large-scale facility as the Poseidon-Carlsbad proposal.

Finally, and possibly most importantly, as detailed below, the draft EIR fails to allow a fully informed consideration of the proposal by the public and it's elected representatives. The DEIR, in several areas, is inadequate. In the most extreme cases, the DEIR may also be misleading the public and our representatives.

It is critical that the public and our decision makers fully understand the scope of public policy issues that are raised by this project – considerations that go well beyond the surface issue of water supply. This project, and the associated DEIR, raise serious considerations about future Clean Water Act compliance, coastal zone management, land use planning, electricity generation, marine life management/protection, etc. It is a major decision that demands thorough documentation and public policy debate before approval.

E

Once again, thank you for your thorough consideration of the comments below.

Sincerely,

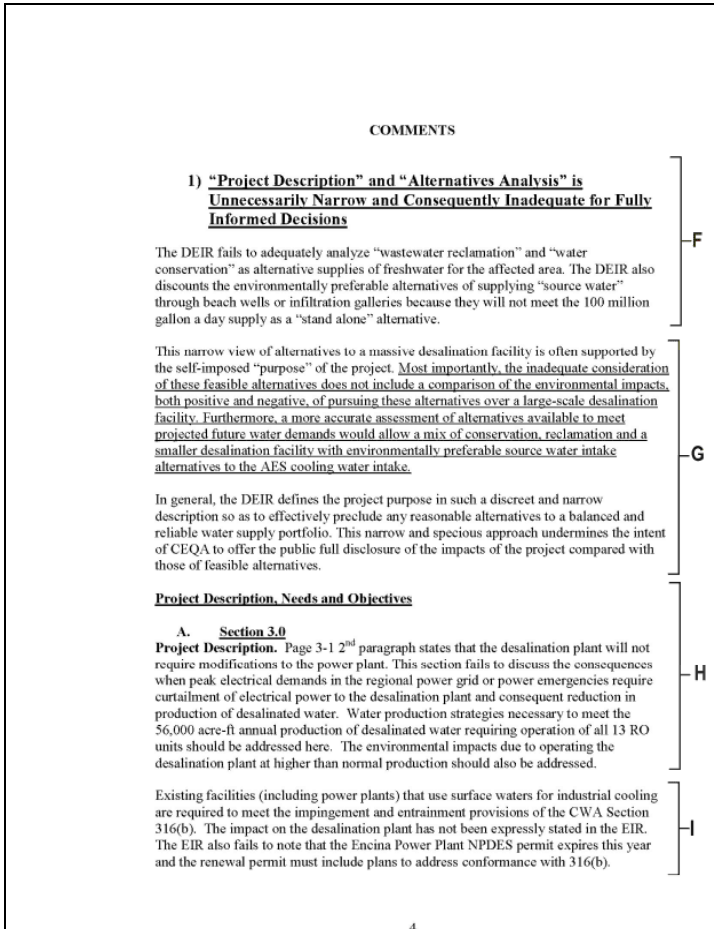
Sierra Club
San Diego Chapter
Ed Kimura

San Diego Baykeeper
Bruce Reznik
Executive Director

2

achieve full compliance with the requirements, but has not as of yet determined the specific measures, or combination of measures, that will be implemented to achieve compliance. However, the Lead Agency believes it is reasonably foreseeable that compliance can be achieved without reduction of seawater intake below the threshold levels identified as the "worst case" (historical extreme) scenarios analyzed in the Draft EIR and in the technical studies contained in Appendix E of the Draft EIR ("Hydrodynamic Modeling of Dispersion And Dilution of Concentrated Seawater Produced by the Ocean Desalination Project at the Encina Power Plant, Carlsbad, CA Part II. Saline Anomalies Due to Theoretical Extreme Case Hydraulic Scenarios" March 7, 2005; hereinafter the "2005 Jenkins and Wasyl report", and "Marine Biological Considerations Related to the Reverse Osmosis Desalination Project at the Encina Power Plant," April 4, 2005; hereinafter the "Graham report").

Under the historical extreme scenario used as the basis for a worst case analysis of effects related to increased salinity discharge, the power plant seawater intake volume is identified as 304 MGD, which is approximately 53% of the average intake volume (20.5 year average of 576 MGD), and 35% of the maximum permitted intake capacity (857 MGD). Therefore, even if the proposed compliance measures included reduction of intake volumes, it is unlikely that the flow would drop below 304 MGD. As indicated in Section 3, Project Description, of the Draft EIR, the current project is defined as using the cooling water discharge of the power plant as source water for the desalination plant. Under CEQA, the Lead Agency is required to address existing or reasonably foreseeable future conditions and impacts and cannot speculate about uncertain outcomes or potential effects that cannot be reasonably quantified or predicted at this time or are outside the project



COMMENTS

1) **"Project Description" and "Alternatives Analysis" is Unnecessarily Narrow and Consequently Inadequate for Fully Informed Decisions** — F

The DEIR fails to adequately analyze "wastewater reclamation" and "water conservation" as alternative supplies of freshwater for the affected area. The DEIR also discounts the environmentally preferable alternatives of supplying "source water" through beach wells or infiltration galleries because they will not meet the 100 million gallon a day supply as a "stand alone" alternative.

This narrow view of alternatives to a massive desalination facility is often supported by the self-imposed "purpose" of the project. Most importantly, the inadequate consideration of these feasible alternatives does not include a comparison of the environmental impacts, both positive and negative, of pursuing these alternatives over a large-scale desalination facility. Furthermore, a more accurate assessment of alternatives available to meet projected future water demands would allow a mix of conservation, reclamation and a smaller desalination facility with environmentally preferable source water intake alternatives to the AES cooling water intake. — G

In general, the DEIR defines the project purpose in such a discreet and narrow description so as to effectively preclude any reasonable alternatives to a balanced and reliable water supply portfolio. This narrow and specious approach undermines the intent of CEQA to offer the public full disclosure of the impacts of the project compared with those of feasible alternatives.

Project Description, Needs and Objectives

A. **Section 3.0**
Project Description. Page 3-1 2nd paragraph states that the desalination plant will not require modifications to the power plant. This section fails to discuss the consequences when peak electrical demands in the regional power grid or power emergencies require curtailment of electrical power to the desalination plant and consequent reduction in production of desalinated water. Water production strategies necessary to meet the 56,000 acre-ft annual production of desalinated water requiring operation of all 13 RO units should be addressed here. The environmental impacts due to operating the desalination plant at higher than normal production should also be addressed. — H

Existing facilities (including power plants) that use surface waters for industrial cooling are required to meet the impingement and entrainment provisions of the CWA Section 316(b). The impact on the desalination plant has not been expressly stated in the EIR. The EIR also fails to note that the Encina Power Plant NPDES permit expires this year and the renewal permit must include plans to address conformance with 316(b). — I

4

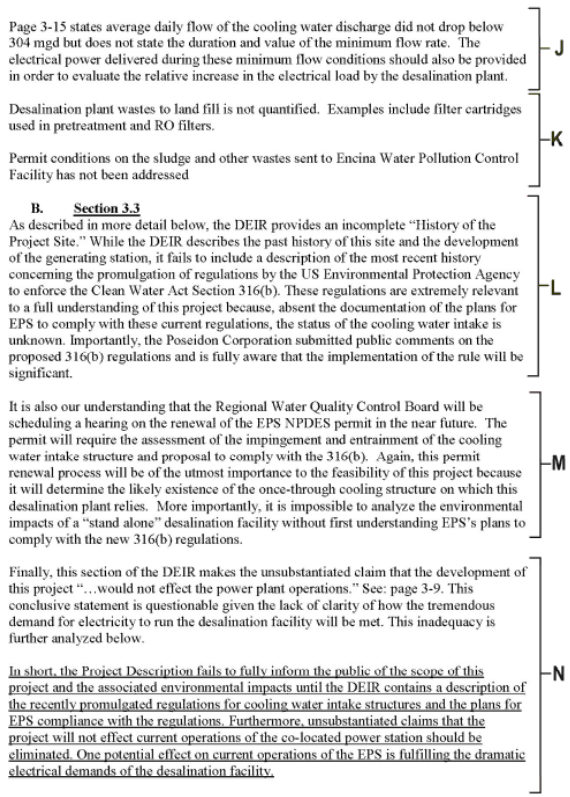
definition. In addition, the baseline for measuring potential environmental impacts of a project under CEQA is the current physical environment, including current operating conditions. Since no plans currently exist or are under consideration to reduce or discontinue the power plant use of seawater for cooling purposes, the assessment of plant operations under this completely different project baseline is speculative at best and is outside of the scope of the CEQA review of this project, as defined in the Draft EIR.

56D The Department of Water Resources' draft California Water Plan Update 2005 states that if recent trends continue, new water supplies must be developed to ensure an adequate water supply for the future. More than 600,000 acre-feet of new supply will be needed to meet the South Coast region's needs by the year 2030[7], including up to 500,000 acre-feet of desalination.[8]

Thus, the California Water Plan Update relies on both conservation and desalination to meet the projected water demand in California. However, rather than specifically define the role of desalination, the California Water Plan Update 2005 defers to local and regional planning for selection of the supply that best meets that region's needs:[9]

"With so much variation possible in future water demand from region to region and sector to sector, no single water management strategy will work statewide. California needs to ensure that each region of the state can tailor responses to local conditions by implementing integrated regional water management supported by strong statewide management systems."

7 California Water Plant Highlights page 4.
8 California Water Plan Highlights page 15.
9 California Water Plant Highlights page 5.



Page 3-15 states average daily flow of the cooling water discharge did not drop below 304 mgd but does not state the duration and value of the minimum flow rate. The electrical power delivered during these minimum flow conditions should also be provided in order to evaluate the relative increase in the electrical load by the desalination plant. J

Desalination plant wastes to land fill is not quantified. Examples include filter cartridges used in pretreatment and RO filters.

Permit conditions on the sludge and other wastes sent to Encina Water Pollution Control Facility has not been addressed K

B. **Section 3.3**

As described in more detail below, the DEIR provides an incomplete "History of the Project Site." While the DEIR describes the past history of this site and the development of the generating station, it fails to include a description of the most recent history concerning the promulgation of regulations by the US Environmental Protection Agency to enforce the Clean Water Act Section 316(b). These regulations are extremely relevant to a full understanding of this project because, absent the documentation of the plans for EPS to comply with these current regulations, the status of the cooling water intake is unknown. Importantly, the Poseidon Corporation submitted public comments on the proposed 316(b) regulations and is fully aware that the implementation of the rule will be significant. L

It is also our understanding that the Regional Water Quality Control Board will be scheduling a hearing on the renewal of the EPS NPDES permit in the near future. The permit will require the assessment of the impingement and entrainment of the cooling water intake structure and proposal to comply with the 316(b). Again, this permit renewal process will be of the utmost importance to the feasibility of this project because it will determine the likely existence of the once-through cooling structure on which this desalination plant relies. More importantly, it is impossible to analyze the environmental impacts of a "stand alone" desalination facility without first understanding EPS's plans to comply with the new 316(b) regulations. M

Finally, this section of the DEIR makes the unsubstantiated claim that the development of this project "…would not effect the power plant operations." See: page 3-9. This conclusive statement is questionable given the lack of clarity of how the tremendous demand for electricity to run the desalination facility will be met. This inadequacy is further analyzed below.

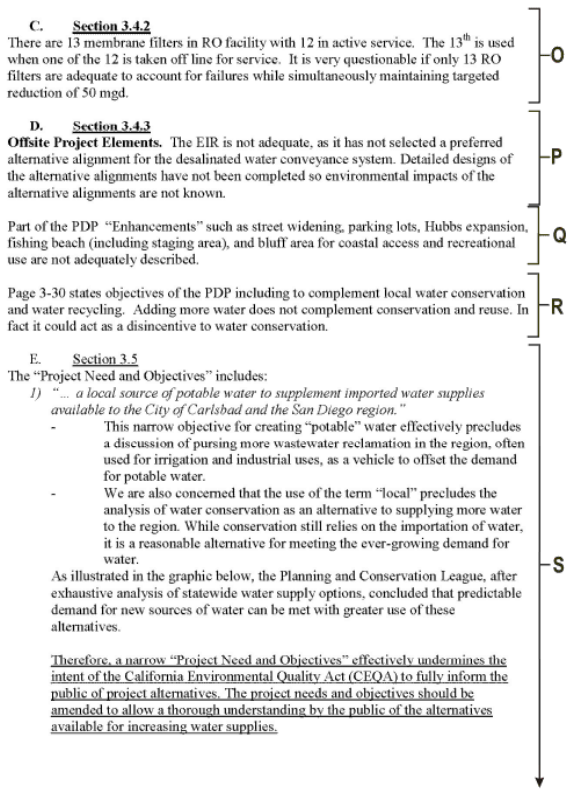
In short, the Project Description fails to fully inform the public of the scope of this project and the associated environmental impacts until the DEIR contains a description of the recently promulgated regulations for cooling water intake structures and the plans for EPS compliance with the regulations. Furthermore, unsubstantiated claims that the project will not effect current operations of the co-located power station should be eliminated. One potential effect on current operations of the EPS is fulfilling the dramatic electrical demands of the desalination facility. N

5

Both the Metropolitan Water District of Southern California (MWD) and the San Diego County Water Authority (SDCWA) have tailored responses to local conditions by implementing integrated regional plans that include a seawater desalination component. MWD has adopted an integrated resources plan (IRP) that provides for a combination of conservation, recycling, importation and brackish and seawater desalination to address the future water supply needs of Southern California. MWD's IRP provides for 150,000 acre-feet per year of new supply being available from seawater desalination, including 56,000 AFY of supply from the proposed project. Similarly, SDCWA Regional Water Facilities Master Plan considers a combination of conservation, recycling, importation and brackish and seawater desalination to address the future water supply needs of San Diego County, including 56,000 AFY from the proposed project.

56E The Lead Agency disagrees with the broad assertions provided in this comment regarding the adequacy of the environmental analysis provided in the Draft EIR. However, the comment lacks sufficient clarity and specificity to afford a more detailed response. Detailed responses to specific comments are provided below.

56F The reference of the use of beach wells as "environmentally preferable" alternative to the proposed intake configuration for the site-specific conditions of the Carlsbad seawater desalination project is inaccurate and unfounded on facts. Please note that beach wells are not designated or recognized by EPA as "best technology available" for mitigation of intake impingement and entrainment under the applicable 316 (B) Federal Regulations. In addition, there is no long-term track record of the use of beach wells for large scale seawater desalination plants or for power plants. Although beach wells have proven to be viable for plants of capacity smaller than 1 MGD, open surface ocean



C. **Section 3.4.2**
There are 13 membrane filters in RO facility with 12 in active service. The 13th is used when one of the 12 is taken off line for service. It is very questionable if only 13 RO filters are adequate to account for failures while simultaneously maintaining targeted reduction of 50 mgd. — O

D. **Section 3.4.3**
Offsite Project Elements. The EIR is not adequate, as it has not selected a preferred alternative alignment for the desalinated water conveyance system. Detailed designs of the alternative alignments have not been completed so environmental impacts of the alternative alignments are not known. — P

Part of the PDP "Enhancements" such as street widening, parking lots, Hubbs expansion, fishing beach (including staging area), and bluff area for coastal access and recreational use are not adequately described. — Q

Page 3-30 states objectives of the PDP including to complement local water conservation and water recycling. Adding more water does not complement conservation and reuse. In fact it could act as a disincentive to water conservation. — R

E. Section 3.5
The "Project Need and Objectives" includes:
1) *"... a local source of potable water to supplement imported water supplies available to the City of Carlsbad and the San Diego region."*
- This narrow objective for creating "potable" water effectively precludes a discussion of pursing more wastewater reclamation in the region, often used for irrigation and industrial uses, as a vehicle to offset the demand for potable water.
- We are also concerned that the use of the term "local" precludes the analysis of water conservation as an alternative to supplying more water to the region. While conservation still relies on the importation of water, it is a reasonable alternative for meeting the ever-growing demand for water.

As illustrated in the graphic below, the Planning and Conservation League, after exhaustive analysis of statewide water supply options, concluded that predictable demand for new sources of water can be met with greater use of these alternatives. — S

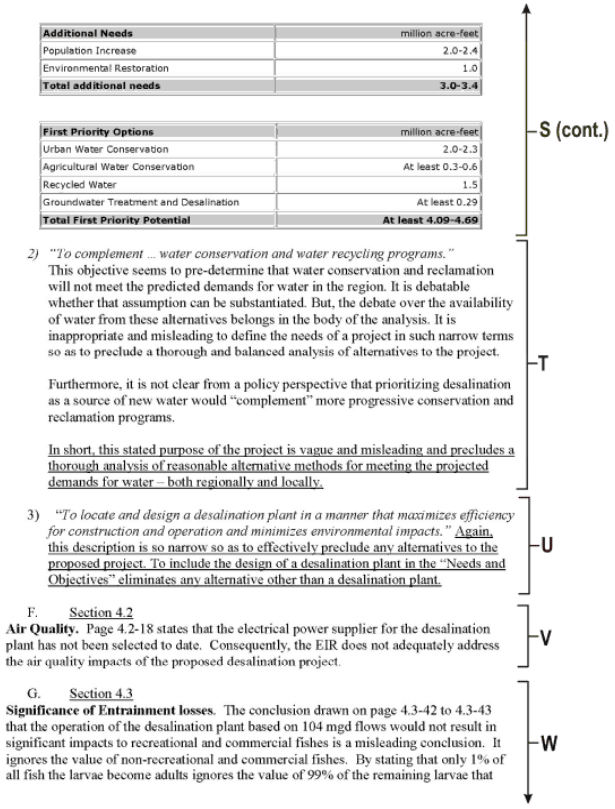
Therefore, a narrow "Project Need and Objectives" effectively undermines the intent of the California Environmental Quality Act (CEQA) to fully inform the public of project alternatives. The project needs and objectives should be amended to allow a thorough understanding by the public of the alternatives available for increasing water supplies.

6

intakes have significantly wider application for large seawater reverse osmosis (SWRO) desalination plants. At present, out of over 50 operational SWRO facilities worldwide with capacity larger than 5 MGD, there are only four using beach well intakes. The largest SWRO facility with beach wells is the 14.3 MGD Pembroke plant in Malta. This plant has been in operation since 1991. The 11 MGD Bay of Palma plant in Mallorca, Spain has 16 vertical wells with capacity of 1.5 MGD each. The third largest plant is the 6.3 MGD Ghar Lapsi SWRO in Malta. Source water for this facility is supplied by 15 vertical beach wells with unit capacity of 1.0 MGD. The largest SWRO plant in North America which obtains source water from beach wells is the 3.8 MGD water supply facility for the Pemex Salina Cruz refinery in Mexico. This plant also has the largest existing seawater intake wells – three Ranney-type radial collectors with capacity of 3.8 MGD each. Neither one of these projects is comparable in capacity to the proposed 50 MGD Carlsbad sweater desalination project.

As indicated on page 4.3-41 of the Draft EIR, the entrainment effect attributed to the proposed Carlsbad seawater desalination plant "ranges from 0.01 percent for northern anchovy to 0.28 percent for CIQ gobies." This entrainment effect is insignificant. Therefore, the beach well option does not provide a significant advantage over the intake configuration proposed by the project proponent.

As indicated on page 6-6 of the Draft EIR, the collection of 100 MGD of seawater would require the construction of a minimum of 25 beach wells along 4 miles of the Carlsbad beaches. (Note, additional technical detail prepared by the applicant has been provided in the Appendices of the Final EIR to help clarify the analysis provided in the Draft EIR, titled Carlsbad Seawater Desalination Project Alternatives to the Proposed Intake). The excavation of over 2 million cubic feet of beach



Additional Needs	million acre-feet
Population Increase	2.0-2.4
Environmental Restoration	1.0
Total additional needs	**3.0-3.4**

First Priority Options	million acre-feet
Urban Water Conservation	2.0-2.3
Agricultural Water Conservation	At least 0.3-0.6
Recycled Water	1.5
Groundwater Treatment and Desalination	At least 0.29
Total First Priority Potential	**At least 4.09-4.69**

S (cont.)

2) *"To complement ... water conservation and water recycling programs."* This objective seems to pre-determine that water conservation and reclamation will not meet the predicted demands for water in the region. It is debatable whether that assumption can be substantiated. But, the debate over the availability of water from these alternatives belongs in the body of the analysis. It is inappropriate and misleading to define the needs of a project in such narrow terms so as to preclude a thorough and balanced analysis of alternatives to the project.

Furthermore, it is not clear from a policy perspective that prioritizing desalination as a source of new water would "complement" more progressive conservation and reclamation programs.

In short, this stated purpose of the project is vague and misleading and precludes a thorough analysis of reasonable alternative methods for meeting the projected demands for water – both regionally and locally.

T

3) *"To locate and design a desalination plant in a manner that maximizes efficiency for construction and operation and minimizes environmental impacts."* Again, this description is so narrow so as to effectively preclude any alternatives to the proposed project. To include the design of a desalination plant in the "Needs and Objectives" eliminates any alternative other than a desalination plant.

U

F. Section 4.2
Air Quality. Page 4.2-18 states that the electrical power supplier for the desalination plant has not been selected to date. Consequently, the EIR does not adequately address the air quality impacts of the proposed desalination project.

V

G. Section 4.3
Significance of Entrainment losses. The conclusion drawn on page 4.3-42 to 4.3-43 that the operation of the desalination plant based on 104 mgd flows would not result in significant impacts to recreational and commercial fishes is a misleading conclusion. It ignores the value of non-recreational and commercial fishes. By stating that only 1% of all fish the larvae become adults ignores the value of 99% of the remaining larvae that

W

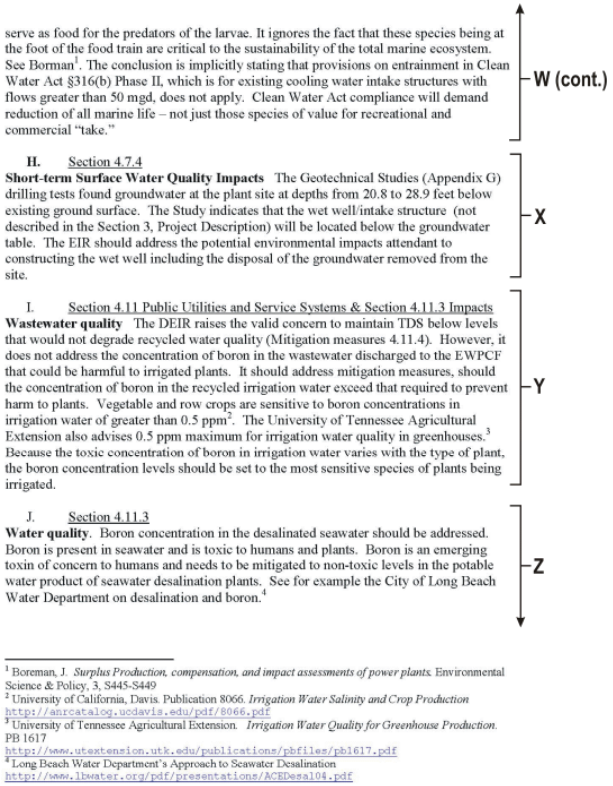
7

sand material and disturbance of a 4-mile strip of the beach shore for a period of over one year to build the required 25 beach wells would result in an irreversible loss of large amount of marine organisms inhabiting the sand. The excavation, transportation and disposal of large volumes (2 million cubic feet/74,000 cubic yards) of beach sand to construct the wells will also have significant additional environmental and traffic impacts. Considering that one large-size truck can transport up to 15 cubic yards of sand and the total amount of sand to be transported is over 74,000 cubic yards, the construction of the beach wells would add a minimum of 9,866 one-way truck trips to the local traffic. In addition, the implementation of the beach well alternative would result in negative impacts in terms of beach aesthetics, appearance, and recreation since the majority of Carlsbad's oceanfront is set aside as either Carlsbad State Beach or South Carlsbad State Beach.

56G See Responses 56D and 56F. Prior to considering the proposed desalination project, the SDCWA and member agencies conducted a thorough and lengthy public discussion regarding a variety of actions to improve water supply reliability, diversify supplies, and reduce dependence on imported water.

Regional water demand forecasts based on regional population growth projections were part of the water supply planning effort included in SDCWA's 2030 Regional Water Facilities Master Plan (RWFMP). As a result of the analysis performed for the RWFMP, three main water supply alternatives were identified:

1. Delivering water from the north – this involves construction of a new pipeline to convey water from the Metropolitan Water District of Southern California



serve as food for the predators of the larvae. It ignores the fact that these species being at the foot of the food train are critical to the sustainability of the total marine ecosystem. See Borman[1]. The conclusion is implicitly stating that provisions on entrainment in Clean Water Act §316(b) Phase II, which is for existing cooling water intake structures with flows greater than 50 mgd, does not apply. Clean Water Act compliance will demand reduction of all marine life – not just those species of value for recreational and commercial "take."

W (cont.)

H. Section 4.7.4
Short-term Surface Water Quality Impacts The Geotechnical Studies (Appendix G) drilling tests found groundwater at the plant site at depths from 20.8 to 28.9 feet below existing ground surface. The Study indicates that the wet well/intake structure (not described in the Section 3, Project Description) will be located below the groundwater table. The EIR should address the potential environmental impacts attendant to constructing the wet well including the disposal of the groundwater removed from the site.

X

I. Section 4.11 Public Utilities and Service Systems & Section 4.11.3 Impacts
Wastewater quality The DEIR raises the valid concern to maintain TDS below levels that would not degrade recycled water quality (Mitigation measures 4.11.4). However, it does not address the concentration of boron in the wastewater discharged to the EWPCF that could be harmful to irrigated plants. It should address mitigation measures, should the concentration of boron in the recycled irrigation water exceed that required to prevent harm to plants. Vegetable and row crops are sensitive to boron concentrations in irrigation water of greater than 0.5 ppm[2]. The University of Tennessee Agricultural Extension also advises 0.5 ppm maximum for irrigation water quality in greenhouses.[3] Because the toxic concentration of boron in irrigation water varies with the type of plant, the boron concentration levels should be set to the most sensitive species of plants being irrigated.

Y

J. Section 4.11.3
Water quality. Boron concentration in the desalinated seawater should be addressed. Boron is present in seawater and is toxic to humans and plants. Boron is an emerging toxin of concern to humans and needs to be mitigated to non-toxic levels in the potable water product of seawater desalination plants. See for example the City of Long Beach Water Department on desalination and boron.[4]

Z

[1] Boreman, J. *Surplus Production, compensation, and impact assessments of power plants.* Environmental Science & Policy, 3, S445-S449
[2] University of California, Davis. Publication 8066. *Irrigation Water Salinity and Crop Production* http://anrcatalog.ucdavis.edu/pdf/8066.pdf
[3] University of Tennessee Agricultural Extension. *Irrigation Water Quality for Greenhouse Production.* PB 1617 http://www.utextension.utk.edu/publications/pbfiles/pb1617.pdf
[4] Long Beach Water Department's Approach to Seawater Desalination http://www.lbwater.org/pdf/presentations/ACEDesal04.pdf

8

2. Delivering water from the east – this involves a new pipeline extending to the Imperial Valley to convey water transferred from other water agencies

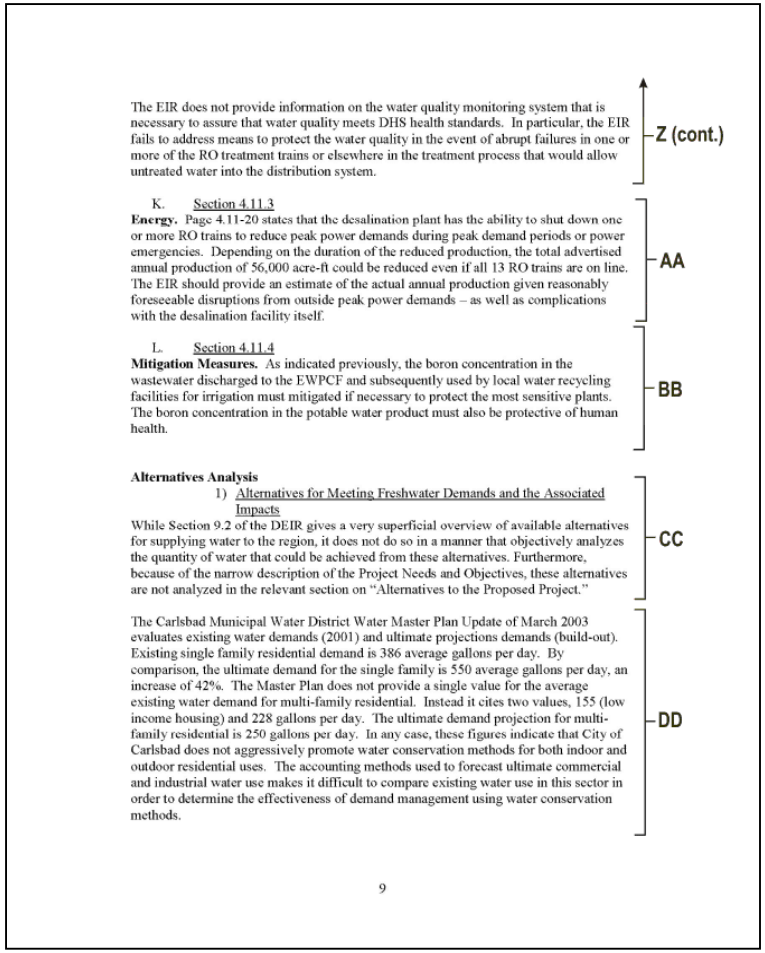
3. Delivering water from the west – this involves development of seawater desalination.

The seawater desalination development alternative was identified as the preferred alternative in the RWFMP, because it was found to provide safe, high-quality water through a locally controlled process from a drought-proof source.

A baseline assumption of the Draft EIR is that the water conservation and water recycling elements included in CMWD's 2000 Urban Water Management Plan and the RWFMP will be fully implemented. However, even with the targeted conservation and recycling in place, the RWFMP identified a need for additional local water in an amount equal to or greater than the project capacity.

One of the objectives of the project is to address a portion of this water supply need. Based on regional water supply planning efforts that are documented in the Draft EIR, the Lead Agency disagrees that the referenced project objectives are "discreet and narrow", and instead believes that the project objectives accurately and appropriately reflect the extensive analysis of regional water demand and water supply planning that has been conducted to date.

The commentor inaccurately states that the project purpose is "self-imposed". Each of the project objectives relates to a legitimate public purpose, including enhancements of water supplies that are documented in regional water supply planning studies, as fully described and analyzed in Section 9.0 of the Draft EIR. In addition, any one of the



The EIR does not provide information on the water quality monitoring system that is necessary to assure that water quality meets DHS health standards. In particular, the EIR fails to address means to protect the water quality in the event of abrupt failures in one or more of the RO treatment trains or elsewhere in the treatment process that would allow untreated water into the distribution system. Z (cont.)

K. Section 4.11.3

Energy. Page 4.11-20 states that the desalination plant has the ability to shut down one or more RO trains to reduce peak power demands during peak demand periods or power emergencies. Depending on the duration of the reduced production, the total advertised annual production of 56,000 acre-ft could be reduced even if all 13 RO trains are on line. The EIR should provide an estimate of the actual annual production given reasonably foreseeable disruptions from outside peak power demands – as well as complications with the desalination facility itself. AA

L. Section 4.11.4

Mitigation Measures. As indicated previously, the boron concentration in the wastewater discharged to the EWPCF and subsequently used by local water recycling facilities for irrigation must mitigated if necessary to protect the most sensitive plants. The boron concentration in the potable water product must also be protective of human health. BB

Alternatives Analysis

1) Alternatives for Meeting Freshwater Demands and the Associated Impacts

While Section 9.2 of the DEIR gives a very superficial overview of available alternatives for supplying water to the region, it does not do so in a manner that objectively analyzes the quantity of water that could be achieved from these alternatives. Furthermore, because of the narrow description of the Project Needs and Objectives, these alternatives are not analyzed in the relevant section on "Alternatives to the Proposed Project." CC

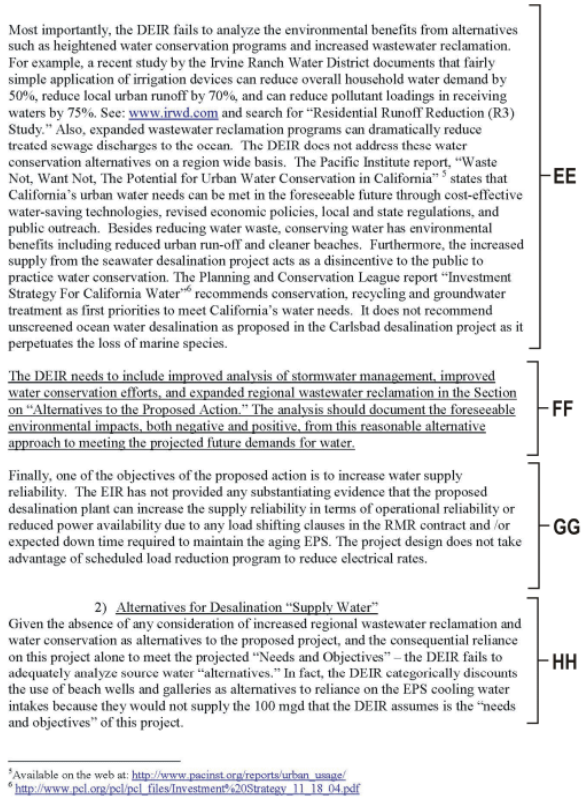
The Carlsbad Municipal Water District Water Master Plan Update of March 2003 evaluates existing water demands (2001) and ultimate projections demands (build-out). Existing single family residential demand is 386 average gallons per day. By comparison, the ultimate demand for the single family is 550 average gallons per day, an increase of 42%. The Master Plan does not provide a single value for the average existing water demand for multi-family residential. Instead it cites two values, 155 (low income housing) and 228 gallons per day. The ultimate demand projection for multi-family residential is 250 gallons per day. In any case, these figures indicate that City of Carlsbad does not aggressively promote water conservation methods for both indoor and outdoor residential uses. The accounting methods used to forecast ultimate commercial and industrial water use makes it difficult to compare existing water use in this sector in order to determine the effectiveness of demand management using water conservation methods. DD

9

project objectives can be addressed through one or more of the project alternatives that are described and analyzed in Section 6.0 of the Draft EIR. Therefore, the commentor's statements regarding the legitimacy of the project objectives and the implied exclusion of potential alternatives by the wording of the objectives is not founded in fact.

The CEQA Guidelines (Section 15126.6(b)) states that the purpose of the alternatives analysis is to focus on alternatives which are capable of avoiding or substantially lessening any significant effects of the project. As noted in the discussion of project impacts, feasible mitigation measures are proposed that have the ability to reduce nearly all of the significant effects of the project, with the exception being cumulative air quality impacts and regional growth-inducing impacts, for which no feasible project-level mitigation is available for those impacts. As noted in Section 6.0 of the Draft EIR, none of the project alternatives would provide avoidance or mitigation of impacts (including biological impacts) that could not be achieved with implementation of the proposed mitigation measures for the project. Therefore, the Lead Agency believes that the alternatives analysis presented in the Draft EIR includes a reasonable range of alternatives, based on the anticipated effects for which those alternatives are intended to address. As such the Draft EIR provides adequate information and an appropriate level of detail is provided in the analysis of project alternatives to foster meaningful public participation and informed decision making.

56H The effect of the desalination plant operation on the electrical system are discussed in detail on pages 4.11-17 through 4.11-21 of the Draft EIR (section "Public Utilities and Service Systems"). As indicated in this section, at maximum output the desalination plant will use less than 0.07 percent of the current statewide peak demand (36.05 MWh



Most importantly, the DEIR fails to analyze the environmental benefits from alternatives such as heightened water conservation programs and increased wastewater reclamation. For example, a recent study by the Irvine Ranch Water District documents that fairly simple application of irrigation devices can reduce overall household water demand by 50%, reduce local urban runoff by 70%, and can reduce pollutant loadings in receiving waters by 75%. See: www.irwd.com and search for "Residential Runoff Reduction (R3) Study." Also, expanded wastewater reclamation programs can dramatically reduce treated sewage discharges to the ocean. The DEIR does not address these water conservation alternatives on a region wide basis. The Pacific Institute report, "Waste Not, Want Not, The Potential for Urban Water Conservation in California" [5] states that California's urban water needs can be met in the foreseeable future through cost-effective water-saving technologies, revised economic policies, local and state regulations, and public outreach. Besides reducing water waste, conserving water has environmental benefits including reduced urban run-off and cleaner beaches. Furthermore, the increased supply from the seawater desalination project acts as a disincentive to the public to practice water conservation. The Planning and Conservation League report "Investment Strategy For California Water"[6] recommends conservation, recycling and groundwater treatment as first priorities to meet California's water needs. It does not recommend unscreened ocean water desalination as proposed in the Carlsbad desalination project as it perpetuates the loss of marine species. — EE

The DEIR needs to include improved analysis of stormwater management, improved water conservation efforts, and expanded regional wastewater reclamation in the Section on "Alternatives to the Proposed Action." The analysis should document the foreseeable environmental impacts, both negative and positive, from this reasonable alternative approach to meeting the projected future demands for water. — FF

Finally, one of the objectives of the proposed action is to increase water supply reliability. The EIR has not provided any substantiating evidence that the proposed desalination plant can increase the supply reliability in terms of operational reliability or reduced power availability due to any load shifting clauses in the RMR contract and /or expected down time required to maintain the aging EPS. The project design does not take advantage of scheduled load reduction program to reduce electrical rates. — GG

2) Alternatives for Desalination "Supply Water"

Given the absence of any consideration of increased regional wastewater reclamation and water conservation as alternatives to the proposed project, and the consequential reliance on this project alone to meet the projected "Needs and Objectives" – the DEIR fails to adequately analyze source water "alternatives." In fact, the DEIR categorically discounts the use of beach wells and galleries as alternatives to reliance on the EPS cooling water intakes because they would not supply the 100 mgd that the DEIR assumes is the "needs and objectives" of this project. — HH

[5] Available on the web at: http://www.pacinst.org/reports/urban_usage/
[6] http://www.pcl.org/pcl/pcl_files/Investment%20Strategy_11_18_04.pdf

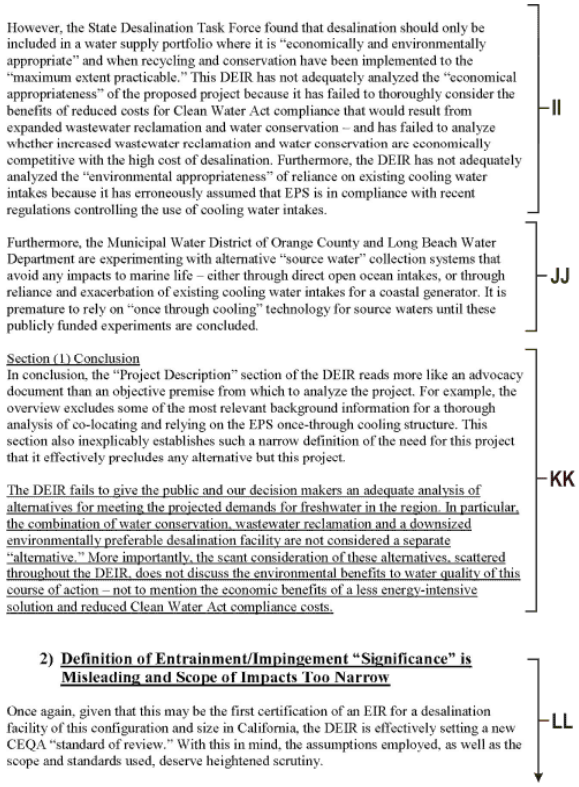
10

compared to the current statewide peak demand of 52,000 MWh)). Therefore the impact of this project on the electric grid is less than significant.

As described on page 4.11-20 of the Draft EIR, the desalination plant will be designed and operated with provisions to minimize energy consumption and to curtail energy use during periods of peak power demand and power emergencies. The desalination plant design's provisions to reduce energy demand include the use of state-of-the-art energy recovery system and high-efficiency pump motors. The operational provisions include the ability to shut-down a portion of the desalination plant reverse osmosis trains during hours of peak power demand as well as the ability to shut down the entire desalination plant in the time of energy emergencies. The environmental impacts due to operating the plant at higher than normal production were analyzed in the Draft EIR (e.g., entrainment effects evaluated at maximum month flow; air quality impacts analyzed at maximum energy consumption; etc.).

56I The impingement and entrainment effects of the desalination plant are addressed in Section 4.3 of the Draft EIR. As indicated on page 4.3-36 of the Draft EIR, "The desalination plant feedwater intake will not increase the volume, or the velocity of the EPS cooling water intake, nor will it increase the number of organisms entrained or impinged by the EPS cooling water intake structure."

As indicated on page 4.3-35, "The Carlsbad Desalination Plant will not have a separate direct lagoon or ocean intake and screening facilities, and will only use cooling water that is already screened by the EPS intake".



However, the State Desalination Task Force found that desalination should only be included in a water supply portfolio where it is "economically and environmentally appropriate" and when recycling and conservation have been implemented to the "maximum extent practicable." This DEIR has not adequately analyzed the "economical appropriateness" of the proposed project because it has failed to thoroughly consider the benefits of reduced costs for Clean Water Act compliance that would result from expanded wastewater reclamation and water conservation – and has failed to analyze whether increased wastewater reclamation and water conservation are economically competitive with the high cost of desalination. Furthermore, the DEIR has not adequately analyzed the "environmental appropriateness" of reliance on existing cooling water intakes because it has erroneously assumed that EPS is in compliance with recent regulations controlling the use of cooling water intakes. II

Furthermore, the Municipal Water District of Orange County and Long Beach Water Department are experimenting with alternative "source water" collection systems that avoid any impacts to marine life – either through direct open ocean intakes, or through reliance and exacerbation of existing cooling water intakes for a coastal generator. It is premature to rely on "once through cooling" technology for source waters until these publicly funded experiments are concluded. JJ

Section (1) Conclusion
In conclusion, the "Project Description" section of the DEIR reads more like an advocacy document than an objective premise from which to analyze the project. For example, the overview excludes some of the most relevant background information for a thorough analysis of co-locating and relying on the EPS once-through cooling structure. This section also inexplicably establishes such a narrow definition of the need for this project that it effectively precludes any alternative but this project.

The DEIR fails to give the public and our decision makers an adequate analysis of alternatives for meeting the projected demands for freshwater in the region. In particular, the combination of water conservation, wastewater reclamation and a downsized environmentally preferable desalination facility are not considered a separate "alternative." More importantly, the scant consideration of these alternatives, scattered throughout the DEIR, does not discuss the environmental benefits to water quality of this course of action – not to mention the economic benefits of a less energy-intensive solution and reduced Clean Water Act compliance costs. KK

2) **Definition of Entrainment/Impingement "Significance" is Misleading and Scope of Impacts Too Narrow**

Once again, given that this may be the first certification of an EIR for a desalination facility of this configuration and size in California, the DEIR is effectively setting a new CEQA "standard of review." With this in mind, the assumptions employed, as well as the scope and standards used, deserve heightened scrutiny. LL

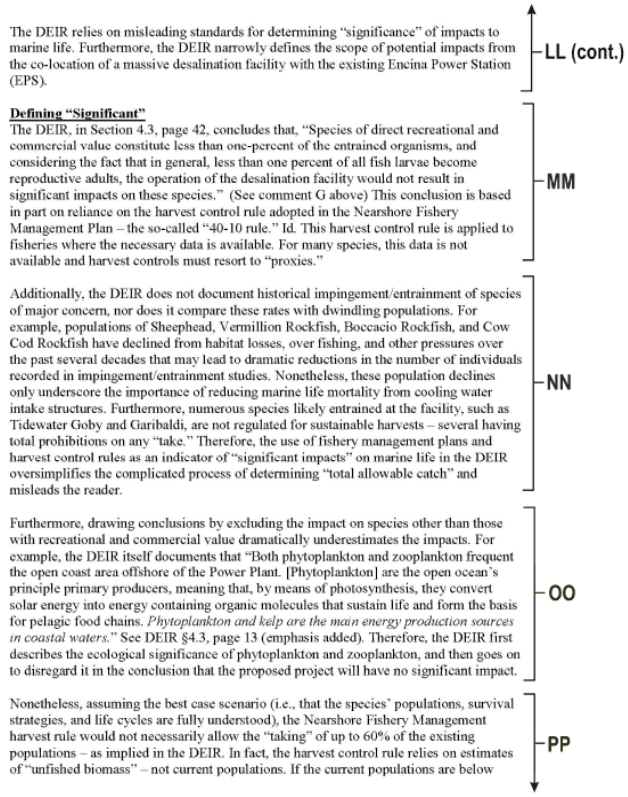
11

As indicated on page 4.3-41 of the Draft EIR, under maximum daily flow conditions, the incremental entrainment effects attributed to the desalination plant "range from 0.01 percent for northern anchovy to 0.28 percent for CIQ gobies." These entrainment effects are insignificant.

See Response 56C regarding 316(b) permitting requirements for the EPS. The desalination plant does not propose a separate seawater intake structure and therefore is not subject to 316(b) permitting requirements.

56J A histogram of the daily power plant discharge flows for the 20.5 year period is presented on Figure 1 of the *Hydrodynamic Modeling of Dispersion And Dilution of Concentrated Seawater Produced by the Ocean Desalination Project at the Encina Power Plant, Carlsbad, CA. Part II. Saline Anomalies Due to Worst-Case Hydraulic Scenarios* (March 7, 2005; hereinafter the "2005 Jenkins and Wasyl report", Draft EIR, Appendix E). As indicated on this figure, the instantaneous power plant discharge flow drop below the 304 mgd daily occurs only 2 to 3 times per year. These instantaneous flow reductions are usually associated with either routine maintenance or unanticipated shutdown of equipment and rarely last longer than one day. Usually, such events occur for a period of minutes to a few hours at a time.

The electrical power generation capacity and associated cooling water flow are presented in the Intake Effects Assessment report presented in Appendix E of the Draft EIR. The power plant would typically generate approximately 300 MW at cooling water flow of 304 MGD. There is no increase in the power plant electrical generation load associated with the operation of the desalination plant. Power use of the desalination plant in relation to the power plant is described in detail in Section 4.11 of the EIR.



The DEIR relies on misleading standards for determining "significance" of impacts to marine life. Furthermore, the DEIR narrowly defines the scope of potential impacts from the co-location of a massive desalination facility with the existing Encina Power Station (EPS).

LL (cont.)

Defining "Significant"

The DEIR, in Section 4.3, page 42, concludes that, "Species of direct recreational and commercial value constitute less than one-percent of the entrained organisms, and considering the fact that in general, less than one percent of all fish larvae become reproductive adults, the operation of the desalination facility would not result in significant impacts on these species." (See comment G above) This conclusion is based in part on reliance on the harvest control rule adopted in the Nearshore Fishery Management Plan – the so-called "40-10 rule." Id. This harvest control rule is applied to fisheries where the necessary data is available. For many species, this data is not available and harvest controls must resort to "proxies."

MM

Additionally, the DEIR does not document historical impingement/entrainment of species of major concern, nor does it compare these rates with dwindling populations. For example, populations of Sheephead, Vermillion Rockfish, Boccacio Rockfish, and Cow Cod Rockfish have declined from habitat losses, over fishing, and other pressures over the past several decades that may lead to dramatic reductions in the number of individuals recorded in impingement/entrainment studies. Nonetheless, these population declines only underscore the importance of reducing marine life mortality from cooling water intake structures. Furthermore, numerous species likely entrained at the facility, such as Tidewater Goby and Garibaldi, are not regulated for sustainable harvests – several having total prohibitions on any "take." Therefore, the use of fishery management plans and harvest control rules as an indicator of "significant impacts" on marine life in the DEIR oversimplifies the complicated process of determining "total allowable catch" and misleads the reader.

NN

Furthermore, drawing conclusions by excluding the impact on species other than those with recreational and commercial value dramatically underestimates the impacts. For example, the DEIR itself documents that "Both phytoplankton and zooplankton frequent the open coast area offshore of the Power Plant. [Phytoplankton] are the open ocean's principle primary producers, meaning that, by means of photosynthesis, they convert solar energy into energy containing organic molecules that sustain life and form the basis for pelagic food chains. *Phytoplankton and kelp are the main energy production sources in coastal waters.*" See DEIR §4.3, page 13 (emphasis added). Therefore, the DEIR first describes the ecological significance of phytoplankton and zooplankton, and then goes on to disregard it in the conclusion that the proposed project will have no significant impact.

OO

Nonetheless, assuming the best case scenario (i.e., that the species' populations, survival strategies, and life cycles are fully understood), the Nearshore Fishery Management harvest rule would not necessarily allow the "taking" of up to 60% of the existing populations – as implied in the DEIR. In fact, the harvest control rule relies on estimates of "unfished biomass" – not current populations. If the current populations are below

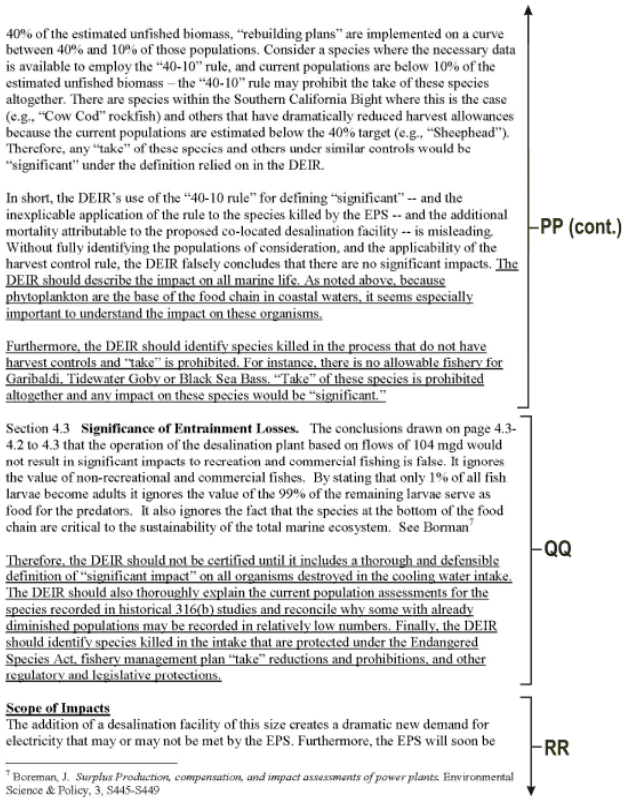
PP

12

The power supply for the Desalination Facility would be from the Encina Power Station (EPS) or the regional grid. If the EPS is the source of the power, the desalination facility would be able to draw power from either Unit 4 or Unit 5, the two newest and largest independent generating units on site. Under this mode of operation, the desalination facility will use approximately 10% of the generation capacity available from one of the two generating units. An additional 10% load on an individual generating unit does not represent enough demand to cause the EPS to bring on an additional generating unit, or increase the cooling water flow rate. Typically, once a unit is brought on line, the cooling water system flow rate remains constant. Thus, the EPS would continue to pump the same amount of source seawater for cooling as it does today. The flow rate for Unit 4 and Unit 5 are 304 MGD and 350 MGD, respectively. The existing permit allows the EPS to divert up to 860 MGD.

56K The amount of solid waste projected to be generated at the Carlsbad seawater desalination plant, including the waste filter cartridges and RO membranes ("filters), is quantified on page 4.11-17 of the Draft EIR. As indicated on this page, the "spent filter cartridges would comprise approximately 23 tons of waste per year." The "spent RO membrane elements would comprise approximately 20 tons of waste per year." Provisions for removal and disposal of sludge, which would be disposed of at a sanitary landfill instead of the Encina Wastewater Pollution Control Facility (EWPCF), are addressed on page 4.11-17 as well. Permit conditions regarding wastewater generation and disposal at the EWPCF are discussed in detail in Section 4.11 beginning on page 4.11-8

56L See Response 56C.



40% of the estimated unfished biomass, "rebuilding plans" are implemented on a curve between 40% and 10% of those populations. Consider a species where the necessary data is available to employ the "40-10" rule, and current populations are below 10% of the estimated unfished biomass – the "40-10" rule may prohibit the take of these species altogether. There are species within the Southern California Bight where this is the case (e.g., "Cow Cod" rockfish) and others that have dramatically reduced harvest allowances because the current populations are estimated below the 40% target (e.g., "Sheephead"). Therefore, any "take" of these species and others under similar controls would be "significant" under the definition relied on in the DEIR.

In short, the DEIR's use of the "40-10 rule" for defining "significant" -- and the inexplicable application of the rule to the species killed by the EPS -- and the additional mortality attributable to the proposed co-located desalination facility -- is misleading. Without fully identifying the populations of consideration, and the applicability of the harvest control rule, the DEIR falsely concludes that there are no significant impacts. The DEIR should describe the impact on all marine life. As noted above, because phytoplankton are the base of the food chain in coastal waters, it seems especially important to understand the impact on these organisms.

Furthermore, the DEIR should identify species killed in the process that do not have harvest controls and "take" is prohibited. For instance, there is no allowable fishery for Garibaldi, Tidewater Goby or Black Sea Bass. "Take" of these species is prohibited altogether and any impact on these species would be "significant."

PP (cont.)

Section 4.3 **Significance of Entrainment Losses.** The conclusions drawn on page 4.3-4.2 to 4.3 that the operation of the desalination plant based on flows of 104 mgd would not result in significant impacts to recreation and commercial fishing is false. It ignores the value of non-recreational and commercial fishes. By stating that only 1% of all fish larvae become adults it ignores the value of the 99% of the remaining larvae serve as food for the predators. It also ignores the fact that the species at the bottom of the food chain are critical to the sustainability of the total marine ecosystem. See Borman[7]

Therefore, the DEIR should not be certified until it includes a thorough and defensible definition of "significant impact" on all organisms destroyed in the cooling water intake. The DEIR should also thoroughly explain the current population assessments for the species recorded in historical 316(b) studies and reconcile why some with already diminished populations may be recorded in relatively low numbers. Finally, the DEIR should identify species killed in the intake that are protected under the Endangered Species Act, fishery management plan "take" reductions and prohibitions, and other regulatory and legislative protections.

QQ

Scope of Impacts

The addition of a desalination facility of this size creates a dramatic new demand for electricity that may or may not be met by the EPS. Furthermore, the EPS will soon be

RR

[7] Boreman, J. *Surplus Production, compensation, and impact assessments of power plants.* Environmental Science & Policy, 3, S445-S449

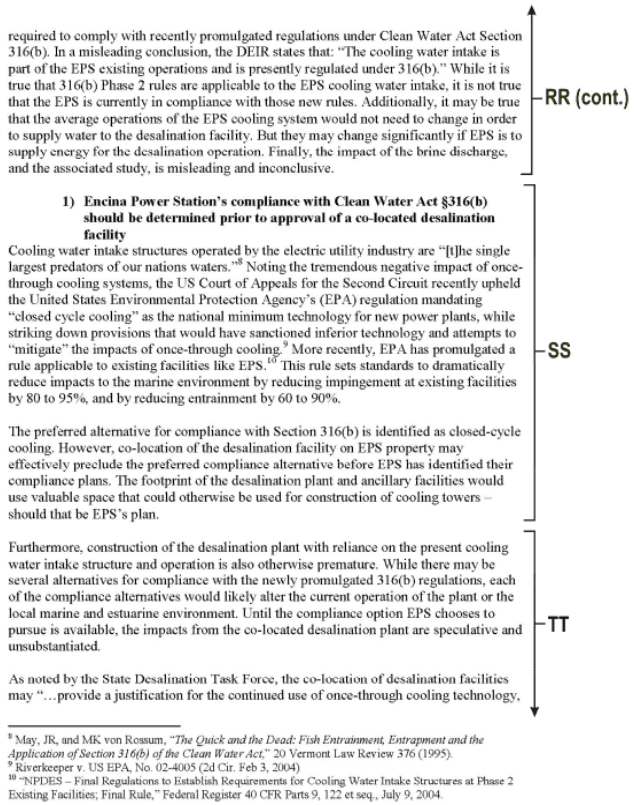
13

56M See Response 56C.

The seawater desalination plant is not planned as a "stand alone" desalination facility. There is no need to evaluate the effects of the proposed desalination facility operating on its own, because such mode of desalination plant operation is not proposed in this Draft EIR. As described in Section 3, Project Description, by its baseline definition, the desalination plant is planned to operate in conjunction with the power plant and to use cooling water flow from the power plant discharge rather than to operate on its own and to take seawater directly from the ocean. Therefore, desalination plant operations under the conditions of permanent power plant shutdown are not part of the project description and assessment of such impact is speculative in nature and as such not required under CEQA.

However, in the event that the project applicant were to assume operation of the intake and outfall for any reason, the direct connection to the intake structure by the desalination plant would be treated as a separate project. The direct connection to the intake structure would be subject to applicable CEQA and regulatory agency permit requirements. Avoidance, minimization, and mitigation measures for such a direct connection would occur at that time.

56N This comment makes assumptions that are not based in fact and that are speculative. As noted in Response 56J, if the EPS is selected as the source of the power, the desalination facility would be able to draw power from either Unit 4 or Unit 5, the two newest and largest independent generating units on site. Under this mode of operation, the desalination facility will use approximately 10% of the generation capacity available from one of the two generating units. It is not reasonable to assume that this increase in demand would require



required to comply with recently promulgated regulations under Clean Water Act Section 316(b). In a misleading conclusion, the DEIR states that: "The cooling water intake is part of the EPS existing operations and is presently regulated under 316(b)." While it is true that 316(b) Phase 2 rules are applicable to the EPS cooling water intake, it is not true that the EPS is currently in compliance with those new rules. Additionally, it may be true that the average operations of the EPS cooling system would not need to change in order to supply water to the desalination facility. But they may change significantly if EPS is to supply energy for the desalination operation. Finally, the impact of the brine discharge, and the associated study, is misleading and inconclusive.

RR (cont.)

1) **Encina Power Station's compliance with Clean Water Act §316(b) should be determined prior to approval of a co-located desalination facility**

Cooling water intake structures operated by the electric utility industry are "[t]he single largest predators of our nations waters."[8] Noting the tremendous negative impact of once-through cooling systems, the US Court of Appeals for the Second Circuit recently upheld the United States Environmental Protection Agency's (EPA) regulation mandating "closed cycle cooling" as the national minimum technology for new power plants, while striking down provisions that would have sanctioned inferior technology and attempts to "mitigate" the impacts of once-through cooling.[9] More recently, EPA has promulgated a rule applicable to existing facilities like EPS.[10] This rule sets standards to dramatically reduce impacts to the marine environment by reducing impingement at existing facilities by 80 to 95%, and by reducing entrainment by 60 to 90%.

SS

The preferred alternative for compliance with Section 316(b) is identified as closed-cycle cooling. However, co-location of the desalination facility on EPS property may effectively preclude the preferred compliance alternative before EPS has identified their compliance plans. The footprint of the desalination plant and ancillary facilities would use valuable space that could otherwise be used for construction of cooling towers – should that be EPS's plan.

Furthermore, construction of the desalination plant with reliance on the present cooling water intake structure and operation is also otherwise premature. While there may be several alternatives for compliance with the newly promulgated 316(b) regulations, each of the compliance alternatives would likely alter the current operation of the plant or the local marine and estuarine environment. Until the compliance option EPS chooses to pursue is available, the impacts from the co-located desalination plant are speculative and unsubstantiated.

TT

As noted by the State Desalination Task Force, the co-location of desalination facilities may "…provide a justification for the continued use of once-through cooling technology,

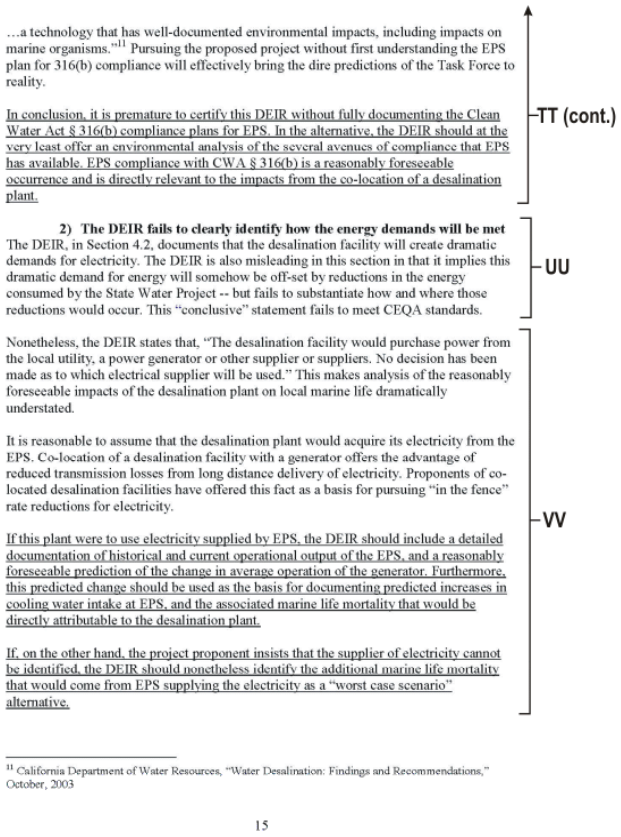
[8] May, JR, and MK von Rossum, *"The Quick and the Dead: Fish Entrainment, Entrapment and the Application of Section 316(b) of the Clean Water Act,"* 20 Vermont Law Review 376 (1995).
[9] Riverkeeper v. US EPA, No. 02-4005 (2d Cir. Feb 3, 2004)
[10] "NPDES – Final Regulations to Establish Requirements for Cooling Water Intake Structures at Phase 2 Existing Facilities; Final Rule," Federal Register 40 CFR Parts 9, 122 et seq., July 9, 2004.

14

operation of additional electrical generating facilities at the EPS, nor does it represent "dramatic electrical demands" as claimed by the commentor. See also Responses 56C and 56M.

56O All 13 reverse osmosis (RO) trains will be of the same water production capacity. Therefore, replacing one train with another will maintain the total desalination plant production capacity at 50 MGD at all times. Additionally, under the proposed design, up to 3 (23%) out of the 13 trains can be taken out of service and still produce 50 MGD of fresh water. Since each of the remaining 10 trains @ average capacity of 4.16 MGD can produce up to 20% of flow on a short-term basis, the total maximum production capacity at these conditions would be 4.16 MGD x 1.2 x 10 = 50 MGD.

56P As noted in the Project Description (Section 3 of the Draft EIR), alignment options for the water delivery pipelines have been identified for purposes of providing flexibility in the ultimate alignment for the facilities. These are not considered to be alternatives as defined in Section 15126.6 of the CEQA Guidelines, and as such are not described and analyzed as project alternatives. A complete description of the proposed offsite facilities, including the offsite pump station, is contained in Section 3 of the Draft EIR. As noted in the discussion of the offsite project features contained in Section 3.3 (page 3-16 through 3-18 of the Draft EIR), the Draft EIR includes project level environmental analysis of several potential alignment options, but only one of the potential alignment options will be constructed as part of the project. This provides for a worst case analysis, in that not all of the segments of pipe that are analyzed for potential impacts will be built. Sufficient information relating to the location and design of these facilities was available to allow for a comprehensive analysis of all potential impacts associated with all of the alignment options. Draft



…a technology that has well-documented environmental impacts, including impacts on marine organisms."[11] Pursuing the proposed project without first understanding the EPS plan for 316(b) compliance will effectively bring the dire predictions of the Task Force to reality.

In conclusion, it is premature to certify this DEIR without fully documenting the Clean Water Act § 316(b) compliance plans for EPS. In the alternative, the DEIR should at the very least offer an environmental analysis of the several avenues of compliance that EPS has available. EPS compliance with CWA § 316(b) is a reasonably foreseeable occurrence and is directly relevant to the impacts from the co-location of a desalination plant.

TT (cont.)

2) The DEIR fails to clearly identify how the energy demands will be met

The DEIR, in Section 4.2, documents that the desalination facility will create dramatic demands for electricity. The DEIR is also misleading in this section in that it implies this dramatic demand for energy will somehow be off-set by reductions in the energy consumed by the State Water Project -- but fails to substantiate how and where those reductions would occur. This "conclusive" statement fails to meet CEQA standards.

UU

Nonetheless, the DEIR states that, "The desalination facility would purchase power from the local utility, a power generator or other supplier or suppliers. No decision has been made as to which electrical supplier will be used." This makes analysis of the reasonably foreseeable impacts of the desalination plant on local marine life dramatically understated.

It is reasonable to assume that the desalination plant would acquire its electricity from the EPS. Co-location of a desalination facility with a generator offers the advantage of reduced transmission losses from long distance delivery of electricity. Proponents of co-located desalination facilities have offered this fact as a basis for pursuing "in the fence" rate reductions for electricity.

If this plant were to use electricity supplied by EPS, the DEIR should include a detailed documentation of historical and current operational output of the EPS, and a reasonably foreseeable prediction of the change in average operation of the generator. Furthermore, this predicted change should be used as the basis for documenting predicted increases in cooling water intake at EPS, and the associated marine life mortality that would be directly attributable to the desalination plant.

If, on the other hand, the project proponent insists that the supplier of electricity cannot be identified, the DEIR should nonetheless identify the additional marine life mortality that would come from EPS supplying the electricity as a "worst case scenario" alternative.

VV

[11] California Department of Water Resources, "Water Desalination: Findings and Recommendations," October, 2003

15

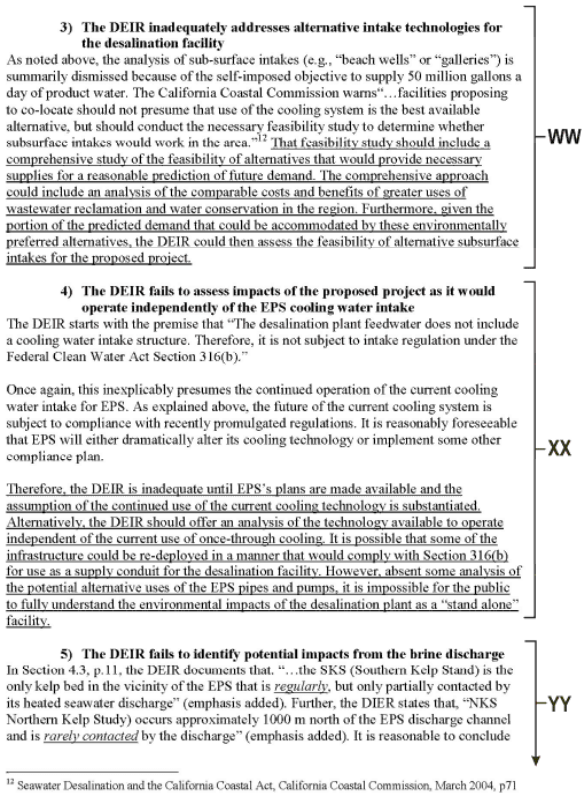
EIR Section 4.0, *Environmental Analysis*, contains the results of this comprehensive review.

56Q The proposed project features that are referenced as "enhancements" are adequately described for purposes of evaluating potential environmental effects. It is not clear from the comment what additional detail the commentor believes is lacking, and therefore, a more detailed response is not possible.

56R Prior to considering the proposed desalination project, the Carlsbad Municipal Water District (CMWD) undertook a variety of actions to improve water supply reliability, diversify supplies, and reduce dependence on imported water. These actions include a commitment to implement all cost-effective water conservation and recycling opportunities. Today, CMWD has one of the most aggressive conservation and recycling programs in the San Diego region.

CMWD is committed to implementation of the best management practices (BMPs) set forth in the California Urban Water Conservation Council's 1991 Memorandum of Understanding Regarding Urban Water Conservation in California. These BMPs include: residential surveys, plumbing retrofits, water audits, metering with commodity rates, conservation pricing, landscaping programs, high-efficiency clothes washer rebates, and public education and conservation programs.

In 1991, Carlsbad adopted a five-phase Recycled Water Master Plan designed to save potable water. The result is that CMWD has one of the most aggressive water recycling program in the region. Currently, CMWD purchases recycled water from Leucadia County Water District's Gafner and Vallecitos Water District's Meadowlark water recycling plants for distribution to a variety of irrigation applications.



3) The DEIR inadequately addresses alternative intake technologies for the desalination facility

As noted above, the analysis of sub-surface intakes (e.g., "beach wells" or "galleries") is summarily dismissed because of the self-imposed objective to supply 50 million gallons a day of product water. The California Coastal Commission warns"…facilities proposing to co-locate should not presume that use of the cooling system is the best available alternative, but should conduct the necessary feasibility study to determine whether subsurface intakes would work in the area."[12] That feasibility study should include a comprehensive study of the feasibility of alternatives that would provide necessary supplies for a reasonable prediction of future demand. The comprehensive approach could include an analysis of the comparable costs and benefits of greater uses of wastewater reclamation and water conservation in the region. Furthermore, given the portion of the predicted demand that could be accommodated by these environmentally preferred alternatives, the DEIR could then assess the feasibility of alternative subsurface intakes for the proposed project.

WW

4) The DEIR fails to assess impacts of the proposed project as it would operate independently of the EPS cooling water intake

The DEIR starts with the premise that "The desalination plant feedwater does not include a cooling water intake structure. Therefore, it is not subject to intake regulation under the Federal Clean Water Act Section 316(b)."

Once again, this inexplicably presumes the continued operation of the current cooling water intake for EPS. As explained above, the future of the current cooling system is subject to compliance with recently promulgated regulations. It is reasonably foreseeable that EPS will either dramatically alter its cooling technology or implement some other compliance plan.

Therefore, the DEIR is inadequate until EPS's plans are made available and the assumption of the continued use of the current cooling technology is substantiated. Alternatively, the DEIR should offer an analysis of the technology available to operate independent of the current use of once-through cooling. It is possible that some of the infrastructure could be re-deployed in a manner that would comply with Section 316(b) for use as a supply conduit for the desalination facility. However, absent some analysis of the potential alternative uses of the EPS pipes and pumps, it is impossible for the public to fully understand the environmental impacts of the desalination plant as a "stand alone" facility.

XX

5) The DEIR fails to identify potential impacts from the brine discharge

In Section 4.3, p.11, the DEIR documents that. "…the SKS (Southern Kelp Stand) is the only kelp bed in the vicinity of the EPS that is *regularly*, but only partially contacted by its heated seawater discharge" (emphasis added). Further, the DIER states that, "NKS Northern Kelp Study) occurs approximately 1000 m north of the EPS discharge channel and is *rarely contacted* by the discharge" (emphasis added). It is reasonable to conclude

YY

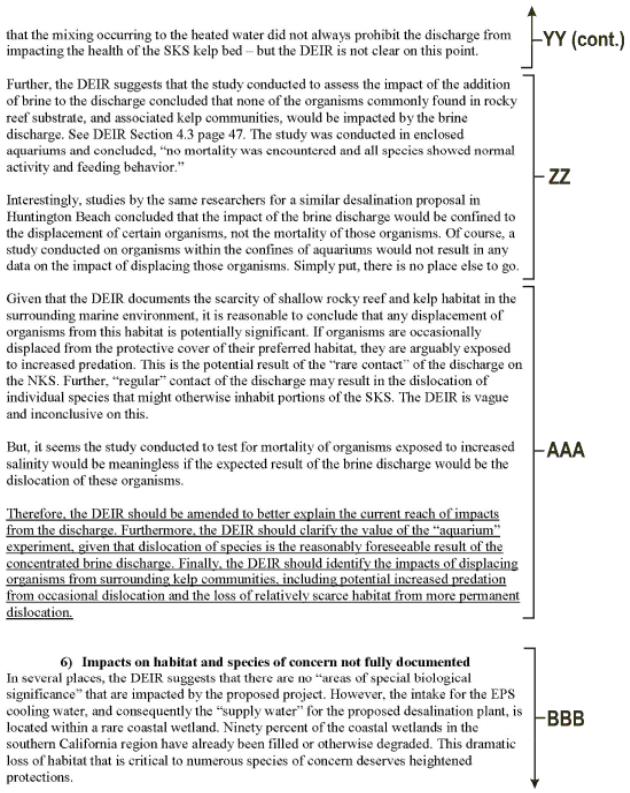
[12] Seawater Desalination and the California Coastal Act, California Coastal Commission, March 2004, p71

16

In 2004, approximately 2,061 AFY or 10% of CMWD's water needs were met by recycled water supplied from the two existing water recycling plants. This water, which is only used for non-potable applications, such as landscape irrigation, is sold at a reduced cost. Currently there are approximately 30 miles of recycled water pipelines installed in CMWD's service area. CMWD's ability to supply the non-potable demands with recycled water is limited by the availability of supply from the two existing water recycling plants. To correct this deficiency, CMWD has invested $49M in a new water recycling facility and associated distribution mains at the Encina Wastewater Treatment Plant.

When the newly constructed recycled water production facility becomes operational in the fall of 2005, recycled water use in CMWD's service area is expected to more than double to 5,000 AFY and supply more than 20% of projected water demands. The use of recycled water is expected to continue to grow as it is the policy of CMWD to require dual plumbing and recycled water use in all new developments within its service area. Thus, water recycling has become and will continue to be a major component of CMWD's water supply.

The implementation of the water conservation and water recycling elements included in CMWD's *2000 Urban Water Management P*lan are on schedule and are achieving the desired reduction in potable water use. These programs are designed to work in tandem with the proposed seawater desalination project to accomplish the City Council's water supply reliability goal of 90 percent water availability during a severe drought. For example, the availability of the higher quality desalinated water, which has a lower total dissolved solids (TDS) content among other things, will allow CMWD to further stretch



that the mixing occurring to the heated water did not always prohibit the discharge from impacting the health of the SKS kelp bed – but the DEIR is not clear on this point.

YY (cont.)

Further, the DEIR suggests that the study conducted to assess the impact of the addition of brine to the discharge concluded that none of the organisms commonly found in rocky reef substrate, and associated kelp communities, would be impacted by the brine discharge. See DEIR Section 4.3 page 47. The study was conducted in enclosed aquariums and concluded, "no mortality was encountered and all species showed normal activity and feeding behavior."

Interestingly, studies by the same researchers for a similar desalination proposal in Huntington Beach concluded that the impact of the brine discharge would be confined to the displacement of certain organisms, not the mortality of those organisms. Of course, a study conducted on organisms within the confines of aquariums would not result in any data on the impact of displacing those organisms. Simply put, there is no place else to go.

ZZ

Given that the DEIR documents the scarcity of shallow rocky reef and kelp habitat in the surrounding marine environment, it is reasonable to conclude that any displacement of organisms from this habitat is potentially significant. If organisms are occasionally displaced from the protective cover of their preferred habitat, they are arguably exposed to increased predation. This is the potential result of the "rare contact" of the discharge on the NKS. Further, "regular" contact of the discharge may result in the dislocation of individual species that might otherwise inhabit portions of the SKS. The DEIR is vague and inconclusive on this.

But, it seems the study conducted to test for mortality of organisms exposed to increased salinity would be meaningless if the expected result of the brine discharge would be the dislocation of these organisms.

Therefore, the DEIR should be amended to better explain the current reach of impacts from the discharge. Furthermore, the DEIR should clarify the value of the "aquarium" experiment, given that dislocation of species is the reasonably foreseeable result of the concentrated brine discharge. Finally, the DEIR should identify the impacts of displacing organisms from surrounding kelp communities, including potential increased predation from occasional dislocation and the loss of relatively scarce habitat from more permanent dislocation.

AAA

6) Impacts on habitat and species of concern not fully documented

In several places, the DEIR suggests that there are no "areas of special biological significance" that are impacted by the proposed project. However, the intake for the EPS cooling water, and consequently the "supply water" for the proposed desalination plant, is located within a rare coastal wetland. Ninety percent of the coastal wetlands in the southern California region have already been filled or otherwise degraded. This dramatic loss of habitat that is critical to numerous species of concern deserves heightened protections.

BBB

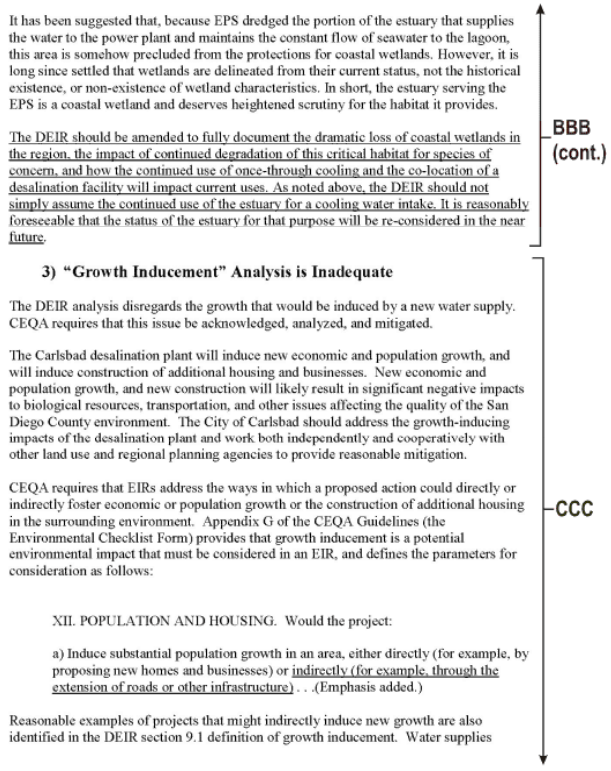
17

its industrial conservation and irrigation based recycling programs in that these programs will no longer be constrained by end user TDS limitations.

The combined effect of CMWD's conservation, recycling and desalination programs translates to a 3.5 percent reduction in the demand on the regional water supply system and an overall improvement in regional water supply reliability.

56S Prior to considering the proposed desalination project, the SDCWA and member agencies conducted a thorough and lengthy public discussion regarding a variety of actions to improve water supply reliability, diversify supplies, and reduce dependence on imported water. Out of this discussion came a region-wide commitment to continue to implement cost-effective water conservation and recycling opportunities. Thus, a baseline assumption of the Draft EIR is that the water conservation and water recycling elements included in CMWD's 2000 Urban Water Management Plan and SDCWA's 2030 Regional Water Facilities Master Plan (RWFMP) will be fully implemented. However, even with the targeted conservation and recycling in place, the RWFMP identified a need for additional local water in an amount equal to or greater than the project capacity analyzed in the Draft EIR. One of the objectives of the project is to address a portion of this water supply need.

56T Between 2001 through 2004 the SDCWA and member agencies conducted an extensive review of the water supply options available to address regional water supply needs through the year 2030; including alternatives that would maximize water conservation, groundwater and water recycling opportunities. This process included extensive opportunities for public input that culminated in the certification of the



It has been suggested that, because EPS dredged the portion of the estuary that supplies the water to the power plant and maintains the constant flow of seawater to the lagoon, this area is somehow precluded from the protections for coastal wetlands. However, it is long since settled that wetlands are delineated from their current status, not the historical existence, or non-existence of wetland characteristics. In short, the estuary serving the EPS is a coastal wetland and deserves heightened scrutiny for the habitat it provides.

The DEIR should be amended to fully document the dramatic loss of coastal wetlands in the region, the impact of continued degradation of this critical habitat for species of concern, and how the continued use of once-through cooling and the co-location of a desalination facility will impact current uses. As noted above, the DEIR should not simply assume the continued use of the estuary for a cooling water intake. It is reasonably foreseeable that the status of the estuary for that purpose will be re-considered in the near future.

BBB (cont.)

3) "Growth Inducement" Analysis is Inadequate

The DEIR analysis disregards the growth that would be induced by a new water supply. CEQA requires that this issue be acknowledged, analyzed, and mitigated.

The Carlsbad desalination plant will induce new economic and population growth, and will induce construction of additional housing and businesses. New economic and population growth, and new construction will likely result in significant negative impacts to biological resources, transportation, and other issues affecting the quality of the San Diego County environment. The City of Carlsbad should address the growth-inducing impacts of the desalination plant and work both independently and cooperatively with other land use and regional planning agencies to provide reasonable mitigation.

CEQA requires that EIRs address the ways in which a proposed action could directly or indirectly foster economic or population growth or the construction of additional housing in the surrounding environment. Appendix G of the CEQA Guidelines (the Environmental Checklist Form) provides that growth inducement is a potential environmental impact that must be considered in an EIR, and defines the parameters for consideration as follows:

XII. POPULATION AND HOUSING. Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through the extension of roads or other infrastructure) . . .(Emphasis added.)

Reasonable examples of projects that might indirectly induce new growth are also identified in the DEIR section 9.1 definition of growth inducement. Water supplies

CCC

18

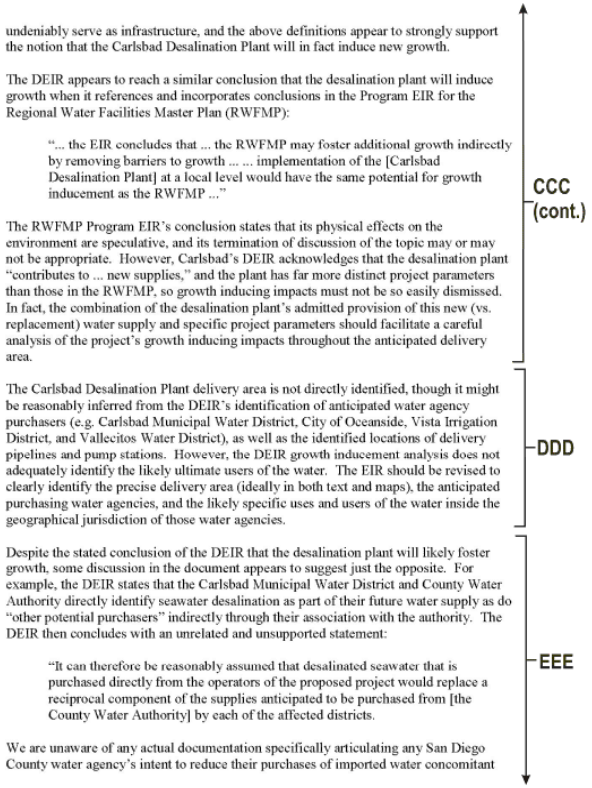
[10] SDCWA Regional Water Facilities Master Plan Draft Program Environmental Impact Report, page 19-16, August 2003

RWFMP Programmatic EIR (PEIR) and approval of a preferred project.

Alternatives that rely solely on maximizing water conservation and recycled water and increased groundwater production to meet future water supply needs were evaluated in the PEIR. These alternatives were rejected by the SDCWA because they failed to feasibly attain most of the basic objectives of the RWFMP as described below.

The increased water conservation alternative was rejected because it failed to meet four of the basic objectives of the regional project including[10]:

- Objective 1. To plan for future treated and untreated water supplies and facilities to meet the project demands of a growing regional population. This alternative fails to make sufficient provision for water supplies and facilities in response to new growth projections.
- Objective 2. To protect public health, safety and welfare by maintaining and enhancing a safe and reliable supply of water. Conservation programs defer or limit the rate of demand for water; however, these programs cannot reliably supply water in the long-term based on increasing population and economic growth.
- Objective 3. To plan facilities that are cost-effective. Over the long-term, conservation measures serve to defer or limit rate increases by reducing the region's need for other, more expensive supplies and increased infrastructure. However, this alternative fails to make any provisions for a reliable water supply in the long-tem.
- Objective 4. To provide an ability to adjust facility plans to meet changes in future demands. This alternative fails to make



undeniably serve as infrastructure, and the above definitions appear to strongly support the notion that the Carlsbad Desalination Plant will in fact induce new growth.

The DEIR appears to reach a similar conclusion that the desalination plant will induce growth when it references and incorporates conclusions in the Program EIR for the Regional Water Facilities Master Plan (RWFMP):

> "... the EIR concludes that ... the RWFMP may foster additional growth indirectly by removing barriers to growth ... ... implementation of the [Carlsbad Desalination Plant] at a local level would have the same potential for growth inducement as the RWFMP ..."

CCC (cont.)

The RWFMP Program EIR's conclusion states that its physical effects on the environment are speculative, and its termination of discussion of the topic may or may not be appropriate. However, Carlsbad's DEIR acknowledges that the desalination plant "contributes to ... new supplies," and the plant has far more distinct project parameters than those in the RWFMP, so growth inducing impacts must not be so easily dismissed. In fact, the combination of the desalination plant's admitted provision of this new (vs. replacement) water supply and specific project parameters should facilitate a careful analysis of the project's growth inducing impacts throughout the anticipated delivery area.

The Carlsbad Desalination Plant delivery area is not directly identified, though it might be reasonably inferred from the DEIR's identification of anticipated water agency purchasers (e.g. Carlsbad Municipal Water District, City of Oceanside, Vista Irrigation District, and Vallecitos Water District), as well as the identified locations of delivery pipelines and pump stations. However, the DEIR growth inducement analysis does not adequately identify the likely ultimate users of the water. The EIR should be revised to clearly identify the precise delivery area (ideally in both text and maps), the anticipated purchasing water agencies, and the likely specific uses and users of the water inside the geographical jurisdiction of those water agencies.

DDD

Despite the stated conclusion of the DEIR that the desalination plant will likely foster growth, some discussion in the document appears to suggest just the opposite. For example, the DEIR states that the Carlsbad Municipal Water District and County Water Authority directly identify seawater desalination as part of their future water supply as do "other potential purchasers" indirectly through their association with the authority. The DEIR then concludes with an unrelated and unsupported statement:

> "It can therefore be reasonably assumed that desalinated seawater that is purchased directly from the operators of the proposed project would replace a reciprocal component of the supplies anticipated to be purchased from [the County Water Authority] by each of the affected districts.

EEE

We are unaware of any actual documentation specifically articulating any San Diego County water agency's intent to reduce their purchases of imported water concomitant

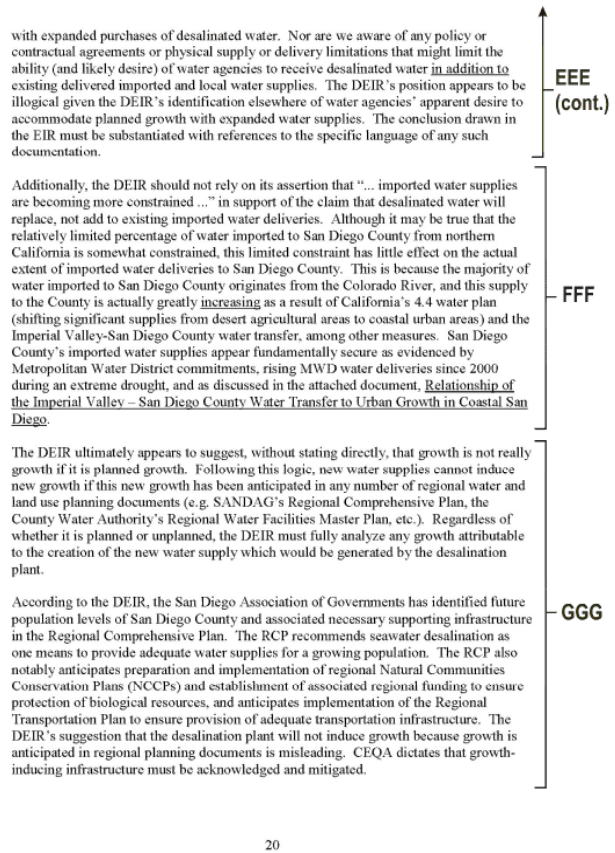
19

[11] SDCWA Regional Water Facilities Master Plan Draft Program Environmental Impact Report, page 19-16, August 2003

sufficient provisions for additional supplies and facilities in response to new growth projections.

The alternatives of increased recycled water and groundwater above planned yields were rejected by the SDCWA because they could not feasibly attain most of the basic objectives of the project, as described below[11]:

- Objective 1. To plan for future treated and untreated water supplies and facilities to meet the project demands of a growing regional population. Current regulatory and public acceptance obstacles surrounding development of increased local supply yield, above what is currently planned.
- Objective 2. To protect public health, safety and welfare by maintaining and enhancing a safe and reliable supply of water. Groundwater and recycling programs defer or limit the rate of demand for water; however, an increase in yield for these programs cannot reliable supply water in the long-term based on increasing population and economic growth.
- Objective 3. To plan facilities that are cost-effective. Over the long-term, increased use of groundwater would not be cost-effective because of costs related to construction, operation, treatment and mitigation. Increased use of recycled water would not be cost-effective because of the costs related to treating and delivering the water.
- Objective 4. To provide an ability to adjust facility plans to meet changes in future demands. This alternative fails to make sufficient provisions for additional supplies and facilities in response to new growth projections.



with expanded purchases of desalinated water. Nor are we aware of any policy or contractual agreements or physical supply or delivery limitations that might limit the ability (and likely desire) of water agencies to receive desalinated water in addition to existing delivered imported and local water supplies. The DEIR's position appears to be illogical given the DEIR's identification elsewhere of water agencies' apparent desire to accommodate planned growth with expanded water supplies. The conclusion drawn in the EIR must be substantiated with references to the specific language of any such documentation.

EEE (cont.)

Additionally, the DEIR should not rely on its assertion that "... imported water supplies are becoming more constrained ..." in support of the claim that desalinated water will replace, not add to existing imported water deliveries. Although it may be true that the relatively limited percentage of water imported to San Diego County from northern California is somewhat constrained, this limited constraint has little effect on the actual extent of imported water deliveries to San Diego County. This is because the majority of water imported to San Diego County originates from the Colorado River, and this supply to the County is actually greatly increasing as a result of California's 4.4 water plan (shifting significant supplies from desert agricultural areas to coastal urban areas) and the Imperial Valley-San Diego County water transfer, among other measures. San Diego County's imported water supplies appear fundamentally secure as evidenced by Metropolitan Water District commitments, rising MWD water deliveries since 2000 during an extreme drought, and as discussed in the attached document, Relationship of the Imperial Valley – San Diego County Water Transfer to Urban Growth in Coastal San Diego.

FFF

The DEIR ultimately appears to suggest, without stating directly, that growth is not really growth if it is planned growth. Following this logic, new water supplies cannot induce new growth if this new growth has been anticipated in any number of regional water and land use planning documents (e.g. SANDAG's Regional Comprehensive Plan, the County Water Authority's Regional Water Facilities Master Plan, etc.). Regardless of whether it is planned or unplanned, the DEIR must fully analyze any growth attributable to the creation of the new water supply which would be generated by the desalination plant.

According to the DEIR, the San Diego Association of Governments has identified future population levels of San Diego County and associated necessary supporting infrastructure in the Regional Comprehensive Plan. The RCP recommends seawater desalination as one means to provide adequate water supplies for a growing population. The RCP also notably anticipates preparation and implementation of regional Natural Communities Conservation Plans (NCCPs) and establishment of associated regional funding to ensure protection of biological resources, and anticipates implementation of the Regional Transportation Plan to ensure provision of adequate transportation infrastructure. The DEIR's suggestion that the desalination plant will not induce growth because growth is anticipated in regional planning documents is misleading. CEQA dictates that growth-inducing infrastructure must be acknowledged and mitigated.

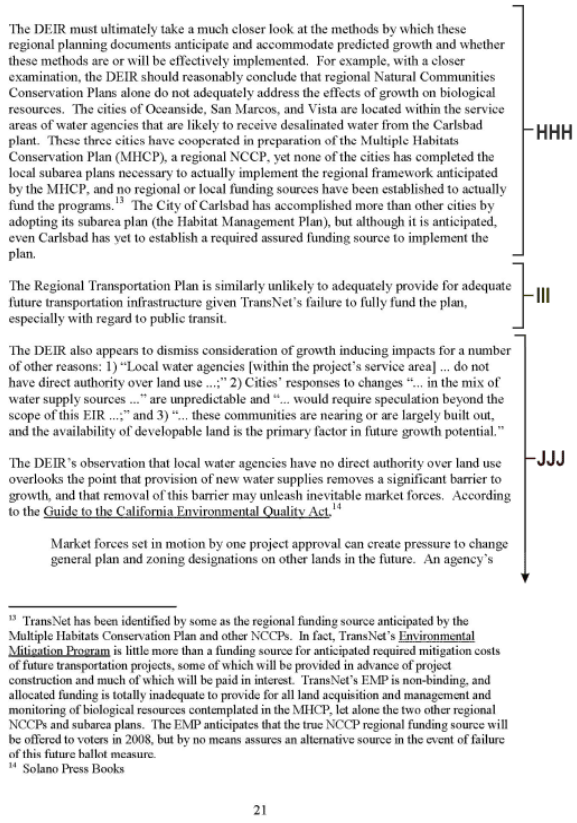
GGG

20

Consequently, the increased conservation, recycling and groundwater alternatives were rejected by the SDCWA. Instead, the preferred project approved by the SDCWA Board of Directors (after numerous public workshops and hearings) contemplates a balanced water supply portfolio for the San Diego region that includes already planned increase in conservation, already planned increase in water recycling, reduction in imported water use, already planned increase in water transfers, and 80,000 to 150,000 acre-feet of desalinated water supply. Both the RWFMP and PEIR are referenced in the subject Draft EIR.

Similarly, CMWD considered a variety of actions to improve its water supply reliability, diversify supplies, and reduce dependence on imported water. These actions include a commitment to implement all cost-effective water conservation and recycling opportunities. Today, CMWD has one of the most aggressive conservation and recycling programs in the San Diego region. The implementation of the water conservation and water recycling elements included in CMWD's *2000 Urban Water Management Plan* (URMP) are on schedule and are achieving the desired reduction in potable water use. These programs are designed to work in tandem with the proposed seawater desalination project to accomplish the City Council's water supply reliability goal of 90 percent water availability during a severe drought. This goal could not be met through conservation and recycling alone. CMWD's UWMP was incorporated by reference in the subject Draft EIR.

A baseline assumption incorporated in the Draft EIR is that the water conservation and water recycling elements included in CMWD's 2000 Urban Water Management Plan and SDCWA's 2004 Regional Water Facilities Master Plan (RWFMP) will be fully implemented. However, even with the targeted conservation and recycling in place, both



The DEIR must ultimately take a much closer look at the methods by which these regional planning documents anticipate and accommodate predicted growth and whether these methods are or will be effectively implemented. For example, with a closer examination, the DEIR should reasonably conclude that regional Natural Communities Conservation Plans alone do not adequately address the effects of growth on biological resources. The cities of Oceanside, San Marcos, and Vista are located within the service areas of water agencies that are likely to receive desalinated water from the Carlsbad plant. These three cities have cooperated in preparation of the Multiple Habitats Conservation Plan (MHCP), a regional NCCP, yet none of the cities has completed the local subarea plans necessary to actually implement the regional framework anticipated by the MHCP, and no regional or local funding sources have been established to actually fund the programs.[13] The City of Carlsbad has accomplished more than other cities by adopting its subarea plan (the Habitat Management Plan), but although it is anticipated, even Carlsbad has yet to establish a required assured funding source to implement the plan.

HHH

The Regional Transportation Plan is similarly unlikely to adequately provide for adequate future transportation infrastructure given TransNet's failure to fully fund the plan, especially with regard to public transit.

III

The DEIR also appears to dismiss consideration of growth inducing impacts for a number of other reasons: 1) "Local water agencies [within the project's service area] ... do not have direct authority over land use ...;" 2) Cities' responses to changes "... in the mix of water supply sources ..." are unpredictable and "... would require speculation beyond the scope of this EIR ...;" and 3) "... these communities are nearing or are largely built out, and the availability of developable land is the primary factor in future growth potential."

The DEIR's observation that local water agencies have no direct authority over land use overlooks the point that provision of new water supplies removes a significant barrier to growth, and that removal of this barrier may unleash inevitable market forces. According to the Guide to the California Environmental Quality Act,[14]

> Market forces set in motion by one project approval can create pressure to change general plan and zoning designations on other lands in the future. An agency's

JJJ

[13] TransNet has been identified by some as the regional funding source anticipated by the Multiple Habitats Conservation Plan and other NCCPs. In fact, TransNet's Environmental Mitigation Program is little more than a funding source for anticipated required mitigation costs of future transportation projects, some of which will be provided in advance of project construction and much of which will be paid in interest. TransNet's EMP is non-binding, and allocated funding is totally inadequate to provide for all land acquisition and management and monitoring of biological resources contemplated in the MHCP, let alone the two other regional NCCPs and subarea plans. The EMP anticipates that the true NCCP regional funding source will be offered to voters in 2008, but by no means assures an alternative source in the event of failure of this future ballot measure.

[14] Solano Press Books

21

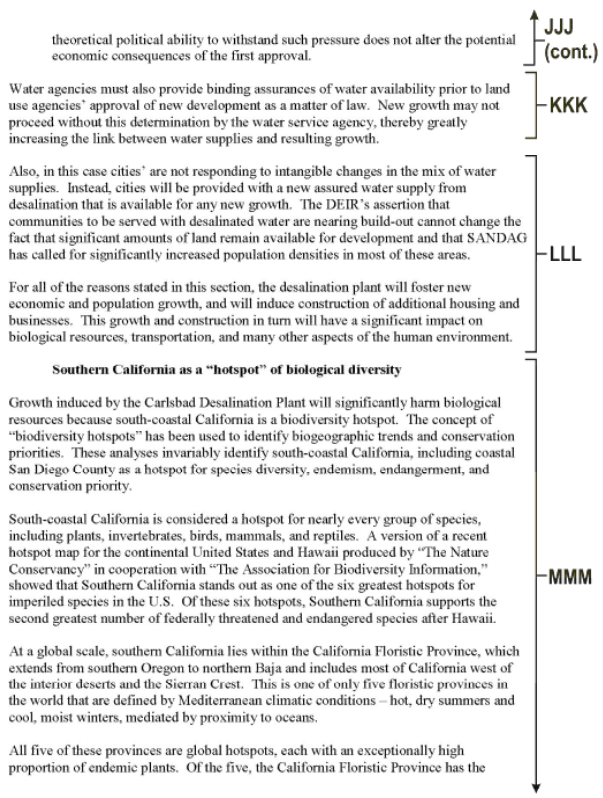
SDCWA and CMWD identified a need for additional local water in an amount equal to or greater than the project capacity. An objective of the proposed project is to address a portion of this water supply need.

If conservation measures are effectively implemented (as speculated by the commentator), then conservation and desalinated water production will together provide a greater opportunity to reduce imported water demand in the region.

56U See Responses 56D, 56F and 56G.

56V This is incorrect. The Draft EIR (Section 4.2.4, page 4.2-20) states that emissions from power generation, which are the main source of emissions associated with project operation, would be within permitted emission levels for the electrical plants which are planned for and regulated by the San Diego Air Pollution Control District, South Coast Air Quality Management District, and other local air pollution control districts. This analysis considered either option of direct power sales from EPS or power taken from the grid.

56W The Draft EIR looks to the State of California for guidance on the population level significance of early life stage losses of entrained fish species and to regulatory law such as the ESA for establishment of allowable take. Relying on both the science and practice of population management and protection, the Draft EIR estimated that proportional entrainment losses due to the project's seawater intake represent a de minimis effect. These entrainment effects would never rise to a level of significance in a population of unharvested species and are far below the State's recommendation for managing fisheries for harvested species.



theoretical political ability to withstand such pressure does not alter the potential economic consequences of the first approval. JJJ (cont.)

Water agencies must also provide binding assurances of water availability prior to land use agencies' approval of new development as a matter of law. New growth may not proceed without this determination by the water service agency, thereby greatly increasing the link between water supplies and resulting growth. KKK

Also, in this case cities' are not responding to intangible changes in the mix of water supplies. Instead, cities will be provided with a new assured water supply from desalination that is available for any new growth. The DEIR's assertion that communities to be served with desalinated water are nearing build-out cannot change the fact that significant amounts of land remain available for development and that SANDAG has called for significantly increased population densities in most of these areas. LLL

For all of the reasons stated in this section, the desalination plant will foster new economic and population growth, and will induce construction of additional housing and businesses. This growth and construction in turn will have a significant impact on biological resources, transportation, and many other aspects of the human environment.

Southern California as a "hotspot" of biological diversity

Growth induced by the Carlsbad Desalination Plant will significantly harm biological resources because south-coastal California is a biodiversity hotspot. The concept of "biodiversity hotspots" has been used to identify biogeographic trends and conservation priorities. These analyses invariably identify south-coastal California, including coastal San Diego County as a hotspot for species diversity, endemism, endangerment, and conservation priority.

South-coastal California is considered a hotspot for nearly every group of species, including plants, invertebrates, birds, mammals, and reptiles. A version of a recent hotspot map for the continental United States and Hawaii produced by "The Nature Conservancy" in cooperation with "The Association for Biodiversity Information," showed that Southern California stands out as one of the six greatest hotspots for imperiled species in the U.S. Of these six hotspots, Southern California supports the second greatest number of federally threatened and endangered species after Hawaii. MMM

At a global scale, southern California lies within the California Floristic Province, which extends from southern Oregon to northern Baja and includes most of California west of the interior deserts and the Sierran Crest. This is one of only five floristic provinces in the world that are defined by Mediterranean climatic conditions – hot, dry summers and cool, moist winters, mediated by proximity to oceans.

All five of these provinces are global hotspots, each with an exceptionally high proportion of endemic plants. Of the five, the California Floristic Province has the

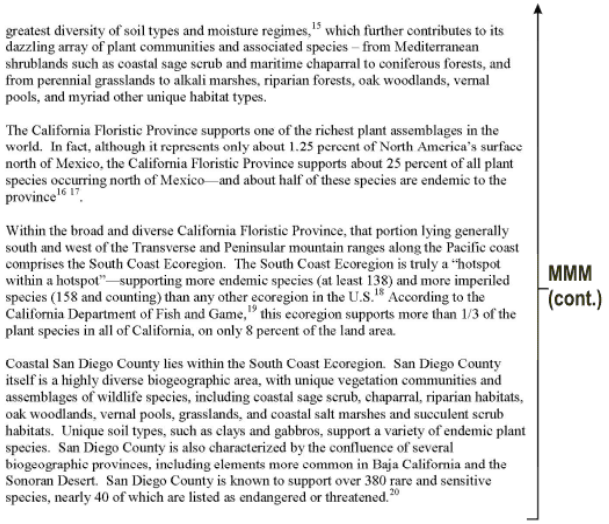
22

The power plant and the desalination plant will return 89% of biomass of entrained phytoplankton and zooplankton back into the ocean through the existing power plant discharge where they would be available to serve as food to the pelagic and other marine organisms. Therefore, even after seawater use through the power plant and the desalination plant, this plankton biomass regardless of whether it is living or dead, will still be available to provide the organic molecules that sustain life and form the basis for pelagic food chains. Therefore, the desalination project will have no significant impact in ecological terms.

56X The proposed location of the intake pump station (which as described, includes the wet well) is shown on Figure 3-6, on page 3-19 of the Draft EIR. The "uses" of the pump station and wet well are described on page 3-20 of the Draft EIR. A portion of the wet well/intake structure of the seawater desalination plant will be located below the groundwater table. The proposed design for the structure would withstand hydrostatic pressures associated with the groundwater at the proposed depth of the facility, and therefore no dewatering is anticipated to be necessary.

56Y According to the newest September 2004 edition of the US EPA's Guidelines for Water Reuse (EPA/625/R-04/108), the recommended boron limits for long-term and short-term use of reclaimed water for irrigation are 0.75 mg/L and 2.0 mg/L, respectively. The desalination water plant product water quality will be controlled to maintain these levels in the reclaimed water.

As indicated in Section 8.1 of the Water Purchase Agreement between the CMWD and Poseidon (Appendix B of the Draft EIR), the proponent has committed to study the effect of the concentration of



greatest diversity of soil types and moisture regimes,[15] which further contributes to its dazzling array of plant communities and associated species – from Mediterranean shrublands such as coastal sage scrub and maritime chaparral to coniferous forests, and from perennial grasslands to alkali marshes, riparian forests, oak woodlands, vernal pools, and myriad other unique habitat types.

The California Floristic Province supports one of the richest plant assemblages in the world. In fact, although it represents only about 1.25 percent of North America's surface north of Mexico, the California Floristic Province supports about 25 percent of all plant species occurring north of Mexico—and about half of these species are endemic to the province[16] [17].

Within the broad and diverse California Floristic Province, that portion lying generally south and west of the Transverse and Peninsular mountain ranges along the Pacific coast comprises the South Coast Ecoregion. The South Coast Ecoregion is truly a "hotspot within a hotspot"—supporting more endemic species (at least 138) and more imperiled species (158 and counting) than any other ecoregion in the U.S.[18] According to the California Department of Fish and Game,[19] this ecoregion supports more than 1/3 of the plant species in all of California, on only 8 percent of the land area.

Coastal San Diego County lies within the South Coast Ecoregion. San Diego County itself is a highly diverse biogeographic area, with unique vegetation communities and assemblages of wildlife species, including coastal sage scrub, chaparral, riparian habitats, oak woodlands, vernal pools, grasslands, and coastal salt marshes and succulent scrub habitats. Unique soil types, such as clays and gabbros, support a variety of endemic plant species. San Diego County is also characterized by the confluence of several biogeographic provinces, including elements more common in Baja California and the Sonoran Desert. San Diego County is known to support over 380 rare and sensitive species, nearly 40 of which are listed as endangered or threatened.[20]

MMM (cont.)

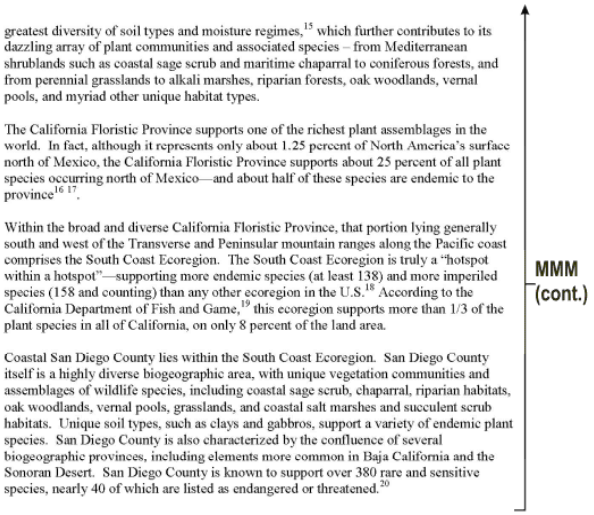
[15] Stebbins, G.L. and Major, J. 1965. Endemism and speciation in the California flora. Ecological Monographs 35:1-35.
[16] Mittermeier, R.A., N. Myers, P.R. Gil, and C.G. Mittermeier. 1999. Hotspots: Earth's biologically richest and most endangered terrestrial ecoregions. Conservation International.
[17] Raven, P.H. and Axelrod, D.I. 1978. Origin and relationships of the California flora. University of California Publications in Botany 72:1-134.
[18] Stein, B.A., L.S. Kutner, and J.S. Adams, eds. 2000. Precious heritage: the status of biodiversity in the United States. Oxford University Press. 399 pp.
[19] California Department of Fish and Game. 1996. California wildlife habitat relationships system, version 5.2.
[20] U.S Fish and Wildlife Service. 2001. Threatened and endangered species system (TESS). Updated December 8, 2000.

23

boron in the desalinated water on sensitive ornamental plants irrigated with this water and to adjust the desalinated water quality if and as needed. That Agreement provides that the parties will:

"… work cooperatively to conduct technical studies pertaining to water quality, blending, distribution and consumer acceptance … of Product Water, the impact of Product Water Quality on customer uses of water, the impact of Product Water on the integrity of existing pipelines, and the impact of additional discharge of municipal and industrial waste from Project facilities (collectively "Water Quality Issues"). These studies shall include advice from a nationally recognized expert on the impact of boron in irrigation water on ornamental plants ("the "Boron Expert"). The Delivery Regime and any revisions to the Quality Standards for Product Water shall take into account the results of the technical studies … Poseidon and the District agree to meet prior to the commercial operation date on a periodic basis with the District's major water customers, such as … landscape irrigators, agricultural growers … to discuss and resolve issues those customers may have with receiving Product Water."

Poseidon and CMWD have hired a nationally recognized boron expert and collectively we are working with local landscape irrigators to determine what levels of boron in the desalinated water will result in acceptable landscape appearance in the Carlsbad community. Section 8.3 of the Water Purchase Agreement provides that these parties will complete this investigation and establish concentration limits for boron on or before December 31, 2005. With the concentration limit for boron in place, the potential impact to landscape resulting from boron in the desalinated water will be less than significant. Therefore, no further mitigation is required.



greatest diversity of soil types and moisture regimes,[15] which further contributes to its dazzling array of plant communities and associated species – from Mediterranean shrublands such as coastal sage scrub and maritime chaparral to coniferous forests, and from perennial grasslands to alkali marshes, riparian forests, oak woodlands, vernal pools, and myriad other unique habitat types.

The California Floristic Province supports one of the richest plant assemblages in the world. In fact, although it represents only about 1.25 percent of North America's surface north of Mexico, the California Floristic Province supports about 25 percent of all plant species occurring north of Mexico—and about half of these species are endemic to the province[16 17].

Within the broad and diverse California Floristic Province, that portion lying generally south and west of the Transverse and Peninsular mountain ranges along the Pacific coast comprises the South Coast Ecoregion. The South Coast Ecoregion is truly a "hotspot within a hotspot"—supporting more endemic species (at least 138) and more imperiled species (158 and counting) than any other ecoregion in the U.S.[18] According to the California Department of Fish and Game,[19] this ecoregion supports more than 1/3 of the plant species in all of California, on only 8 percent of the land area.

Coastal San Diego County lies within the South Coast Ecoregion. San Diego County itself is a highly diverse biogeographic area, with unique vegetation communities and assemblages of wildlife species, including coastal sage scrub, chaparral, riparian habitats, oak woodlands, vernal pools, grasslands, and coastal salt marshes and succulent scrub habitats. Unique soil types, such as clays and gabbros, support a variety of endemic plant species. San Diego County is also characterized by the confluence of several biogeographic provinces, including elements more common in Baja California and the Sonoran Desert. San Diego County is known to support over 380 rare and sensitive species, nearly 40 of which are listed as endangered or threatened.[20]

MMM (cont.)

[15] Stebbins, G.L. and Major, J. 1965. Endemism and speciation in the California flora. Ecological Monographs 35:1-35.
[16] Mittermeier, R.A., N. Myers, P.R. Gil, and C.G. Mittermeier. 1999. Hotspots: Earth's biologically richest and most endangered terrestrial ecoregions. Conservation International.
[17] Raven, P.H. and Axelrod, D.I. 1978. Origin and relationships of the California flora. University of California Publications in Botany 72:1-134.
[18] Stein, B.A., L.S. Kutner, and J.S. Adams, eds. 2000. Precious heritage: the status of biodiversity in the United States. Oxford University Press. 399 pp.
[19] California Department of Fish and Game. 1996. California wildlife habitat relationships system, version 5.2.
[20] U.S Fish and Wildlife Service. 2001. Threatened and endangered species system (TESS). Updated December 8, 2000.

23

56Z As indicated in response to the previous comment, the project is addressing the issues associated with boron concentration in the desalinated seawater (see Appendix B of the Draft EIR).

The proposed seawater desalination facility will be designed to produce potable water which will be in compliance with all regulatory requirements applicable to this project at this time, including with the boron "action level" established by the California Department of Health Services (CDHS) of 1 mg/L.

As indicated in the commentator's reference regarding the City of Long Beach Study, the level of boron rejection achieved using two-pass nanofiltration technology is relatively low and cannot consistently meet the CDHS action level requirements. Please note, however, that the proponent of the proposed project is not using the nanofiltration-based desalination technology studied by the City of Long Beach Water Department. Nanofiltration (NF) membranes have 10 to 30 times larger membrane pore openings than the seawater desalination RO membranes proposed by the proponent and, therefore, the NF membrane systems cannot remove small molecular size water constituents such as boron as well as seawater RO membranes can. The proposed project will use the newest proven state-of-the art commercially available seawater reverse osmosis membranes which are specifically designed for very high rejection of boron and for consistent production of fresh water that contains boron at lower concentrations than the CDHS action level of 1 mg/L.

The high boron removal efficiency of the reverse osmosis membranes for this project has been tested and proven at Poseidon Resources' seawater desalination demonstration plant located in Carlsbad, California. This plant uses the same seawater reverse osmosis

The general effects of urban growth on biological resources

The principal causes of species endangerment are the direct removal of habitat and fragmentation of remaining habitat areas into smaller and more isolated areas.[21] [22] [23] [24] Recent reviews have found that about 85% of imperiled species in the U.S. are affected by habitat loss, (*Ibid* Stein *et al.* 2000) and in Southern California the principal causes of endangerment are residential and industrial development, exotic species, heavy equipment use, and livestock grazing *(Id.* Flather *et al.* 1998). Loss of habitats is known to differentially affect species with large area requirements. These large area-dependent species (e.g., mountain lions, mule deer, golden eagles) are often left with too little habitat to complete their life cycles (e.g., find adequate food, breeding habitat, allow seasonal migrations) and are pushed into greater proximity to roads and developments. Losses of habitat also result in decreases in total population size of species with reduced habitat area requirements, leaving the remaining individuals at a greater risk of local extinction due to stochastic events (e.g., fire, weather patterns, disease outbreaks) and adverse genetic effects from inbreeding.

Aside from the direct removal of natural habitats, urban growth produces a variety of indirect impacts to remaining habitats. As development fragments habitat areas into smaller patches, the amount of habitat edge increases. Habitat edges are the interfaces between natural habitats and adjacent human land uses. This interface is where many adverse indirect impacts to remaining natural open space originate.[25] [26] [27] Indirect impacts include increases in lights and noise, exotic plant and animal species invasions, increased mortality from road kill, changes in fire cycles, disturbance of vegetation by foot and vehicle traffic, changes in hydrology and storm water runoff quality. The long-term adverse effects of the majority of these indirect impacts are not fully understood but it is clear that they can severely degrade the quality of habitats that are not directly impacted by development.

NNN

[21] Noss, R.F., M.A. O'Connell, and D.D. Murphy. 1997. The Science of Conservation Planning: Habitat Conservation under the Endangered Species Act. Island Press, Washington, D.C.
[22] Flather, C.H., M.S. Knowles, and I.A. Kendall. 1998. Threatened and endangered species geography: characteristics of hot spots in the coterminous United States. BioScience 48: 365-376.
[23] Stein, B.A., L.S. Kutner, and J.S. Adams, eds. 2000. Precious heritage: the status of biodiversity in the United States. Oxford University Press. 399 pp.
[24] Czech, B., P.R. Krausman, and P.K. Devers. 2000. Economic associations among causes of species endangerment in the United States. BioScience 46
[25] Lovejoy, T.E., R.O. Bierregaard, Jr., and A.B. Rylands. 1986. Edge and other effects of isolation on Amazon forest fragments. Pages 257-285 *in* Conservation biology: the science of scarcity and diversity, Soulé, M.E., editor. Sunderland, MA: Sinauer Associates.
[26] Yahner, R.H. 1988. Changes in wildlife communities near edges. Conservation Biology 2:33-339.
[27] Sauvajot, R.M. and M. Buechner. 1993. Effects of urban encroachment on wildlife in the Santa Monica Mountains. Pages 171-180 *in* Interface between ecology and land development in California, Keeley, J.E., editor. Los Angeles, CA: Southern California Academy of Sciences, Los Angeles.

24

membranes as that proposed for the full-scale seawater desalination facility. The Poseidon demonstration plant has been in operation for over two years and has been producing high-quality desalinated water using power plant cooling water.

The public health safety of the potable water supplied by this project will be ensured by continuous compliance of the desalinated water with all applicable Federal, state and local regulations that control the quality of the produced drinking water. Detailed specifications of the quality of the drinking water which will be produced by this project are presented in Appendix C of the Draft EIR. As indicated in Appendix C, the scope of this project will include the development and implementation of a product water quality monitoring program. The purpose of this monitoring program is to verify on a regular basis that the potable water produced at the desalination plant and distributed for public supply is in compliance with all applicable regulations, is safe for public consumption and does not represent a public health risk.

Appendix C, section "Product Water Quality", of the Draft EIR provides a detailed description of the specific source water protection and treatment measures which are planned to be implemented in order to mitigate potential impact of abrupt failures and various potential sources of seawater contamination on the project product water quality.

56AA The desalination plant described in the Draft EIR will be designed to accommodate reasonably foreseeable disruptions from outside power demands as well as various accidents and potential emergency operational conditions. After accounting for planned outages of the facility for routine maintenance, the available plant capacity is 106% of the design output. The specific design measures are described in Section 3, Section 4.11 and Appendix C of the Draft EIR.

Developments and associated roadways result in elevated light and noise levels compared to undeveloped areas. Elevated light levels are receiving more attention as a causal factor of biological change. Nocturnal animals, such as owls and many snakes, may have their foraging activities disrupted by excessive light levels. Recent research by the USGS (Fisher in prep) indicates that some nocturnal snake species are not found in proximity to developments, and they speculate that excessive lighting is responsible. Elevated noise has long been recognized as having the potential to adversely affect species that communicate by vocalizing.[28] Song birds (e.g., least Bell's vireo, Southwestern willow flycatcher) that establish breeding territories and attract mates with vocalizations can have their reproductive success reduced by excessive ambient noise levels.

Urban development and other human land uses generally facilitate the invasion of non-native plant and animal species into adjacent natural habitats, especially in small habitat fragments.[29 30 31 32] Exotic species in landscaping adjacent to natural open space often escape, become established, and spread further into the interior of open space areas. Many of the species can spread rapidly and are difficult to control (e.g., pampas grass, eucalyptus, iceplant). In addition, many human activities, such as road and other infrastructure construction (e.g., pipelines and transmission lines), or passive and active recreational activities within open space areas, result in disturbance of existing vegetation, compaction of soils, and changes in runoff patterns. These alterations facilitate the invasion of non-native plants, particularly annual grasses and forbs, by providing points of establishment within the interior of open space areas where the non-native species can successfully out-compete native species in the altered physical environment. In addition, free-ranging pets (e.g. cats and dogs) can cause substantial mortality to some wildlife species, particularly birds, reptiles, and small mammals.

Urban development and the construction of roads often alter movement patterns of many wildlife species, particularly mobile species such as larger mammals (e.g., mule deer, coyotes, bobcats, and mountain lions). Development can force these mobile species to move more frequently across roadways to reach fragmented habitat patches. Road crossings by wildlife often result in increased mortality from road kill on busy roadways.[33 34] This is particularly true on newly constructed roads that cross existing movement corridors. This increased source of mortality, coupled with reduced habitat

NNN (cont.)

[28] Regional Environmental Consultants (RECON). 1989. Comprehensive species management plan for the least Bell's vireo. Prepared for San Diego Association of Governments. May.
[29] McConnaughay, K.D.M. and F.A. Bazzaz. 1987. The relationship between gap size and performance of several colonizing annuals. Ecology 68(2):411-416.
[30] Tyser, R.W. and C.A. Worley. 1992. Alien flora in grasslands adjacent to road and trail corridors in Glacier National Park, Montana (U.S.A.). Conservation Biology 6(2):253-262.
[31] Brothers, T.S. and A. Spingarn. 1992. Forest fragmentation and alien plant invasion of central Indiana old-growth forests. Conservation Biology 6(1):91-100.
[32] Matlack, G.R. 1993. Microenvironment variation within and among forest edge sites in the eastern United States. Biological Conservation 66:185-194.
[33] Beier, P. 1993. Determining minimum habitat areas and habitat corridors for cougars. Conservation Biology 7:94-108.
[34] Beier, P. 1995. Dispersal of juvenile cougars in fragmented habitat. J. Wildlife Management 59:228-237.

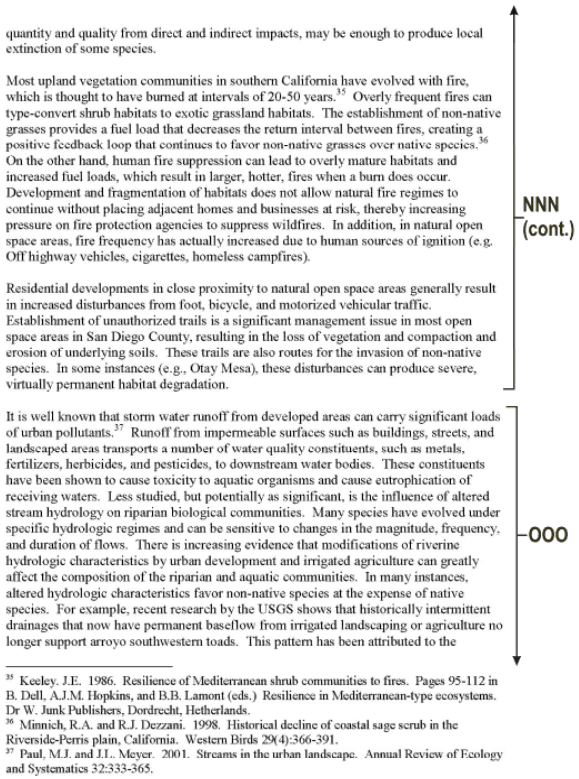
25

56BB As described under the response to comment 56Y and Z, Poseidon and CMWD have hired a nationally recognized boron expert and are collectively working with local landscape irrigators to determine what levels of boron in the desalinated water will result in acceptable landscape appearance in the Carlsbad community. Section 8.3 of the Water Purchase Agreement (as amended by the City of Carlsbad and Poseidon in 2005) provides that the parties will complete this investigation and establish acceptable concentration limits for boron on or before December 31, 2005. With the concentration limit for boron in place, the potential impact to landscape resulting from boron in the desalinated water will be less than significant. Therefore, no further mitigation is required to protect irrigated plants.

With respect to human health, the proposed seawater desalination facility will be designed to produce potable water which will be in compliance with all regulatory requirements applicable to this project, including with the boron "action level" established by the California Department of Health Services of 1 mg/L. Further information regarding necessary project compliance with regulatory requirements may be found in Section 8.2 of the Water Purchase Agreement.

56CC See Reponses 56D, 56F, and 56G.

56DD As previously stated, CMWD is committed to implementation of the best management practices (BMPs) set forth in the California Urban Water Conservation Council's 1991 Memorandum of Understanding Regarding Urban Water Conservation in California. These BMPs include: residential surveys, plumbing retrofits, water audits, metering with commodity rates, conservation pricing, landscaping programs, high-efficiency clothes washer rebates, and public education and conservation programs.



quantity and quality from direct and indirect impacts, may be enough to produce local extinction of some species.

Most upland vegetation communities in southern California have evolved with fire, which is thought to have burned at intervals of 20-50 years.[35] Overly frequent fires can type-convert shrub habitats to exotic grassland habitats. The establishment of non-native grasses provides a fuel load that decreases the return interval between fires, creating a positive feedback loop that continues to favor non-native grasses over native species.[36] On the other hand, human fire suppression can lead to overly mature habitats and increased fuel loads, which result in larger, hotter, fires when a burn does occur. Development and fragmentation of habitats does not allow natural fire regimes to continue without placing adjacent homes and businesses at risk, thereby increasing pressure on fire protection agencies to suppress wildfires. In addition, in natural open space areas, fire frequency has actually increased due to human sources of ignition (e.g. Off highway vehicles, cigarettes, homeless campfires).

NNN (cont.)

Residential developments in close proximity to natural open space areas generally result in increased disturbances from foot, bicycle, and motorized vehicular traffic. Establishment of unauthorized trails is a significant management issue in most open space areas in San Diego County, resulting in the loss of vegetation and compaction and erosion of underlying soils. These trails are also routes for the invasion of non-native species. In some instances (e.g., Otay Mesa), these disturbances can produce severe, virtually permanent habitat degradation.

It is well known that storm water runoff from developed areas can carry significant loads of urban pollutants.[37] Runoff from impermeable surfaces such as buildings, streets, and landscaped areas transports a number of water quality constituents, such as metals, fertilizers, herbicides, and pesticides, to downstream water bodies. These constituents have been shown to cause toxicity to aquatic organisms and cause eutrophication of receiving waters. Less studied, but potentially as significant, is the influence of altered stream hydrology on riparian biological communities. Many species have evolved under specific hydrologic regimes and can be sensitive to changes in the magnitude, frequency, and duration of flows. There is increasing evidence that modifications of riverine hydrologic characteristics by urban development and irrigated agriculture can greatly affect the composition of the riparian and aquatic communities. In many instances, altered hydrologic characteristics favor non-native species at the expense of native species. For example, recent research by the USGS shows that historically intermittent drainages that now have permanent baseflow from irrigated landscaping or agriculture no longer support arroyo southwestern toads. This pattern has been attributed to the

OOO

[35] Keeley. J.E. 1986. Resilience of Mediterranean shrub communities to fires. Pages 95-112 in B. Dell, A.J.M. Hopkins, and B.B. Lamont (eds.) Resilience in Mediterranean-type ecosystems. Dr W. Junk Publishers, Dordrecht, Hetherlands.
[36] Minnich, R.A. and R.J. Dezzani. 1998. Historical decline of coastal sage scrub in the Riverside-Perris plain, California. Western Birds 29(4):366-391.
[37] Paul, M.J. and J.L. Meyer. 2001. Streams in the urban landscape. Annual Review of Ecology and Systematics 32:333-365.

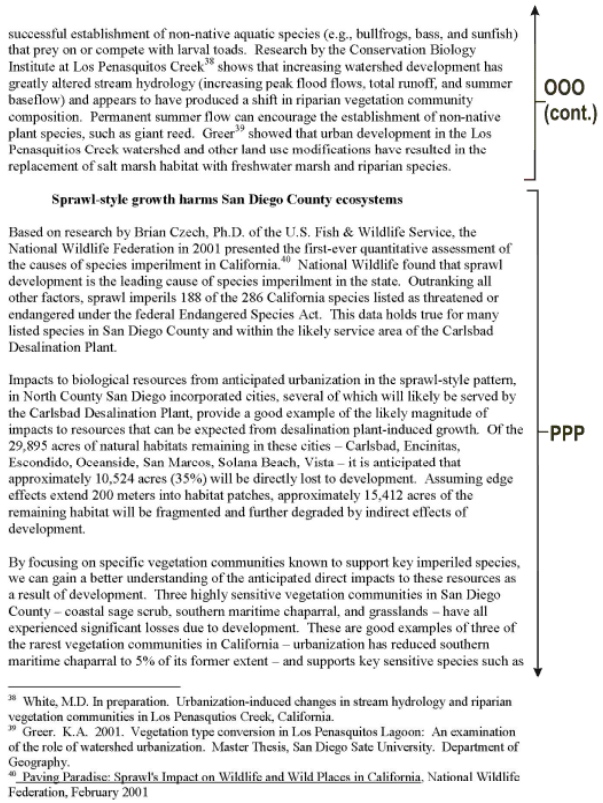
26

Under the terms of the Water Purchase Agreement, CMWD is allowed to purchase a minimum of 10 million gallons per day (mgd) of desalinated water and a maximum of 25 mgd. Currently, CMWD's minimum, average and maximum monthly demands are 10, 18 and 25 mgd respectively. CMWD's conservation and recycling programs (see Response 56R for further information) are expected to keep potable water demands at current levels for the foreseeable future despite 45 percent projected growth in population under the City of Carlsbad's Growth Management Plan. Should the reduction in demand due to the conservation and recycling programs exceed the projected growth in water demand due to population increase, CMWD would not be obligated to purchase any more water than it needs and more of the desalinated water would be available for use elsewhere in the region.

56EE The document prepared by the Planning and Conservation League entitled "Investment Strategy for California Water" includes interesting and insightful information pertaining to management of California's water supply. The summary information included in this comment is noted. There is no requirement that the "Investment Strategy for California Water" be considered as an alternative to the project. See response to comment 56T.

56FF See Reponses 56D, 56F, 56G, 56DD, and 56EE.

56GG **System Reliability.** The Desalination Facility is designed to operate 24 hours per day and 365 days per year at a minimum of 96 percent availability. To achieve this level of reliability, dedicated surplus capacity is provided for all critical elements of the plant so full production can be maintained while equipment is taken out of service maintenance or due to an unexpected outage. For example, the Desalination Facility is designed to produce 50 MGD of product water



successful establishment of non-native aquatic species (e.g., bullfrogs, bass, and sunfish) that prey on or compete with larval toads. Research by the Conservation Biology Institute at Los Penasquitos Creek[38] shows that increasing watershed development has greatly altered stream hydrology (increasing peak flood flows, total runoff, and summer baseflow) and appears to have produced a shift in riparian vegetation community composition. Permanent summer flow can encourage the establishment of non-native plant species, such as giant reed. Greer[39] showed that urban development in the Los Penasquitos Creek watershed and other land use modifications have resulted in the replacement of salt marsh habitat with freshwater marsh and riparian species.

OOO (cont.)

Sprawl-style growth harms San Diego County ecosystems

Based on research by Brian Czech, Ph.D. of the U.S. Fish & Wildlife Service, the National Wildlife Federation in 2001 presented the first-ever quantitative assessment of the causes of species imperilment in California.[40] National Wildlife found that sprawl development is the leading cause of species imperilment in the state. Outranking all other factors, sprawl imperils 188 of the 286 California species listed as threatened or endangered under the federal Endangered Species Act. This data holds true for many listed species in San Diego County and within the likely service area of the Carlsbad Desalination Plant.

Impacts to biological resources from anticipated urbanization in the sprawl-style pattern, in North County San Diego incorporated cities, several of which will likely be served by the Carlsbad Desalination Plant, provide a good example of the likely magnitude of impacts to resources that can be expected from desalination plant-induced growth. Of the 29,895 acres of natural habitats remaining in these cities – Carlsbad, Encinitas, Escondido, Oceanside, San Marcos, Solana Beach, Vista – it is anticipated that approximately 10,524 acres (35%) will be directly lost to development. Assuming edge effects extend 200 meters into habitat patches, approximately 15,412 acres of the remaining habitat will be fragmented and further degraded by indirect effects of development.

PPP

By focusing on specific vegetation communities known to support key imperiled species, we can gain a better understanding of the anticipated direct impacts to these resources as a result of development. Three highly sensitive vegetation communities in San Diego County – coastal sage scrub, southern maritime chaparral, and grasslands – have all experienced significant losses due to development. These are good examples of three of the rarest vegetation communities in California – urbanization has reduced southern maritime chaparral to 5% of its former extent – and supports key sensitive species such as

[38] White, M.D. In preparation. Urbanization-induced changes in stream hydrology and riparian vegetation communities in Los Penasqutios Creek, California.
[39] Greer. K.A. 2001. Vegetation type conversion in Los Penasquitos Lagoon: An examination of the role of watershed urbanization. Master Thesis, San Diego Sate University. Department of Geography.
[40] Paving Paradise: Sprawl's Impact on Wildlife and Wild Places in California. National Wildlife Federation, February 2001

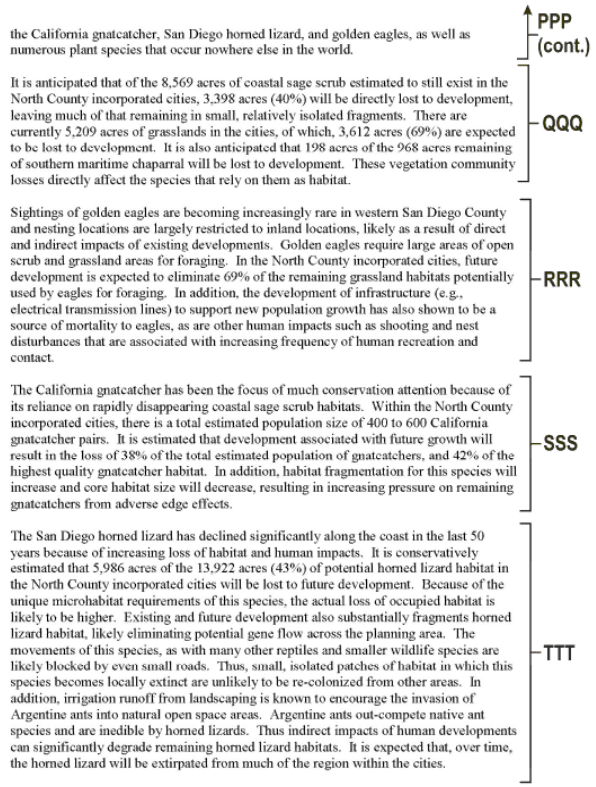
27

with 12 RO independent trains of 4.2 MGD in service and one 4.2 MGD train in standby mode, for a total installed capacity of 54.2 MGD. The standby RO train would be used for water production when one of the other RO trains needs to be taken out of service for maintenance or repair.

The equipment suppliers for the Project would be required to meet strict specifications regarding membrane materials, workmanship, design and performance. For example, the RO membranes would be required to reject at least 99.6 percent of the salt in the feed water and the manufacturer would be required to conduct extensive testing at the factory to ensure each membrane element conforms to specifications.

Power Supply Reliability. The power supply for the Desalination Facility would be from the Encina Power Plant or the regional grid. If the Encina Power Plant is the source of the power, the Desalination Facility's main power substation will be connected to three independent generating units. The Encina Power Plant is designated by the California Independent Operating System as a Reliability-Must-Run facility. Thus, it is highly unlikely that all three of the generating units serving the desalination facility would be out of service at the same time. However, should this occur, the emergency gas turbine would be available as the ultimate back-up power supply.

If the power supply is to come from the regional grid, it will be fed from at least two independent connections. The grid currently supplies an annual volume of approximately 200 million MWh of electricity throughout California (www.caiso.com, accessed October 31, 2004). The cumulative effect of energy consumption of existing and planned seawater desalination facilities is approximately 22,500 MWh per year and 1 million MWh per year, respectively; these represent less than one



the California gnatcatcher, San Diego horned lizard, and golden eagles, as well as numerous plant species that occur nowhere else in the world.

PPP (cont.)

It is anticipated that of the 8,569 acres of coastal sage scrub estimated to still exist in the North County incorporated cities, 3,398 acres (40%) will be directly lost to development, leaving much of that remaining in small, relatively isolated fragments. There are currently 5,209 acres of grasslands in the cities, of which, 3,612 acres (69%) are expected to be lost to development. It is also anticipated that 198 acres of the 968 acres remaining of southern maritime chaparral will be lost to development. These vegetation community losses directly affect the species that rely on them as habitat.

QQQ

Sightings of golden eagles are becoming increasingly rare in western San Diego County and nesting locations are largely restricted to inland locations, likely as a result of direct and indirect impacts of existing developments. Golden eagles require large areas of open scrub and grassland areas for foraging. In the North County incorporated cities, future development is expected to eliminate 69% of the remaining grassland habitats potentially used by eagles for foraging. In addition, the development of infrastructure (e.g., electrical transmission lines) to support new population growth has also shown to be a source of mortality to eagles, as are other human impacts such as shooting and nest disturbances that are associated with increasing frequency of human recreation and contact.

RRR

The California gnatcatcher has been the focus of much conservation attention because of its reliance on rapidly disappearing coastal sage scrub habitats. Within the North County incorporated cities, there is a total estimated population size of 400 to 600 California gnatcatcher pairs. It is estimated that development associated with future growth will result in the loss of 38% of the total estimated population of gnatcatchers, and 42% of the highest quality gnatcatcher habitat. In addition, habitat fragmentation for this species will increase and core habitat size will decrease, resulting in increasing pressure on remaining gnatcatchers from adverse edge effects.

SSS

The San Diego horned lizard has declined significantly along the coast in the last 50 years because of increasing loss of habitat and human impacts. It is conservatively estimated that 5,986 acres of the 13,922 acres (43%) of potential horned lizard habitat in the North County incorporated cities will be lost to future development. Because of the unique microhabitat requirements of this species, the actual loss of occupied habitat is likely to be higher. Existing and future development also substantially fragments horned lizard habitat, likely eliminating potential gene flow across the planning area. The movements of this species, as with many other reptiles and smaller wildlife species are likely blocked by even small roads. Thus, small, isolated patches of habitat in which this species becomes locally extinct are unlikely to be re-colonized from other areas. In addition, irrigation runoff from landscaping is known to encourage the invasion of Argentine ants into natural open space areas. Argentine ants out-compete native ant species and are inedible by horned lizards. Thus indirect impacts of human developments can significantly degrade remaining horned lizard habitats. It is expected that, over time, the horned lizard will be extirpated from much of the region within the cities.

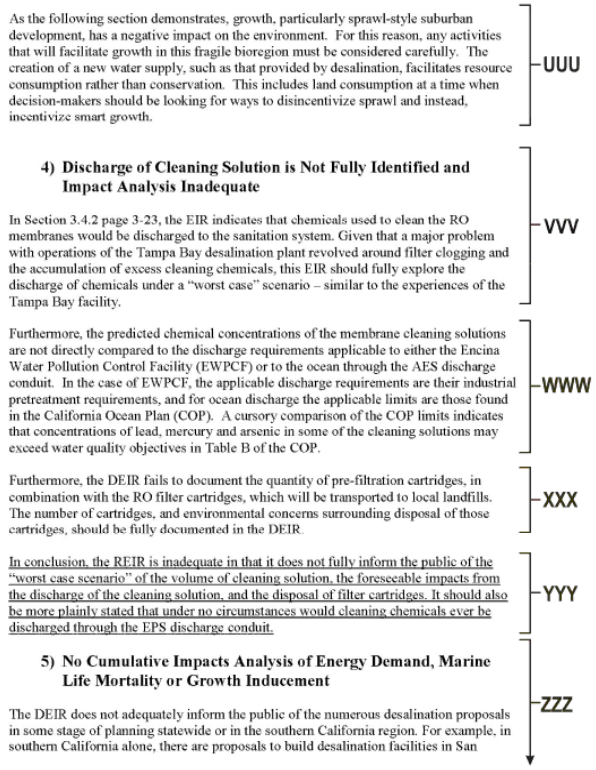
TTT

28

percent of the total energy available on the grid (DWR, 2003b). The project's contribution to this estimated cumulative demand would be approximately 14,800 MWh per year under maximum operating conditions.

As noted by the DWR Desalination Task Force, another consideration in evaluating impacts of desalination on the electricity system is the demand the plants would put on the system during peak hours. Statewide peak demand is roughly 52,000 MWh and is expected to grow by approximately 2% annually (DWR, 2003c). The report estimates that the cumulative effect of proposed desalination plants in California would place 100 MWh to 125 MWh of peak demand on the system. The report concludes that the projected demand does not significantly affect the state's system. In addition, it is anticipated that operation of the proposed project will have the flexibility to adjust water production rates to reduce energy consumption during peak hours. Depending on the terms of the power purchase arrangements there may be an economic incentive for the project operator to reduce power consumption during peak hours. This is due to the fact that peak hour energy costs are typically higher than off-peak costs.

The desalination plant would have the ability to shut down one or more RO trains to reduce power demand during peak demand periods and power emergencies. The reduced plant output would be replaced with water delivered from existing storage reservoirs. Existing storage capacity in close proximity of the desalination facility can hold over 200 million gallons, or four days output from the desalination plant. The desalination plant would replenish the water drawn from storage during the off-peak hours.



As the following section demonstrates, growth, particularly sprawl-style suburban development, has a negative impact on the environment. For this reason, any activities that will facilitate growth in this fragile bioregion must be considered carefully. The creation of a new water supply, such as that provided by desalination, facilitates resource consumption rather than conservation. This includes land consumption at a time when decision-makers should be looking for ways to disincentivize sprawl and instead, incentivize smart growth.

UUU

4) Discharge of Cleaning Solution is Not Fully Identified and Impact Analysis Inadequate

In Section 3.4.2 page 3-23, the EIR indicates that chemicals used to clean the RO membranes would be discharged to the sanitation system. Given that a major problem with operations of the Tampa Bay desalination plant revolved around filter clogging and the accumulation of excess cleaning chemicals, this EIR should fully explore the discharge of chemicals under a "worst case" scenario – similar to the experiences of the Tampa Bay facility.

VVV

Furthermore, the predicted chemical concentrations of the membrane cleaning solutions are not directly compared to the discharge requirements applicable to either the Encina Water Pollution Control Facility (EWPCF) or to the ocean through the AES discharge conduit. In the case of EWPCF, the applicable discharge requirements are their industrial pretreatment requirements, and for ocean discharge the applicable limits are those found in the California Ocean Plan (COP). A cursory comparison of the COP limits indicates that concentrations of lead, mercury and arsenic in some of the cleaning solutions may exceed water quality objectives in Table B of the COP.

WWW

Furthermore, the DEIR fails to document the quantity of pre-filtration cartridges, in combination with the RO filter cartridges, which will be transported to local landfills. The number of cartridges, and environmental concerns surrounding disposal of those cartridges, should be fully documented in the DEIR.

XXX

In conclusion, the REIR is inadequate in that it does not fully inform the public of the "worst case scenario" of the volume of cleaning solution, the foreseeable impacts from the discharge of the cleaning solution, and the disposal of filter cartridges. It should also be more plainly stated that under no circumstances would cleaning chemicals ever be discharged through the EPS discharge conduit.

YYY

5) No Cumulative Impacts Analysis of Energy Demand, Marine Life Mortality or Growth Inducement

The DEIR does not adequately inform the public of the numerous desalination proposals in some stage of planning statewide or in the southern California region. For example, in southern California alone, there are proposals to build desalination facilities in San

ZZZ

29

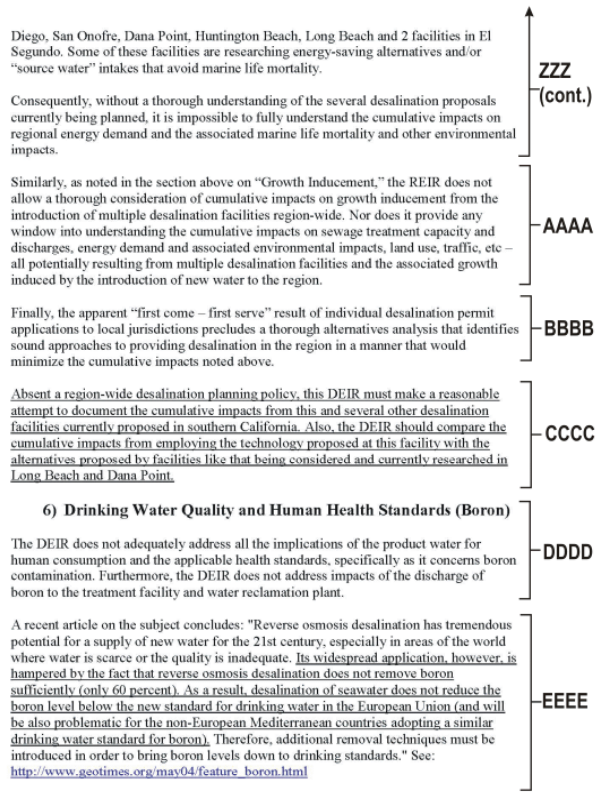
Finally, if energy shortages were to affect the reliability, the project would not be operational and most, if not all, of the project's potential environmental impacts would not occur.

56HH An analysis of a modified intake designs (vertical intake wells, horizontal beach wells and infiltration galleries) is provided in Section 6 of the Draft EIR, Alternatives to the Proposed Action. Additional technical detail prepared by the applicant has been provided in the Final EIR to clarify the analysis provided in the Draft EIR, (titled Carlsbad Seawater Desalination Project Alternatives to the Proposed Intake), and has been added to the appendices to the EIR. See response to comment F.

56II The economic appropriateness of the project is not an environmental issue and does not require a response. As for the environmental appropriateness of the proposed project, the Draft EIR concluded that with the incorporation of the mitigation measures, all impacts associated with the construction and operation of the proposed project would be reduced to a less than significant level. See Responses 56C and 56M regarding comments related to EPS compliance with current 316(b) regulations.

56JJ See Response 56F.

56KK This comment summarizes previous comments for which responses are provided above. The Lead Agency disagrees with the characterizations of the Draft EIR made by the commentor and believes that the EIR is comprehensive, objective and adequately describes anticipated environmental effects of the project pursuant to all applicable requirements of CEQA.



Diego, San Onofre, Dana Point, Huntington Beach, Long Beach and 2 facilities in El Segundo. Some of these facilities are researching energy-saving alternatives and/or "source water" intakes that avoid marine life mortality.

Consequently, without a thorough understanding of the several desalination proposals currently being planned, it is impossible to fully understand the cumulative impacts on regional energy demand and the associated marine life mortality and other environmental impacts.

ZZZ (cont.)

Similarly, as noted in the section above on "Growth Inducement," the REIR does not allow a thorough consideration of cumulative impacts on growth inducement from the introduction of multiple desalination facilities region-wide. Nor does it provide any window into understanding the cumulative impacts on sewage treatment capacity and discharges, energy demand and associated environmental impacts, land use, traffic, etc – all potentially resulting from multiple desalination facilities and the associated growth induced by the introduction of new water to the region.

AAAA

Finally, the apparent "first come – first serve" result of individual desalination permit applications to local jurisdictions precludes a thorough alternatives analysis that identifies sound approaches to providing desalination in the region in a manner that would minimize the cumulative impacts noted above.

BBBB

Absent a region-wide desalination planning policy, this DEIR must make a reasonable attempt to document the cumulative impacts from this and several other desalination facilities currently proposed in southern California. Also, the DEIR should compare the cumulative impacts from employing the technology proposed at this facility with the alternatives proposed by facilities like that being considered and currently researched in Long Beach and Dana Point.

CCCC

6) Drinking Water Quality and Human Health Standards (Boron)

The DEIR does not adequately address all the implications of the product water for human consumption and the applicable health standards, specifically as it concerns boron contamination. Furthermore, the DEIR does not address impacts of the discharge of boron to the treatment facility and water reclamation plant.

DDDD

A recent article on the subject concludes: "Reverse osmosis desalination has tremendous potential for a supply of new water for the 21st century, especially in areas of the world where water is scarce or the quality is inadequate. Its widespread application, however, is hampered by the fact that reverse osmosis desalination does not remove boron sufficiently (only 60 percent). As a result, desalination of seawater does not reduce the boron level below the new standard for drinking water in the European Union (and will be also problematic for the non-European Mediterranean countries adopting a similar drinking water standard for boron). Therefore, additional removal techniques must be introduced in order to bring boron levels down to drinking standards." See: http://www.geotimes.org/may04/feature_boron.html

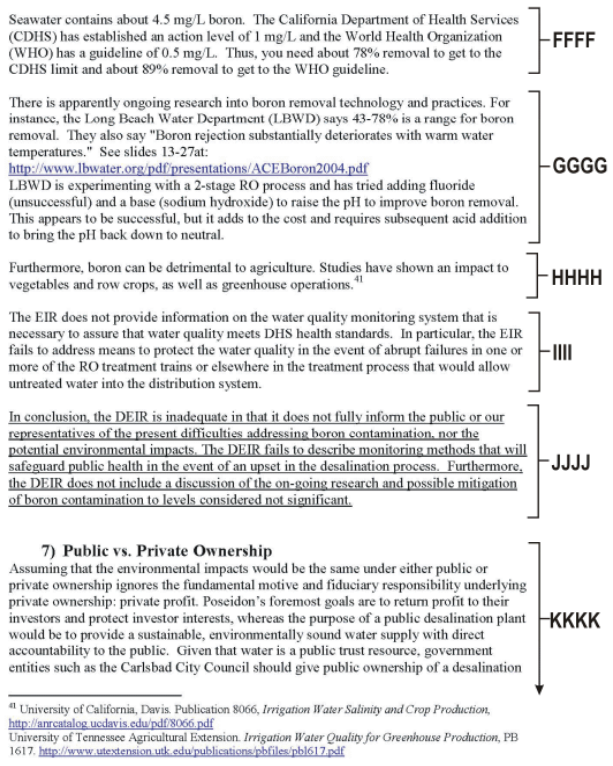
EEEE

30

56LL The Lead Agency disagrees that the significance thresholds identified for marine biological resources in the Draft EIR are "misleading" and also disagrees that the scope of potential impacts identified is "narrowly" defined. However, the comment lacks sufficient clarity and specificity to afford a more detailed response. Detailed responses to specific comments are provided below.

56MM The significance of impacts was analyzed in several ways including comparing the proportional mortality estimates with harvest control levels from the Nearshore Fishery Management Plan. The levels from the Nearshore Fishery Management Plan are relevant because they were established to provide protection to exploited species and would by nature be overprotective of non-exploited species. These levels would also be overprotective when used with larval populations because they do not account for any mechanisms that may act to compensate for the small levels of additional larval mortality resulting from operation of the proposed desalination plant.

56NN See Response 56MM. Tidewater goby larvae have not been observed in the area of the EPS intake and were not collected in the desalination project's intake entrainment studies. California State Government Code 425.6, establishing the Garibaldi as the state fish, included protection for the adults (1) from sport fisherman, particularly spear- gunners, who found the species easy prey and (2) because the populations were declining. The Draft EIR looks to the State of California for guidance on the population level significance of early life stage losses of entrained fish species and to regulatory law, such as the ESA, for establishment of allowable take. Relying on both the science and practice of population management and protection, the Draft EIR estimated that the proportional entrainment losses due to the project's seawater intake represent a de minimis effect. These entrainment



Seawater contains about 4.5 mg/L boron. The California Department of Health Services (CDHS) has established an action level of 1 mg/L and the World Health Organization (WHO) has a guideline of 0.5 mg/L. Thus, you need about 78% removal to get to the CDHS limit and about 89% removal to get to the WHO guideline. FFFF

There is apparently ongoing research into boron removal technology and practices. For instance, the Long Beach Water Department (LBWD) says 43-78% is a range for boron removal. They also say "Boron rejection substantially deteriorates with warm water temperatures." See slides 13-27at:
http://www.lbwater.org/pdf/presentations/ACEBoron2004.pdf
LBWD is experimenting with a 2-stage RO process and has tried adding fluoride (unsuccessful) and a base (sodium hydroxide) to raise the pH to improve boron removal. This appears to be successful, but it adds to the cost and requires subsequent acid addition to bring the pH back down to neutral. GGGG

Furthermore, boron can be detrimental to agriculture. Studies have shown an impact to vegetables and row crops, as well as greenhouse operations.[41] HHHH

The EIR does not provide information on the water quality monitoring system that is necessary to assure that water quality meets DHS health standards. In particular, the EIR fails to address means to protect the water quality in the event of abrupt failures in one or more of the RO treatment trains or elsewhere in the treatment process that would allow untreated water into the distribution system. IIII

In conclusion, the DEIR is inadequate in that it does not fully inform the public or our representatives of the present difficulties addressing boron contamination, nor the potential environmental impacts. The DEIR fails to describe monitoring methods that will safeguard public health in the event of an upset in the desalination process. Furthermore, the DEIR does not include a discussion of the on-going research and possible mitigation of boron contamination to levels considered not significant. JJJJ

7) Public vs. Private Ownership

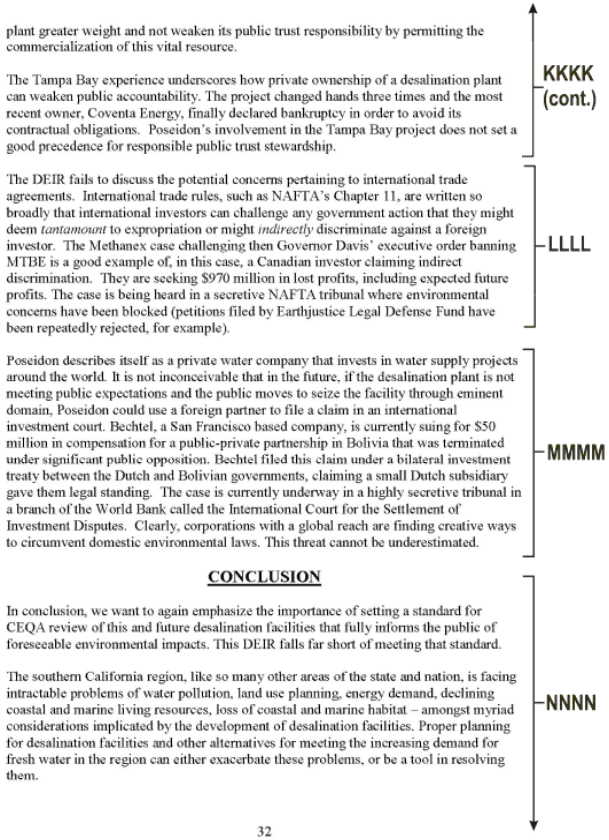
Assuming that the environmental impacts would be the same under either public or private ownership ignores the fundamental motive and fiduciary responsibility underlying private ownership: private profit. Poseidon's foremost goals are to return profit to their investors and protect investor interests, whereas the purpose of a public desalination plant would be to provide a sustainable, environmentally sound water supply with direct accountability to the public. Given that water is a public trust resource, government entities such as the Carlsbad City Council should give public ownership of a desalination KKKK

[41] University of California, Davis. Publication 8066, *Irrigation Water Salinity and Crop Production*, http://anrcatalog.ucdavis.edu/pdf/8066.pdf
University of Tennessee Agricultural Extension. *Irrigation Water Quality for Greenhouse Production*, PB 1617. http://www.utextension.utk.edu/publications/pbfiles/pbl617.pdf

31

effects would never rise to significance in a population of unharvested species and are far below the State's recommendation for managing fisheries for harvested species. The fact that estimated entrainment losses from the project are far below an upper limit that will sustain a fishery of the most vulnerable harvested species provides in-depth assurance of the lack of any significant effect on the remaining entrained species that are not commercially or recreationally harvested because the vast majority of these species are substantially less vulnerable.

56OO See Response 56MM. The power plant and the desalination plant will return 89% of biomass of entrained phytoplankton and zooplankton back into the ocean through the existing power plant discharge where they will be available to serve as food to the pelagic and other marine organisms. Therefore, even after seawater use through the power plant and the desalination plant, this plankton biomass, regardless of whether it is living or dead, will be still available to provide the "organic molecules that sustain life and form basis for pelagic food chains". Therefore, the desalination project will have an insignificant impact on the availability of phytoplankton and zooplankton in the immediate vicinity of the project. The loss of the small amounts of organic material from the returned discharge may be quickly replaced by the rapid reproduction and short generation times of marine phytoplankton and zooplankton. Nearshore nutrients and sunlight generally present in excess would be similarly available at the Encina Power Station discharge site to stimulate both primary and secondary production of diatoms and dinoflagelates in abundant supply and to provide for the secondary of growth and rapid, short regeneration times of holoplankton, such as the ubiquitous copepods and other zooplankton found in the area.



plant greater weight and not weaken its public trust responsibility by permitting the commercialization of this vital resource.

The Tampa Bay experience underscores how private ownership of a desalination plant can weaken public accountability. The project changed hands three times and the most recent owner, Coventa Energy, finally declared bankruptcy in order to avoid its contractual obligations. Poseidon's involvement in the Tampa Bay project does not set a good precedence for responsible public trust stewardship.

KKKK (cont.)

The DEIR fails to discuss the potential concerns pertaining to international trade agreements. International trade rules, such as NAFTA's Chapter 11, are written so broadly that international investors can challenge any government action that they might deem *tantamount* to expropriation or might *indirectly* discriminate against a foreign investor. The Methanex case challenging then Governor Davis' executive order banning MTBE is a good example of, in this case, a Canadian investor claiming indirect discrimination. They are seeking $970 million in lost profits, including expected future profits. The case is being heard in a secretive NAFTA tribunal where environmental concerns have been blocked (petitions filed by Earthjustice Legal Defense Fund have been repeatedly rejected, for example).

LLLL

Poseidon describes itself as a private water company that invests in water supply projects around the world. It is not inconceivable that in the future, if the desalination plant is not meeting public expectations and the public moves to seize the facility through eminent domain, Poseidon could use a foreign partner to file a claim in an international investment court. Bechtel, a San Francisco based company, is currently suing for $50 million in compensation for a public-private partnership in Bolivia that was terminated under significant public opposition. Bechtel filed this claim under a bilateral investment treaty between the Dutch and Bolivian governments, claiming a small Dutch subsidiary gave them legal standing. The case is currently underway in a highly secretive tribunal in a branch of the World Bank called the International Court for the Settlement of Investment Disputes. Clearly, corporations with a global reach are finding creative ways to circumvent domestic environmental laws. This threat cannot be underestimated.

MMMM

CONCLUSION

In conclusion, we want to again emphasize the importance of setting a standard for CEQA review of this and future desalination facilities that fully informs the public of foreseeable environmental impacts. This DEIR falls far short of meeting that standard.

The southern California region, like so many other areas of the state and nation, is facing intractable problems of water pollution, land use planning, energy demand, declining coastal and marine living resources, loss of coastal and marine habitat – amongst myriad considerations implicated by the development of desalination facilities. Proper planning for desalination facilities and other alternatives for meeting the increasing demand for fresh water in the region can either exacerbate these problems, or be a tool in resolving them.

NNNN

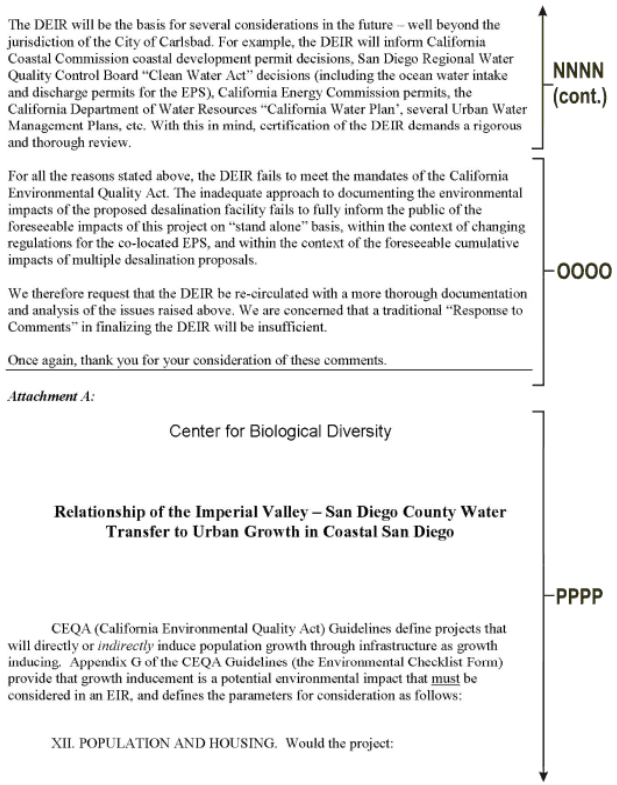
32

56PP See Responses 56MM , NN and OO. The proposed desalination plant is a new facility. Therefore, the proposed desalination facility has no history of impingement/entrainment of species of major concern or any of the other species indicated in the comment. All of the populations of "consideration", assuming the commentator meant to say entrained larval fish, are fully described by larval duration and speed of ocean currents. Based the abundance and rapid generation time of these large numbers of phytoplankton, any potential for the CDF entrainment to impact coastal phytoplankton populations or food chains is too small to realistically assess stochastically.

56QQ See Response 56MM.

56RR The power supply for the Desalination Facility would be from the Encina Power Station (EPS) or the regional grid. If the EPS is the source of the power, the desalination facility would be able to draw power from either Unit 4 or Unit 5, the two newest and largest independent generating units on site. Under this mode of operation, the desalination facility will use approximately 10 % of the generation capacity available from one of the two generating units. An additional 10 % load on an individual generating unit does not represent enough demand to cause the EPS to bring on an additional generating unit, or increase the cooling water flow rate. Typically, once a unit is brought on line, the cooling water system flow rate remains constant. Thus, the EPS would continue to pump the same amount of source seawater for cooling as it does today. The flow rate for Unit 4 and Unit 5 are 304 MGD and 350 MGD, respectively. The existing permit allows the EPS to divert up to 860 MGD.

The desalination facility operations will not require additional seawater use by the Encina Power Generation Station (EPS). After installing the



The DEIR will be the basis for several considerations in the future – well beyond the jurisdiction of the City of Carlsbad. For example, the DEIR will inform California Coastal Commission coastal development permit decisions, San Diego Regional Water Quality Control Board "Clean Water Act" decisions (including the ocean water intake and discharge permits for the EPS), California Energy Commission permits, the California Department of Water Resources "California Water Plan', several Urban Water Management Plans, etc. With this in mind, certification of the DEIR demands a rigorous and thorough review.

NNNN (cont.)

For all the reasons stated above, the DEIR fails to meet the mandates of the California Environmental Quality Act. The inadequate approach to documenting the environmental impacts of the proposed desalination facility fails to fully inform the public of the foreseeable impacts of this project on "stand alone" basis, within the context of changing regulations for the co-located EPS, and within the context of the foreseeable cumulative impacts of multiple desalination proposals.

We therefore request that the DEIR be re-circulated with a more thorough documentation and analysis of the issues raised above. We are concerned that a traditional "Response to Comments" in finalizing the DEIR will be insufficient.

Once again, thank you for your consideration of these comments.

OOOO

Attachment A:

Center for Biological Diversity

Relationship of the Imperial Valley – San Diego County Water Transfer to Urban Growth in Coastal San Diego

CEQA (California Environmental Quality Act) Guidelines define projects that will directly or *indirectly* induce population growth through infrastructure as growth inducing. Appendix G of the CEQA Guidelines (the Environmental Checklist Form) provide that growth inducement is a potential environmental impact that must be considered in an EIR, and defines the parameters for consideration as follows:

XII. POPULATION AND HOUSING. Would the project:

PPPP

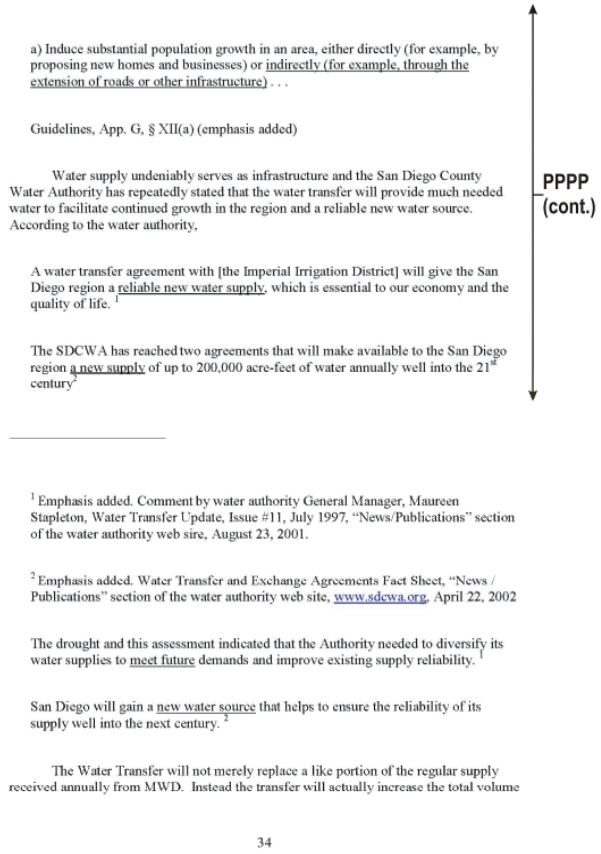
33

desalination facility, the EPS will continue to pump the same amount of source seawater for cooling as is used today. The EPS permit allows the generation station to take up to 860 MGD for 24 hours per day and 365 days per year without any constraints on the time of the day, year, or the frequency of operation at this condition.

The impingement and entrainment effects of the desalination plant are addressed in Section 4.3 of the Draft EIR. As indicated on page 4.3-36 of the Draft EIR, "The desalination plant feed water intake will increase neither the volume, nor the velocity of the EPS cooling water intake, nor will it increase the number of organisms entrained or impinged by the EPS cooling water intake structure."

As indicated on page 4.3-35, "The Carlsbad Desalination Plant will not have a separate direct lagoon or ocean intake and screening facilities, and will only use cooling water that is already screened by the EPS intake."

A comprehensive analysis of the desalination plant discharge impact was completed under a number of scenarios reflective of both the normal power plant operations and historical extreme operational conditions identified over the 20.5-year period of plant operations. The results of these analyses are presented in Appendix E of this draft EIR and summarized in section 4.3, Biological Resources of the Draft EIR. The impingement and entrainment effects attributed to the desalination plant operations were estimated under a monthly maximum desalination plant intake flow of 106 MGD, as stated in Section 4.3 of the Draft EIR. As indicated in Section 3, Project Description, of the Draft EIR, the average desalination plant intake flow is 104 MGD. These flow rates are well within the actual historic baseline flow range of power plant operations defined in Appendix E.



a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through the extension of roads or other infrastructure) . . .

Guidelines, App. G, § XII(a) (emphasis added)

Water supply undeniably serves as infrastructure and the San Diego County Water Authority has repeatedly stated that the water transfer will provide much needed water to facilitate continued growth in the region and a reliable new water source. According to the water authority,

A water transfer agreement with [the Imperial Irrigation District] will give the San Diego region a reliable new water supply, which is essential to our economy and the quality of life. [1]

The SDCWA has reached two agreements that will make available to the San Diego region a new supply of up to 200,000 acre-feet of water annually well into the 21st century[2]

PPPP (cont.)

[1] Emphasis added. Comment by water authority General Manager, Maureen Stapleton, Water Transfer Update, Issue #11, July 1997, "News/Publications" section of the water authority web sire, August 23, 2001.

[2] Emphasis added. Water Transfer and Exchange Agreements Fact Sheet, "News / Publications" section of the water authority web site, www.sdcwa.org, April 22, 2002

The drought and this assessment indicated that the Authority needed to diversify its water supplies to meet future demands and improve existing supply reliability. [1]

San Diego will gain a new water source that helps to ensure the reliability of its supply well into the next century. [2]

The Water Transfer will not merely replace a like portion of the regular supply received annually from MWD. Instead the transfer will actually increase the total volume

34

56SS See Response 56C.

56TT See Response 56C.

56UU See Responses 56H and N.

56VV See Response 56H.

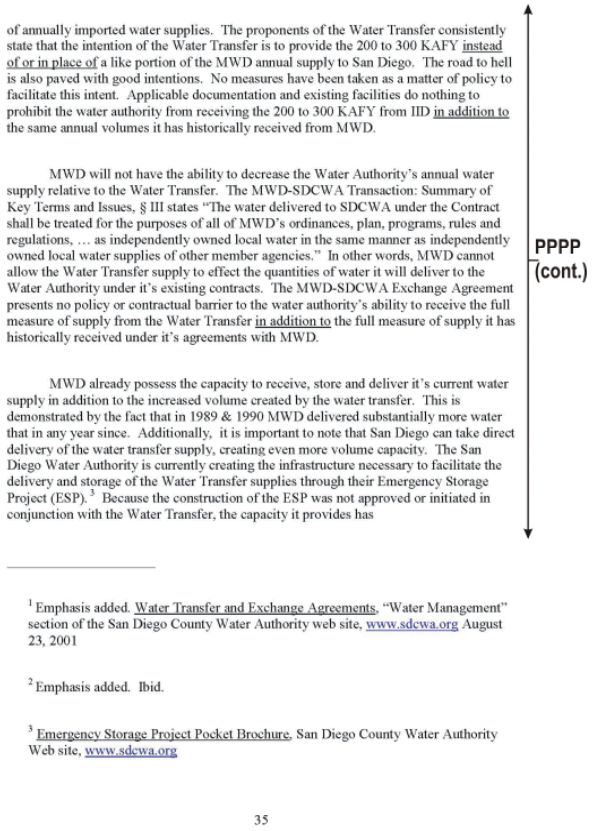
56WW See Response 56F.

56XX See Response 56C.

56YY This comment focuses more on the heating effects on the SKS and NKS and the extent these habitats are contacted by the heated discharge plume under present (no elevated salinity) operating conditions. The Draft EIR refers to the 2005 Jenkins and Wasyl report (as cited in Response 56C), and to a marine biological assessment of the potential effects of the combined discharge by Dr. J. Graham (*Marine Biological Considerations Related to the Reverse Osmosis Desalination Project at the Encina Power Plant, Carlsbad, CA*, April 4, 2005; hereinafter the "Graham report", Draft EIR, Appendix E). Both reports were made available for public review with the Draft EIR.

As detailed in the EIR and in the 2005 Jenkins and Wasyl and Graham reports, the heated-only discharge occurs at the surface and thus mixes slowly as it drifts, in most cases, along shore to the southeast. Details about the extent of the thermal discharge contacting the SKS and NKS are reported in both 2005 Jenkins and Wasyl and the Graham reports. Based on field studies, Graham reports the following for the SKS:

Temperatures as warm as 3^{o}C above ambient contact the northeastern part of the SKS 1% of the time. Temperatures as warm as 2^{o}C above ambient contact the northeastern part of the SKS 25% of the time and extend to cover the entire SKS about 1% of the time.



of annually imported water supplies. The proponents of the Water Transfer consistently state that the intention of the Water Transfer is to provide the 200 to 300 KAFY instead of or in place of a like portion of the MWD annual supply to San Diego. The road to hell is also paved with good intentions. No measures have been taken as a matter of policy to facilitate this intent. Applicable documentation and existing facilities do nothing to prohibit the water authority from receiving the 200 to 300 KAFY from IID in addition to the same annual volumes it has historically received from MWD.

MWD will not have the ability to decrease the Water Authority's annual water supply relative to the Water Transfer. The MWD-SDCWA Transaction: Summary of Key Terms and Issues, § III states "The water delivered to SDCWA under the Contract shall be treated for the purposes of all of MWD's ordinances, plan, programs, rules and regulations, … as independently owned local water in the same manner as independently owned local water supplies of other member agencies." In other words, MWD cannot allow the Water Transfer supply to effect the quantities of water it will deliver to the Water Authority under it's existing contracts. The MWD-SDCWA Exchange Agreement presents no policy or contractual barrier to the water authority's ability to receive the full measure of supply from the Water Transfer in addition to the full measure of supply it has historically received under it's agreements with MWD.

MWD already possess the capacity to receive, store and deliver it's current water supply in addition to the increased volume created by the water transfer. This is demonstrated by the fact that in 1989 & 1990 MWD delivered substantially more water that in any year since. Additionally, it is important to note that San Diego can take direct delivery of the water transfer supply, creating even more volume capacity. The San Diego Water Authority is currently creating the infrastructure necessary to facilitate the delivery and storage of the Water Transfer supplies through their Emergency Storage Project (ESP).[3] Because the construction of the ESP was not approved or initiated in conjunction with the Water Transfer, the capacity it provides has

PPPP (cont.)

[1] Emphasis added. Water Transfer and Exchange Agreements, "Water Management" section of the San Diego County Water Authority web site, www.sdcwa.org August 23, 2001

[2] Emphasis added. Ibid.

[3] Emergency Storage Project Pocket Brochure, San Diego County Water Authority Web site, www.sdcwa.org

35

Thus, slight warming occurs in the SKS under normal Power Plant (heated discharge only) operations.

However, all of this has little relevance to the dispersal and dilution of the combined heated and more saline discharge. As is also detailed in the Draft EIR (Section 4.3, page 4.3-51) and the two appendix reports, dilution and dispersal characteristics of the combined heated and elevated salinity discharge will be different because it will have a greater density than the receiving water and sink. This means it will mix well with the ocean, resulting in less heat reaching the SKS and only a 1-1.5 ppt increase in ambient salinity.

This comment also implies that the contact of slightly elevated salinity water with the SKS and the occasional contact of the combined thermal and elevated salinity discharge with the NKS (North Kelp Stand) will have significant effects on the kelp as well as the organisms dwelling in the kelp habitat.

The SKS occurs about 2000 ft southeast of the discharge channel. As demonstrated in the 2005 Jenkins and Wasyl report, the computational models show that the discharge water reaching the SKS area will have a salinity of 33.8-34.5 ppt, which is only slightly above the ambient ocean salinity of 33.5 ppt. This increase is not sufficient to stress the kelp or the organisms living in it, as verified by both reviews of the scientific literature (Graham report) and the actual salinity tests (Le Page report).

While the slightly elevated salinity effect would be a permanent feature in the SKS habitat, the salinities experienced by organisms will not be high enough to displace any species or to affect the kelp plants.

not been considered in the draft EIR/EIS as involving the construction of new water pipelines or aqueducts, etc.. However, the ESP facilities will not be restricted to storage or delivery capacity

solely for "emergencies." There is nothing to prohibit their use for storage and delivery of water for ongoing urban development as admitted by Water Authority representatives. The ESP capacity will add to the existing capacity, allowing for delivery of the full measure of water volumes historically received from MWD in addition to the water supplied through the Water Transfer Agreement.. These additional facilities are on track to be completed by 2010, in time for the full ramp up of deliveries via the Water Transfer Agreement. [1]

The potential for water supply cutbacks to Southern California would not remove the growth-inducing effects of the Water Transfer in San Diego. In a comprehensive report dated February 11, 2002, titled "Report on Metropolitan's Water Supplies", the MWD clearly details the full list of it's water supply sources, including the capacity to receive, store, and deliver water. The report gives thorough consideration to potential cut backs in Colorado River Supplies, to the projections for all other supply sources based on contractual stipulations and projected cut backs, to projected demands, and to variables in supplies such as drought. The report states "that current practices allow MWD to bring water supplies on-line at least ten years in advance of demand with a very high degree of reliability," and under these projections "reliability could be assured beyond 20 years." This information indicates that there is likely to be no decrease in the volume of water available to San Diego from MWD. Meanwhile, room remains in the overall MWD capacity though the Colorado River Aqueduct and other storage and delivery facilities for additional deliveries. [2]

PPPP (cont.)

Even if under the worst case scenario, MWD were to decrease San Diego's water supply to it's minimum 15% MWD entitlement, the Water Transfer would still be growth inducing. A minimum of 15% of the MWD supply over the past ten years plus the 200 KAFY potentially provided under the Water Transfer would have provided a moderate overall volume increase of 1%. If the equation is considered with the addition of 300 KAFY, the increase jumps to 11%. These increases to a "worst case scenario" water supply are, on their own, growth-inducing. A more likely scenario indicates greater growth-inducement with a continuation of past average MWD supplies at significantly more than 15% (in the range of 26%) in addition to the Water Transfer supplies. On a 10 year historical basis, this would have provided a 30% increase to the Water Authority supply. This increases supply is undeniably growth-inducing. [3] (Please see the attached Chart.) Additionally, if planned SDCWA water Conservation measures are factored in, the amount of available water is further increased, hence greater growth inducement.

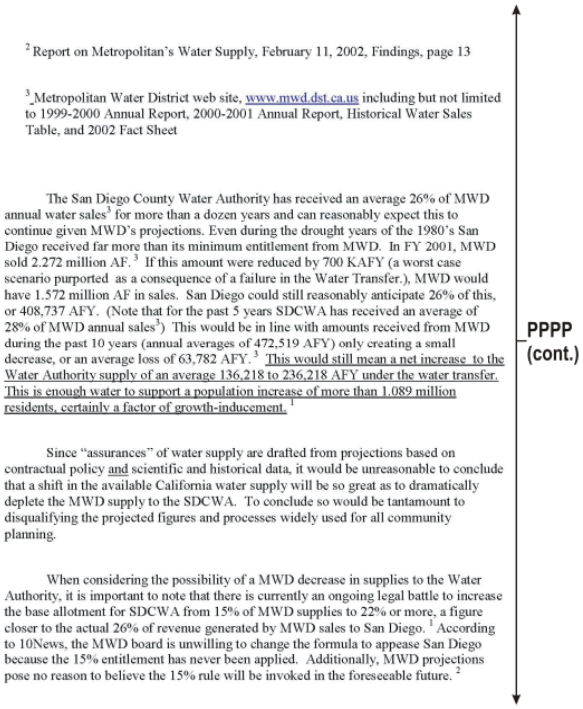
[1] Emergency Storage Project Pocket Brochure, San Diego County Water Authority Web site, www.sdcwa.org

36

Regarding the NKS, this habitat occurs over 3000 ft northwest of the power plant discharge channel. Early data documented cases when the heated only discharge could extend to the NKS. However, the mixing of the heated and desalination byproduct waters markedly changes the distributive functions of the discharge. Computational models in the 2005 Jenkins and Wasyl report show virtually zero probability that under either historical average conditions or worst-case scenarios of power plant flow rate and ocean mixing conditions that any of the combined discharge will reach the NKS. Thus, the NKS will only rarely if ever experience a slight and temporary salinity change (see maps in the Graham report). The major reason for this is the better mixing with the receiving water due to the greater density of the more saline discharge, and the prevailing net flow of shore water toward the southeast.

56ZZ The SKS (Southern Kelp Stand) is located 2000 feet southwest of the discharge channel. As pointed out in the Draft EIR, this area is sufficiently distant from the discharge channel to result in contact by only a very slightly warmer than ambient water in the Power Plant's effluent stream. This thermal effluent does not reach the entire SKS and, having traveled so far, it is only slightly warmer than the ambient water. This level of contact between the thermal discharge and part of the SKS is documented in the Graham report (see Response 56C for a full citation). The Graham report points out that ecological surveys of the entire discharge field conclude there has been no significant effect of this slight warming on the apparent health of the SKS kelp or on the biodiversity of the SKS habitat.

The Draft EIR also reports that computational flow models for the combined heated and hypersaline discharge were developed by Jenkins and Wasyl (See the Draft EIR Appendix report, *Hydrodynamic*



[2] Report on Metropolitan's Water Supply, February 11, 2002, Findings, page 13

[3] Metropolitan Water District web site, www.mwd.dst.ca.us including but not limited to 1999-2000 Annual Report, 2000-2001 Annual Report, Historical Water Sales Table, and 2002 Fact Sheet

The San Diego County Water Authority has received an average 26% of MWD annual water sales[3] for more than a dozen years and can reasonably expect this to continue given MWD's projections. Even during the drought years of the 1980's San Diego received far more than its minimum entitlement from MWD. In FY 2001, MWD sold 2.272 million AF. [3] If this amount were reduced by 700 KAFY (a worst case scenario purported as a consequence of a failure in the Water Transfer.), MWD would have 1.572 million AF in sales. San Diego could still reasonably anticipate 26% of this, or 408,737 AFY. (Note that for the past 5 years SDCWA has received an average of 28% of MWD annual sales[3]) This would be in line with amounts received from MWD during the past 10 years (annual averages of 472,519 AFY) only creating a small decrease, or an average loss of 63,782 AFY. [3] This would still mean a net increase to the Water Authority supply of an average 136,218 to 236,218 AFY under the water transfer. This is enough water to support a population increase of more than 1.089 million residents, certainly a factor of growth-inducement. [1]

PPPP (cont.)

Since "assurances" of water supply are drafted from projections based on contractual policy and scientific and historical data, it would be unreasonable to conclude that a shift in the available California water supply will be so great as to dramatically deplete the MWD supply to the SDCWA. To conclude so would be tantamount to disqualifying the projected figures and processes widely used for all community planning.

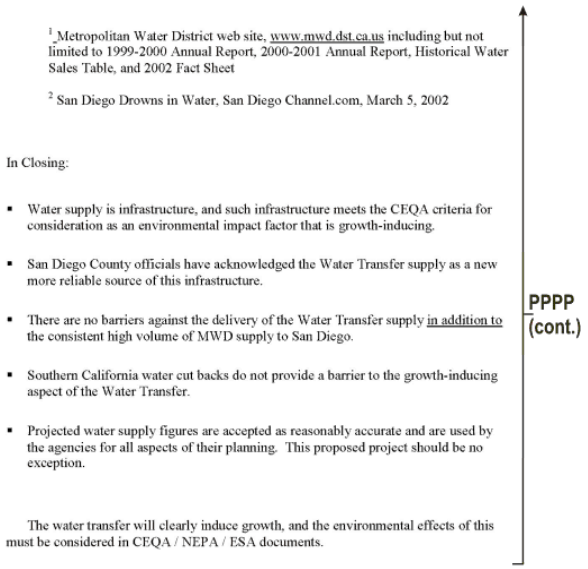
When considering the possibility of a MWD decrease in supplies to the Water Authority, it is important to note that there is currently an ongoing legal battle to increase the base allotment for SDCWA from 15% of MWD supplies to 22% or more, a figure closer to the actual 26% of revenue generated by MWD sales to San Diego. [1] According to 10News, the MWD board is unwilling to change the formula to appease San Diego because the 15% entitlement has never been applied. Additionally, MWD projections pose no reason to believe the 15% rule will be invoked in the foreseeable future. [2]

37

Modeling of Dispersion and Dilution of Concentrated Seawater Produced by the Ocean Desalination Project at the Encina Power Plant, Carlsbad, CA, Part II: Saline Anomalies Due to Theoretical Extreme Case Hydraulic Scenarios,March 7, 2005; hereinafter the "2005 Jenkins and Wasyl Report"). These models show that the combined discharge plume will flow through the more inshore part of the SKS. Under historical average conditions for both power plant flow rate and receiving water mixing conditions, the combined discharge plume flowing through the SKS will have a salinity of 33.8-34.5 ppt, which is only slightly above the ambient ocean salinity (33.5 ppt). Even the models depicting the hypothetical occurrence of historically extreme conditions for receiving water mixing, that are then made even more extreme by the assumption that these mixing conditions would prevail for 30 days (i.e., the worst case scenario), show that the discharge plume contacting the SKS will have a salinity from 34-35 ppt, which is only slightly above the 33.5 ppt ambient. Neither of these salinity extremes are sufficient to affect either the kelp itself or the biota living in the kelp forest.

For this reason and because the salinity tolerance and resistance data obtained by Mr. S. Le Page (*Salinity Tolerance Investigations: A Supplemental Report for the Carlsbad, CA Desalination Project Carlsbad, CA* March 7, 2005; hereinafter the "Le Page report", Draft EIR, Appendix E) show no effect of such salinity levels on aquarium organisms, the behavioral avoidance experiments suggested in this comment are unlikely to provide any useful additional information relevant to the behavior of organisms in the SKS area.

The Huntington Beach Draft EIR referred to in this comment features an entirely different flow-discharge scenario than occurs at the Encina Power Station. At the Encina Plant, the combined heated power plant



[1] Metropolitan Water District web site, www.mwd.dst.ca.us including but not limited to 1999-2000 Annual Report, 2000-2001 Annual Report, Historical Water Sales Table, and 2002 Fact Sheet

[2] San Diego Drowns in Water, San Diego Channel.com, March 5, 2002

In Closing:

- Water supply is infrastructure, and such infrastructure meets the CEQA criteria for consideration as an environmental impact factor that is growth-inducing.
- San Diego County officials have acknowledged the Water Transfer supply as a new more reliable source of this infrastructure.
- There are no barriers against the delivery of the Water Transfer supply in addition to the consistent high volume of MWD supply to San Diego.
- Southern California water cut backs do not provide a barrier to the growth-inducing aspect of the Water Transfer.
- Projected water supply figures are accepted as reasonably accurate and are used by the agencies for all aspects of their planning. This proposed project should be no exception.

The water transfer will clearly induce growth, and the environmental effects of this must be considered in CEQA / NEPA / ESA documents.

38

PPPP (cont.)

discharge and concentrated seawater from the desalination facility exit the site through a channel into the surf zone, which promotes rapid and intense mixing with the ocean water. By contrast, the Huntington Beach discharge is offshore and does not have the benefit of the surf zone mixing, thus a higher salinity in the immediate vicinity of the point the combined discharge enters the receiving water.

The NPDES permit for the power plant establishes a Zone of Initial Dilution (ZID). The ZID is a semi-circle area encompassing an area extending 1000 feet from the end of the discharge channel around to the shoreline on either side of it. The same reference point was adopted for modeling the combined power plant and desalination facility discharge. Accordingly, the Draft EIR and appended 2005 Jenkins and Wasyl report and Graham report describe salinity values at the midpoint of the ZID, outside boundary of the ZID and beyond. It should be noted that there are no kelp stands within the ZID; the SKS is 1000 ft further offshore from the ZID to the southwest of the discharge channel.

The Appendix E reports accompanying the Draft EIR analyze the salinity gradient that will occur within the ZID, that is, from the end of the discharge channel out to distances of 500 ft and 1000 ft. The 2005 Jenkins and Wasyl report shows that, under historical average flow conditions, benthic salinity at a distance of 500 ft from the discharge channel will be 35.2 ppt. At 1000 ft, the edge of the ZID, salinity will be 34.5 ppt. These findings can be seen in Figures 26 and 30 of the 2005 Jenkins and Wasyl report. These figures further show that, under the range of Power Plant flow volume scenarios and receiving water mixing conditions that were modeled for the combined discharge, the probability of a salinity of 37 ppt or greater occurring 500 ft from the discharge channel is less than 5%. Similarly, the probability of a 37

ppt or greater salinity occurring 1000 ft from the discharge channel is less than 2%.

In other words, the models show that, by diluting the desalination plant discharge with cooling water, discharge salinities are kept reasonably close to ambient levels. Based on facts contained in the Graham report and the Le Page report, it can be expected that salinities up to and including 38 ppt would be readily tolerated by the benthic organisms (mainly worms and small mollusks and crustaceans) currently residing in the sandy, sublittoral habitat between the end of the discharge channel and the ZID. Specifically, most of the scientific literature reviewed in the Graham report indicates that chronic exposure to salinities greater than 38 ppt and in some cases as high as 40 ppt would not present long-term tolerance problems for many species, and the Le Page studies document no effect of continuous exposure to elevated salinity and 100% survival by key benthic species in 40 ppt water for as long as 19 days.

Thus, because of the small area within the ZID (1.5 acres of soft bottom habitat) that would be exposed to the salinity increase and the relatively low magnitude of the actual salinity increase within this area (34-37 ppt), avoidance or movement experiments proposed in this comment would not provide useful additional information.

Finally, both the Draft EIR and the Graham report acknowledge that the resulting area of elevated salinity within the ZID could affect the abundance and diversity of the benthic fauna there and could even result in the addition of different species (i.e., species that live in estuaries and bays and which are more tolerant of elevated salinity). If the latter occurs, the behavior and natural history of these new organisms will be highly similar to that of species currently residing

there and thus the biological features of the habitat would not change markedly. It is emphasized again that is area within the ZID is only 1.5 acres and no hard bottom kelp habitat occur there.

In summary, the level of salinity change to be experienced by the SKS habitat is very small and will not affect the organisms living there. Thus, experiments to monitor the behavioral responses to these small salinity changes would not provide useful data regarding the effect of the combined discharge. The elevated salinity area within the ZID will also not be great but could result in the replacement of some organisms by those having a greater salinity tolerance. This replacement would not, however, be the result of animal movements but rather the change in populations over time as larval animals arrive to populate the area.

56AAA See Responses 56ZZ.

56BBB The comment erroneously suggests that the proposed project would result in filling or degradation of a "rare coastal wetland", which is not identified, but presumed to be Agua Hedionda Lagoon. No such impacts are anticipated. The project development site is entirely disturbed, and as noted in previous responses, impacts to "supply water" are fully analyzed in Section 4.3 of the Draft EIR and in the technical studies contained in Appendix E, including a complete assessment of potential impingement and entrainment impacts. See Responses 56C for responses to comments related to EPS cooling water intake.

56CCC The commentor summarizes the conclusion of the growth-inducing impacts discussion from the Draft EIR. The Draft EIR (page 9-5) states that "the (RWFMP) EIR concludes that while the RWFMP may foster additional growth indirectly by removing barriers to growth, it is too speculative to reasonably assess what physical effects on the

	environment may result from the RWFMP's contribution to growth, and therefore, pursuant to CEQA Guidelines Section 15145, the conclusions are noted and the discussion terminated." then further states that "implementation of the proposed project at a local level would have the same potential for growth inducement as the RWFMP, and no additional discussion of potential growth effects are required or necessary." The analysis of growth inducement therefore acknowledges that the project may have indirect growth-inducing effects, but correctly concludes that the extent of those indirect effects cannot be fully quantified without engaging in unreasonable speculation. Additional analysis and conclusions are presented in the Draft EIR for the specific impact that the project would have on growth-inducement locally within the City of Carlsbad. That discussion concludes that because of growth control measures that exist as a result of the City's Growth Management Plan adopted by the voters, there would be no substantial local effect on growth-inducement. That conclusion is different from the overall conclusion that the project may have a significant growth-inducing effect on a regional basis.
	56DDD Comment noted. The Final EIR has been revised to clarify the following: o The delivery area for the desalinated water may include portions of the geographical area served by the Carlsbad Municipal Water District, San Dieguito Water District, City of Oceanside, Olivenhain Water District, Vista Irrigation District, and Vallecitos Water District. o Potential purchasing agencies include the Metropolitan Water District of Southern California (MWD), San Diego County Water

	Authority (SDCWA) and SDCWA member agencies and subagencies. o Specific uses include municipal, industrial and agricultural water uses and potential users include municipal, industrial and agricultural water users. **56EEE** The analysis that this comment references makes conclusions based on actual demand that is realized within each of the potential participating jurisdictions, not on "documentation specifically articulating ….intent to reduce their purchases of imported water". Imported water sales to these agencies are not apportioned, such that new demand requires contractual commitments to increased supplies. It is therefore reasonable to assume that likewise reductions in demand represented by purchase of a local water source would not require written documentation. The assumption that local demand would not increase as a result of a new local water supply is supported by substantial evidence in the record of this project, as outlined in Section 9 of the Draft EIR. **56FFF** Water transfers from the Imperial Irrigation District are noted as a component of existing water supplies in Section 9.2 (page 9-2) of the Draft EIR. However, as also noted, the County Water Authority's Regional Water Facilities Master Plan concludes that imported water supplies, including existing water transfers, need to be supplemented by desalination to meet future water demand and reliability needs. Also see Responses 56D and 56G. **56GGG** The commentor inaccurately characterizes the discussion and conclusions of the Draft EIR relative to growth-inducement. First, the Draft EIR does conclude that the project has the potential to indirectly result in growth-inducement. A distinction is drawn in the Draft EIR

between planned and unplanned growth, because the objective of the analysis is to ascertain to what extent the project would accommodate planned growth versus inducing unplanned growth. It is the latter that is of most concern to the environmental analysis. The City of Carlsbad and other local governments in the San Diego region have each adopted General Plans pursuant to state law which provide for planned growth. Pursuant to CEQA Guideline Section 15125(d), this EIR has discussed the consistency of the proposed project and applicable general plans and regional plans, including the growth which was planned for in those plans. The discussion of potential growth inducement for an EIR for a specific project may rely upon previously adopted General Plans which provide for planned growth within a community. Friends of Eel River v. Sonoma County Water Agency, 108 Cal App. 4th 859, 877.

56HHH It is not the responsibility of the proposed project to conduct regional land use planning, and provide assurances that adequate mechanisms will be in place to accommodate future regional growth. Such analysis is beyond the scope of analysis of the proposed project as required by CEQA.

56III See Response 56HHH.

56JJJ The Draft EIR acknowledges that the project could indirectly result in removal of barriers to growth. Therefore, the commentor's statement that the Draft EIR "appears to dismiss consideration of growth-inducing impacts" is contradicted by statements made by the commentor (See Response 56GGG).

56KKK This comment generally summarizes requirements of recent legislation but fails to indicate the relevance to the proposed project or the environmental analysis. Therefore additional response is not possible.

	56LLL	See Responses 56CCC through 56KKK.
	56MMM	The comment make an unsupported statement that growth induced by the proposed project would "significantly harm biological resources" then proceeds to offer information on the sensitivity of terrestrial ecosystems in southern California. Section 4.3 (*Biological Resources*) of the Draft EIR provides a complete discussion and analysis of potential project impacts to terrestrial biological resources. Specifically, *Table 4.3.2* (page 4.3-31) provides a summary of impacts that would result from project construction, indicating that impacts to native habitats total 5.1 acres. For the reasons discussed in Section 4.3 of the Draft EIR, these impacts are not considered to be significant.
	56NNN	This comment provides information related to the effects of urbanization on biological resources, but raises no specific issues relevant to the environmental analysis for the project. Therefore additional response is not possible.
	56OOO	See Response 56NNN.
	56PPP	See Response 56NNN.
	56QQQ	See Response 56NNN.
	56RRR	See Response 56NNN.
	56SSS	See Response 56NNN.
	56TTT	See Response 56NNN.
	56UUU	See Responses 56CCC through 56KKK.
	56VVV	Please note that a detailed description, characterization and water quality analysis of all waste streams that would be generated at the seawater desalination plant are presented in the report entitled Waste

Stream Characterization, which is included in Appendix C of the Draft EIR. The potential environmental impacts associated with these discharges are presented in Section 4.7 – Hydrology and Water Quality – of the Draft EIR.

56WWW Please note that all spent chemical cleaning solutions generated at the seawater desalination plant are planned to be discharged to the sanitary sewer only. There are no plans to discharge any of the membrane cleaning solutions to the ocean. Therefore, comparing spent membrane cleaning solution water quality to the California Ocean Plan water quality objectives is irrelevant. Table 4.7-5 (page 4.7-23) of the Draft EIR presents a comparison between the projected desalination plant discharge ("RO Discharge Concentration") and the California Ocean Plan (COP) Water Quality Limitations for key water quality parameters. A detailed discharge characterization for all relevant regulatory discharge requirements, including COP limits, is shown in Appendix C, "Waste Stream Characterization".

The commentator's observations about the concentrations of lead, mercury and arsenic in the desalination plant discharge are inaccurate. As shown on Table 4.7-5, the levels of arsenic and mercury in the desalination plant discharge are below the COP water quality objectives, even before the concentrate is diluted with the power plant discharge. As shown in the "Waste Stream Characterization" section of Appendix C of the Draft EIR, the maximum concentration of lead in the desalination plant discharge is 1.18 micrograms/liter. This maximum concentration is lower than COP, Table B limits for lead – the COP's six month median, daily maximum and instantaneous maximum limits for lead are 2, 8 and 20 micrograms/liter, respectively.

		The Encina Water Pollution Control Facility (EWPCF) has been contacted and their staff has reviewed the projected quality of the membrane cleaning solution discharge from the seawater desalination plant. The EWPCF and City staff have confirmed that the discharge of the spent membrane cleaning solutions to the sanitary sewer and its ultimate treatment in the EWPCF are acceptable.
	56XXX	See Response 56K.
	56YYY	The complete characterization of all waste streams is presented in Appendix C of this Draft EIR. The disposal method of the spent membrane cleaning fluid is described in the table describing potential effects of chemical additives on page 4.3-34 of the Draft EIR. As shown on this table, "the spent membrane cleaning fluid" will be treated in neutralization and discharged to the "local sewer system for treatment and disposal". Page 4.11-10, the Draft EIR, again plainly states that "the wastewater from this process [i.e., the membrane cleaning process] would also be discharged to the sanitary sewer for treatment at the EWPCF".
	56ZZZ	Section 5.0 of the Draft EIR contains an analysis of cumulative effects associated with the project, when considered in conjunction with other projects with similar effects, pursuant to the requirements of Section 15130 of the CEQA Guidelines. The Draft EIR provides an analysis of potential cumulative effects of other reasonably foreseeable past, present and future desalination projects with similar impacts, including proposed desalination projects in the communities of Dana Point, Long Beach, Huntington Beach, Redondo Beach, Playa del Rey, San Onofre and Chula Vista. The analysis contained in Section 5.0 of the Draft EIR indicates that the proposed project design and operating parameters would not result in significant impacts to marine organisms as a result

of the discharge associated with the proposed desalination plant. In support of this finding are studies pertaining to impingement and entrainment, modeling and prediction of elevated salinity levels, and effects of elevated salinities on marine organisms provided in Section 4.3 and 4.7 of the Draft EIR, and related appendices.

As noted in Section 5.0 of the Draft EIR, specific analyses for each of the cumulative projects that were considered may yield different results, depending on the proposed operational characteristics of each desalination plant and the resources found locally. However, the Draft EIR states that it is reasonable to conclude that the absence of localized impacts to populations of species that occur throughout the cumulative projects study area resulting from the proposed project would indicate that the project's contributions to cumulative effects on marine organisms would be less than significant.

56AAAA The analysis of growth-inducement (Section 9 of the Draft EIR) includes a summary of projections contained in planning documents that address future water demand and supply issues, including the SADAG Regional Comprehensive Plan, the CWA Regional Facilities Master Plan and relevant Urban Water Management Plans. Therefore, growth-inducing effects on a cumulative projects level is discussed and analyzed in the Draft EIR, pursuant to the method of analysis outlined in Section 15130(b)(1)(B) of the CEQA Guidelines. It should be noted however, that CEQA does not require that the environmental analysis for a specific project include analysis of specific growth-inducing effects of other cumulative projects. In the subject case, the cumulative growth-inducing effects are part of the growth inducement analysis.

	56BBBB See Responses 56 ZZZ and 56AAAA.
	56CCCC See Responses 56 ZZZ and 56AAAA.
	56DDDD See Response 56Z.
	56EEEE See Response 56Z.
	56FFFF See Response 56Z. The United Nations (UN) World Health Organization provides drinking water quality guidelines, but these guidelines are not regulations that are automatically applicable to the members of the UN. None of the UN members have actually adopted the WHO limits exactly as they are in the regulations. For example, the drinking water limit for boron for all European Union countries, which are members of UN, is 1 mg/L (i.e. the same as that of the California Department of Health Services). The current drinking water limit for boron in Canada, which is also a UN member, is 5 mg/L. The US EPA is the only relevant regulatory body in the US that establishes drinking water limits at federal level. Currently, the US EPA has not established a drinking water quality limit for boron.
	56GGGG See Response 56Z. The Lead Agency concurs that the information published to date by the Long Beach Water Department (LBWD) indicates that the experimental technology tested by them is inadequate to remove boron at levels necessary to comply with all applicable regulations. Please note however, that the LBWD is not "experimenting with a 2-stage RO process" as stated by the writer but with a 2-stage Nanofiltration Process. As explained previously, nanofiltration membranes have significantly larger membrane pores, which cause small-size molecules such as boron to pass easily through these membranes. The desalination project will use proven, state of the art high-rejection reverse osmosis membranes which have been tested

	for a periods of over two years on the same seawater rather than experimental and unproven technology.
	56HHHH See Responses 56Y and Z.
	56IIII The public health safety of the potable water supplied by this project will be ensured by continuous compliance of the desalinated water with all applicable Federal, state and local regulations that control the quality of the produced drinking water. Appendix C of the Draft EIR describes the scope of a comprehensive product water quality monitoring program (see Product Water Quality section of this appendix). The purpose of this monitoring program is to verify on a regular basis that the potable water produced at the desalination plant and distributed for public supply is in compliance with all applicable regulations, is safe for public consumption and does not represent a public health risk. Appendix C, section "Product Water Quality", of the Draft EIR provides detailed description of the specific source water protection and treatment measures which are planned to be implemented in order to mitigate potential impact of abrupt failures and various potential sources of seawater contamination on the project product water quality.
	56JJJJ The Draft EIR of this project provides an adequate and comprehensive description of the project provisions to protect public health and to address compliance with all applicable product water quality requirements (including boron). The Draft EIR (Appendix C) also describes in detail the distribution system testing and monitoring provisions of the proposed desalination project.
	56KKKK The Lead Agency does not agree that public ownership by itself would result in different types or levels of environmental impacts. Substantial

	evidence in the Draft EIR indicates that the project (privately owned and operated) would fully comply with the Coastal Act, the Clean Water Act, and other environmental laws and regulations. One example of this evidence is the provision in the Water Purchase Agreement between the Carlsbad Municipal Water District and the applicant (Appendix B) that provides that CMWD's obligation to buy water is subject to Poseidon having obtained and maintained all necessary governmental approvals for construction and operation of the project. Specifically: **LEGAL ENTITLEMENTS.** (Page 9 of the Agreement – Appendix B of the Draft EIR) Poseidon, at its sole cost and expense, shall be solely responsible for obtaining and maintaining (or causing its applicable subcontractors to obtain and maintain) any and all permits, licenses, approvals, authorizations, consents and entitlements of whatever kind and however described (collectively, "Legal Entitlements") which are required to be obtained or maintained with respect to the Project or the activities to be performed by Poseidon (or its applicable subcontractors) under this Agreement and which are required to be issued by any federal, state, city or regional legislative, executive, judicial or other governmental board, agency, authority, commission, administration, court or other body or any official thereof having jurisdiction with respect to any matter which is subject to this Agreement, including without limitation the California Coastal Commission, the Regional Water Quality Control Board, the City, the Carlsbad Housing and Redevelopment Commission ("RDA") and the District (each, a "Governmental Authority"). Poseidon also shall be solely responsible for compliance with and for all costs and expenses necessary for compliance with the CEQA, to enable Poseidon to make Product Water available to the District pursuant to this Agreement, and Poseidon shall

		be responsible for initiating any procedures required for compliance with CEQA with regard to this Agreement. The City shall be the "Lead Agency" (as that term is used in CEQA) with respect to the Project and shall include this Agreement as part of the proposed Project which will be subject to environmental review under CEQA. In addition, the City has the right under the agreement to approve any assignee at its sole discretion, and any future assignee must agree to abide by Legal Entitlements.
	56LLLL	The commentors cites the Methanex case in support of their concern that international trade rules, such as NAFTA's Chapter 11, are so broadly written that multinational desalination plant operators may be able to circumvent state and federal laws and regulations intended to protect the environment that they deem to be in conflict with the investment protection provisions of international trade agreements and investment treaties. The California Department of Water Resources had the following to say on this point: "So long as government regulations are applied in the same manner to water projects involving multinational corporations as they are to water projects owned or operated by domestic companies or public utilities, there would be no conflict with international trade treaties." The Department's position applies equally to ownership and operation of the project. Therefore, the Lead Agency does not believe that international trade rules such as NAFTA and the General Agreement on Trade in Services (GATS) apply. However, the applicant has agreed to waive and forebear rights and remedies under these agreements through

provisions that have been included in the Development Agreement.

Further, the Lead Agency does not agree that public ownership by itself would result in different types or levels of environmental impacts. Substantial evidence in the Draft EIR indicates that the project (privately owned and operated) would fully comply with the Coastal Act, the Clean Water Act, and other environmental laws and regulations, including CEQA. One example of this obvious factor is the provision in the Water Purchase Agreement between the Carlsbad Municipal Water District and the applicant (Appendix B) that provides that CMWD's obligation to buy water is subject to Poseidon having obtained and maintained all necessary governmental approvals for construction and operation of the project.

56MMMM The commentor has raised the concern that should the project not meet public expectations, that the applicant could take steps to block public take-over of the project. This is incorrect because the Water Purchase Agreement between the Carlsbad Municipal Water District and Poseidon provides that, in the event of default by Poseidon, the District has the option of terminating the Agreement and taking possession of the project. Therefore, the concern raised by the commentor that eminent domain authority of the District could be thwarted is inapposite, because of the contractual commitments. See also Response 56LLLL.

56NNNN The Lead Agency disagrees with the broad assertions provided in this comment regarding the adequacy of the environmental analysis provided in the Draft EIR. However, the comment lacks sufficient clarity and specificity to afford a more detailed response. Detailed responses to specific comments are provided in Responses 56A through 56MMMM.

	56OOOO See Response 56NNNN. **56PPPP** This comment consists of an attachment entitled "Relationship of the Imperial Valley Water – San Diego County Water Authority Transfer to Urban Growth in Coastal San Diego" prepared by the Center for Biological Diversity. The comment does not identify specific comments related to the environmental analysis for the proposed project, and therefore no additional response is necessary or required.