

- Increased Water Conservation: The Water Authority would need to implement non-cost-effective and unproven BMP's and enforce restrictions that could harm the regions economy and result in a drastic change in lifestyle. Water savings would not be sufficient to offset the estimated long-term demand forecast for 2020. This is elaborated upon further within Response No. 15d.
 - Increased reliance on local supplies (recycled water and groundwater): There are several difficulties that exist for recycled water: public acceptance, distribution costs, water quality, and regulatory issues. Groundwater recovery is limited by cost issues due to the low quality and variability of groundwater in addition to potential environmental impacts due to overdraft.
- 3) "Alternative Site" Alternative: The site would require enough land area for a 50 MGD plant in addition to seawater intake and outfall facilities. The locations evaluated as alternatives to the proposed Project are the agricultural fields east of the EPS across Interstate 5 (I-5), the Encina Wastewater Pollution Control Authority Facility (EWPCF), San Onofre, and the South Bay. Building a seawater desalination plant with the capacity to produce 50 MGD on any of these alternative sites could have greater aesthetic impacts than the proposed Project. In addition, much larger and longer pipeline conveyance facilities would be required to convey the potable desalinated water to the existing Water Authority aqueduct. The additional pipeline would involve greater unavoidable construction impacts.
- 4) "Alternative Seawater Intake" Alternative:

Updated Discussion Regarding "Beachwells" ("Sea Wells", "Collector Wells", "HDD")

Response No. 3j provides an updated discussion of beachwells based upon additional research conducted in response to RSDP DEIR comments.

Summary of Additional Subsurface Intake Alternatives from the RSDP DEIR

- "Collector Well": The construction of at least 50 collector wells along the coast would result in substantial land use, recreational, and aesthetic impacts due to construction of the wells and associated pipelines. A reduction in flow from the aquifer towards the ocean due to seawater extraction may also create environmental impacts due to seawater intrusion. The extent of seawater intrusion into the aquifer is inversely proportional to the flow (discharge) of fresh water to the ocean (Ghyben-Herzberg principle based on the difference in densities between seawater and the relatively fresh water in the aquifer).
- "Infiltration Gallery": It would be difficult to locate and secure enough beach area to construct an infiltration gallery large enough to support desalination operations. Moreover, the construction of a five mile-long infiltration gallery would result in substantial land use, recreational, biological and aesthetic impacts due to the excavation and disturbance necessary for construction. Moreover, the public beach areas nearby the EPS are owned and operated by the California Department of Parks and Recreation, and it is unlikely that a disruption of five miles of beach would be allowed. Also, an infiltration gallery seawater intake system is yet to be proven as a feasible technology for the quantity of feedwater required for the Project.

- "Seabed Filtration System": A seabed infiltration intake system is yet to be proven as a feasible technology for the quantity of feedwater required for the proposed Project.
 - "Off-shore Open Sea Intake System": Whether the pipeline is trenched or constructed via trenchless methods, direct impacts to the seafloor would occur under this alternative, temporarily and permanently disturbing the benthic marine environment. In addition, a new open seawater intake would create some level of entrainment and impingement, even with the implementation of applicable mitigation measures.
- 5) "Alternative Seawater Concentrate Discharge" Alternative:
- Discharge to sewer: There is no existing capacity to discharge the seawater concentrate to the sewer.
 - Land Disposal: Using land disposal is typically used for small scale plants. This is yet to be proven as feasible technology for the proposed Project's desired volume of disposal.
 - Evaporation Ponds: The proposed Project would require over 1,100 acres of evaporation ponds.
 - Zero Liquid Discharge: This technology is unproven and may not be economically feasible.
 - Deep Well Injection: There are no suitable injection zones found within the Carlsbad vicinity for the disposal of seawater concentrate.
 - Ocean Outfall: South Bay is the only other existing ocean outfall with the capacity to dispose of the proposed Projects seawater concentrate. If a new ocean outfall were constructed and operated solely for the purpose of the desalination plant, the pipeline, whether trenched or constructed via trenchless methods, would cause direct impacts to the seafloor, temporarily and permanently disturbing the benthic marine environment. In addition, since this outfall would be utilized for desalination plant purposes only, no dilution of the seawater concentrate would occur. This would likely result in increased marine biological impacts in comparison to the proposed Project.
- 6) "Alternative Method of Seawater Desalination" Alternative:
- Electrodialysis: This method is only effective in situations with limited total dissolved solids content and is generally not efficient for use in seawater desalination.
 - Distillation: This method requires substantially more energy than RO. It produces a heated seawater concentrate (resulting in thermal impacts at the discharge point), encounters frequent corrosion problems, requires a large plant footprint, and has a lower product water recovery rate.
- 7) "Decreased Capacity (25 MGD)" Alternative: This alternative has similar environmental impacts as the 50 MGD project with a slight difference in the facility footprint and conveyance facility impacts. The decreased amount of desalinated water would increase the unit cost of the desalinated water and would only achieve a portion of the primary objective of the project of fulfilling the Master Plan's specific designation for a 50 MGD desalinated seawater plant as a long-term supply of water for the San Diego region. This alternative would require an additional 25 MGD plant elsewhere with a conveyance facility with additional associated environmental impacts.