SECTION 2

Introduction and Project Background

2.1 Purpose of the EIR

The Ocean Water Desalination Project (Project) proposed by the West Basin Municipal Water District (West Basin) includes an initial desalination facility of 20 million gallons per day (MGD) of drinking water (Local Project) and the potential future expansion of the facility to produce up to 60 MGD (Regional Project). As a water wholesaler of the coastal Los Angeles County area, West Basin has significantly reduced its dependency on imported water through recycled water use, public education, and water conservation programs. The Project is proposed to further reduce West Basin's dependency on imported water and to secure water supply reliability by developing a drought-proof, hydrologically independent water supply. The key Project components include an ocean water desalination facility (desalination facility), a screened ocean intake, a concentrate discharge system, and a desalinated water conveyance system. The desalination facility is proposed at two optional sites located within the southern extent of the existing El Segundo Generating Station (ESGS) at 301 Vista Del Mar, in El Segundo, CA.

West Basin is the lead agency under the California Environmental Quality Act (CEQA) and has determined that an Environmental Impact Report (EIR) is required for the proposed West Basin Ocean Water Desalination Project (State Clearinghouse No. 2015081087). This EIR has been prepared in conformance with CEQA (California Public Resources Code [PRC] Section 21000 et seq.); CEQA Guidelines (California Code of Regulations [CCR], Title 14, Section 15000 et seq.); and the rules, regulations, and procedures for implementation of CEQA, as adopted by West Basin. The principal CEQA Guidelines sections governing the content of this document include Article 9 (Contents of Environmental Impact Reports) (Sections 15120 through 15132), and Section 15161 (Project EIR).

Because West Basin intends to apply to the State Revolving Fund (SRF) Program for low-interest loans to public agencies to finance the Project, this EIR is also intended to satisfy the "CEQA-Plus" requirements for the SRF program, as will be discussed in more detail below.

The purpose of this EIR is to analyze potential environmental impacts of the Project and identify feasible mitigation measures to avoid or lessen the potentially significant effects, in accordance with CEQA Guidelines Section 15161.

As referenced in CEQA Guidelines Section 15121(a), the primary purposes of an EIR are to:

- Inform decision-makers and the public generally of the significant environmental effects of a project.

- Identify possible ways to minimize the significant effects of a project.
- Describe reasonable alternatives to a project.

This document analyzes the Project's short- and long-term effects, direct and indirect impacts, and cumulative impacts associated with other past, present, and reasonably foreseeable future projects. Where potentially significant impacts are identified, the EIR specifies mitigation measures that are required to be adopted as part of Project approval to avoid or minimize the significance of impacts resulting from the Project. In addition, this EIR is the primary reference document in the formulation and implementation of the Project's Mitigation Monitoring and Reporting Program (MMRP).

West Basin and other public agencies (i.e., responsible and trustee agencies) will use this EIR in the decision-making or permit process and will consider the information in this EIR, along with other information that may be presented during the entire evaluation process. Environmental impacts are not always mitigatable to a level considered less than significant; in those cases, impacts are considered significant unavoidable impacts. In accordance with CEQA Guidelines Section 15093(b), if a public agency approves a project that has significant impacts that are not substantially mitigated (i.e., significant unavoidable impacts), the agency shall state in writing the specific reasons for approving the Project, based on the Final EIR and any other information in the public record for the Project. This is termed, by CEQA Guidelines Section 15093, a "statement of overriding considerations."

2.2 Project-level and Program-level Analyses in This Draft EIR

CEQA Guidelines Section 15161 defines a project-level EIR as "focusing primarily on the changes in the environment that would result from project development." Project-level analyses examine all phases of a proposed project, including planning, construction, and operation, at a site-specific level. This EIR evaluates construction and operation of the Local Project facilities at a site-specific project level, consistent with CEQA Guidelines Section 15161 and 15378(a). The project-level EIR analysis is based on conservative assumptions, as described in each impact section, with the intent to sufficiently anticipate and address reasonably foreseeable potential environmental impacts. To allow flexibility in the final design and Project implementation, the Local Project addresses two conceptual ocean water desalination facility sites within the ESGS boundaries (i.e., ESGS North Site and ESGS South Site)[1] and conveyance pipeline alignments as explained in Section 3.2.

Under CEQA, a project is defined as "the whole of an action" that could result in direct or indirect environmental effects (CEQA Guidelines Section 15378). For the Project, the whole of the action includes all facilities required to operate up to a 60 MGD desalination project, which includes the Local Project as a 20 MGD increment and an additional increase in facility construction and operation to reach a 60 MGD Regional Project. The Local Project ocean intake

[1] The ESGS North Site is the preferred siting alternative for the ocean water desalination facility. However, this EIR also considers an ocean water desalination facility sited at the ESGS South Site should the ESGS North Site be unavailable. Impacts at both sites are reviewed in this EIR.

and concentrate discharge, ocean water desalination facility, and desalinated water conveyance facilities, together with the incremental contributions to each of these facilities to achieve 60 MGD as defined by the Regional Project, are considered together to compose the West Basin Ocean Water Desalination Project.

This EIR addresses some aspects of the Regional Project (60 MGD) at a "programmatic level," pursuant to CEQA Guidelines Section 15168. A program-level analysis allows a public agency to evaluate the effects of a series of actions that are related geographically and as logical parts in a chain of contemplated actions, as is true for the Local and Regional Projects. The advantages of a program-level analysis include providing more comprehensive consideration of alternatives and cumulative impacts than would be possible for individual actions, and avoiding duplicative reconsideration of basic policy considerations, while also reducing paperwork. West Basin currently plans to first construct the Local Project and then, depending on a variety of factors, proceed in several increments to a larger facility to meet regional water demands. While much of the Regional Project components are analyzed at a project-level, some of the Regional Project's details concerning design and operational characteristics have not been determined, and therefore, they cannot be analyzed at the level of detail required for project-level analysis. In addition, the Regional Project's phasing has not been determined and funding sources or financial partners have not been identified.

The Regional Project would be located with the Local Project site (on either ESGS North or ESGS South); they would not be separated into different sites. For purposes of this EIR, it is assumed that the Regional Project would follow implementation of the Local Project, and would use the same two conceptual ocean water desalination facility sites identified for the Local Project (i.e., ESGS North and ESGS South) and the same general locations for the screened ocean intake, concentrate discharge, and desalinated water conveyance components (with various facility capacity modifications as described in Section 3.2). Once this Draft EIR environmental review process is complete, West Basin will consider whether to approve the Local Project. If the Local Project is approved, West Basin plans to pursue regulatory permits. If and when West Basin considers moving forward with a larger (up to 60 MGD) facility, the specific designs that are known at that time would require subsequent project-level environmental review pursuant to CEQA Guidelines Section 15168(c).Where available, this EIR includes substantial detailed descriptions and analyses, and sufficiently conservative assumptions such that the Regional Project's environmental impact analysis contained herein should minimize the scope of any further CEQA review of the Regional Project. This EIR would provide the basis for any future project-level CEQA analysis for the incremental addition of the Regional Project (CEQA Guidelines Section 15168(d)).

2.3 Need for the Project

California has experienced two sustained and severe state-wide droughts in the past 10 years, both resulting in mandatory supply cutbacks and severe water use restrictions. The drought of 2008–2011 and the unprecedented 5-year statewide drought of 2012–2016 have demonstrated that imported water constraints are an ongoing and frequent occurrence. The severity of the most recent prolonged drought was illustrated through the unprecedented actions taken by Governor

Brown in Emergency Proclamation B 21-13 in 2014 declaring a state of Drought Emergency and in 2015 Executive Order B 29-15 that required municipal water agencies throughout California to reduce total water usage by 25 percent. The emergency was only rescinded in 2017 after an extremely wet winter in Northern California replenished many reservoirs.

The variability in weather is acknowledged by the Department of Water Resources (DWR), "[t]he potential for wide swings in precipitation from one year to the next shows why we must be prepared for either flood or drought in any year. Although this year may be wet, dry conditions could return again next year. 2017 may be only a wet outlier in an otherwise dry extended period" (DWR 2017). The unprecedented imposition by the State during the last drought of a mandatory 25 percent state-wide conservation target underscores the long-term reliability planning presented in West Basin's 2015 Urban Water Management Plan (UWMP) and Water Reliability Program and the objectives to reduce dependence on imported water.

Varying hydrology, future effects from climate change on surface water supplies and the continued regulatory uncertainty surrounding exports from the Sacramento Bay Delta and the Colorado River Basin will continue to contribute to long term water supply reliability challenges unless mitigated. Under the 2009 Delta Reform Act and Water Code Section 85021, it is the State's policy "to reduce reliance on the Delta in meeting California's future water supply needs through a statewide strategy of investing in improved regional supplies, conservation, and water use efficiency." That section also mandates that "each region that depends on water from the Delta watershed shall improve its regional self-reliance for water through investment in water use efficiency, water recycling, advanced water technologies, local and regional water supply projects, and improved regional coordination of local and regional water supply efforts. Further compounding Southern California's imported water supply challenges has been the almost continuous drought in the Colorado River Basin since 2000, which has put tremendous strain on that system.

In assessing local supply availability, the reliability of local groundwater is impacted by legal, water quality, and climate factors. The recent droughts have lowered groundwater tables and reduced the availability of sources of local and imported recharge in West Basin's service area. Certain beneficial uses of recycled water in West Basin's service area are constrained by current source water quality issues.

Considering these multiple challenges to water supply reliability, the State of California through its Water Action Plan, Metropolitan Water District of Southern California (MWD) in its Integrated Resources Plan (IRP), and West Basin through its 2015 UWMP (Section 5, *Water Reliability)* are relying on a strategy of highly reliable local supply development that would be met in part through West Basin's addition of drought-resilient and locally produced ocean water desalination to its water supply portfolio. In addition, ocean water desalination would provide a safe and reliable potable water supply source independent of the various legal and environmental issues that affect the reliability of current supplies and would enhance local control of supplies and water reliability.

The following sections provide background information on available water supplies.

2.3.1 Imported and Local Water Supplies

Imported Water Supply

West Basin has historically relied on approximately 150,000 acre-feet per year (AFY) of imported water purchased from MWD to meet retail customer and groundwater replenishment demands. These demands are met through MWD supplies that originate from the Colorado River and from Northern California through the State Water Project (SWP). As discussed below, MWD's imported supplies have steadily become more restricted due to environmental rulings, limitations on the amount of SWP water available for urban and agricultural use, and ongoing drought in California and the Southwest. These conditions have resulted in partial water allocations for West Basin in 4 of the last 9 years (2010–2011, 2015–2016).

Colorado River Supplies

MWD has a Priority 4 entitlement of 550,000 AFY of Colorado River water under the 1931 Seven Party Agreement that allocated California's share of Colorado River water. MWD has actively developed programs that are intended to provide water above its basic apportionment through land-fallowing programs in the Palo Verde Irrigation District and through water storage, water exchanges, and water conservation activities. These activities are required as part of California as a whole staying within its total 4.4 million acre-feet (MAF) entitlement, while MWD seeks to keep its 1.2 MAF Colorado River Aqueduct (CRA) as full as possible.

The Colorado River Compact of 1922, which established the division and apportionment of water supplies from the Colorado River Basin, was created based on a relatively short hydrologic record of unusually high annual flows that did not necessarily reflect long-term hydrology of the Colorado River Basin. The U.S. Bureau of Reclamation (Reclamation) in its 2018 Operating Plan for the Colorado River found that, although shortages would not be experienced in 2018, "Inflow to Lake Powell has been below average in 14 of the past 18 years (2000 through 2017). This 18-year period is the lowest in over 100 years of record keeping on the Colorado River." A recent agreement with Mexico on shortage sharing strategies with Reclamation and seven states and concern over the increasing likelihood of near-term shortages illustrate pressure on oversubscribed Colorado River supplies (Colorado River Board of California 2017).

The hydrologic and political challenges on the Colorado River increases the difficulty of MWD maintaining a full CRA as well as the increasing likelihood that shortages could affect the availability of its Basic Apportionment of 550,000 acre-feet (AF).

State Water Project Supplies

The California SWP is a water storage and delivery system that stores and distributes water to urban and agricultural water suppliers throughout California. About 30 percent of Southern California's water comes from the SWP, the largest state-built water-and-power system in the nation. The project extends from Lake Oroville in Northern California to Southern California. The SWP serves a population of nearly 25 million Californians from the Bay Area to San Diego and provides irrigation for farmland in the Central Valley. The SWP is operated and maintained by the DWR and includes about 700 miles of open canals and pipelines. MWD is the largest contractor on the SWP system, receiving about 50 percent of the SWP's supplies, roughly 1.2 MAF in an average year (MWD 2017).

The SWP is also operated to improve water quality in the Sacramento–San Joaquin Delta (Delta). The Delta is at the hub of the state's water distribution system, since the SWP relies on Delta water to meet urban and agricultural water demands.

The reliability of the Delta as a water supply source is considered the most pressing among the various challenges to the state's urban water supply. Increased demands over the Delta's resources involving the needs of both in-Delta and export area agricultural/municipal water users have occurred over the past decades. Additionally, variable hydrology and environmental standards that limit pumping operations have resulted in water quality and supply reliability challenges and conflicts for the Delta system. According to the California Water Plan, the Delta is highly susceptible to significant water supply restrictions to many areas of the state (DWR 2014).

In December 2008, the U.S. Fish and Wildlife Service (USFWS) issued a Biological Opinion (BO) on the Long-Term Operational Criteria and Plan (OCAP) for coordination of the Central Valley and State Water Projects (USFWS 2015). According to the BO, the continued operation of these two projects was likely to jeopardize the continued existence of the Endangered Delta smelt and adversely modify its critical habitat. Additionally, in June 2009, the National Marine Fisheries Service released a BO regarding various affected species. These two rulings severely constrained the water projects' operations, resulting in a reduction of water deliveries from the Delta by approximately 20 to 30 percent annually.

Prior to the 2008 BO and OCAP, state and federal agencies began planning in 2006 for what was initially proposed as the Bay Delta Conservation Plan (BDCP). The BDCP envisioned updating the SWP and addressing conflicts between water operations and fish protection by adding new points of diversion in the north Delta and by providing for large-scale species conservation through a 50-year habitat conservation plan (HCP)/natural communities conservation plan (NCCP). In December 2013, the DWR, Reclamation, USFWS, and National Marine Fisheries Service (NMFS) released the BDCP Draft EIR/Draft Environmental Impact Statement (EIS), along with a Draft BDCP document (BDCP 2018). The BDCP also planned for a new conveyance system to address the substantial seismic risk faced by Delta's levees and infrastructure that threatens water supply reliability under present and foreseeable future conditions. According to *SWP Final Delivery Capability Report 2015* Figure 5-2, there is a 40 percent probability of a major earthquake causing 27 or more islands to flood at the same time within the 25-year period from 2005 to 2030. It was also estimated that if 20 islands were flooded as a result of a major earthquake, the export of fresh Delta water could be interrupted for approximately 1.5 years. DWR has identified that a Delta flooding event could result in a drastic decrease or even cessation of SWP exports to address damages. Water supply losses of up to 8 MAF would be incurred by state and federal water contractors and local water districts.

In July 2015, DWR and Reclamation issued a Partially Recirculated Draft EIR/Supplemental Draft EIS (RDEIR/SDEIS) that reflected a change in the federal Endangered Species Act (ESA) permitting from a federal Section 10 HCP and California NCCP approach to a federal Section 7

Consultation and California Fish and Game Code Section 2081 (b). The RDEIR/SDEIS was for the newly renamed California WaterFix and included the new points of diversion contained in the BDCP without the large-scale conservation. In December 2016, a Final BDCP/WaterFix EIR/EIS was released. On June 26, 2017, final BOs were released by the NMFS and the USFWS that found the construction and operations of WaterFix would not jeopardize the future existence of ESA-listed species. On July 21, 2017, California WaterFix was approved by DWR and a Notice of Determination was signed, marking a milestone in the project's environmental review in California.

WaterFix is not focused simply on increasing the amounts of exports from the Delta, but rather to stabilize the system by reducing conflicts with endangered and threatened species that restrict exports to historically low levels. WaterFix, if implemented, is expected to provide a more reliable supply and to work in tandem with storage of surplus water in wet years for use in dry years when exports will be limited to protect fish and water quality. In late 2017 and early 2018, implementation of WaterFix has become more uncertain due to decisions by individual federal and state contractors to financially commit to the Project's construction. In February 2018, DWR notified public water agencies that it proposes to build WaterFix in two stages. The first stage includes constructing two intakes, one tunnel and one pumping station capable of conveying 6,000 cubic feet per second (cfs). The next stage would involve building a third intake, second tunnel, and second pumping station for the remaining 3,000 cfs envisioned under WaterFix. At the February 2018 MWD Board of Directors meeting, discussions restarted over implementing a single-phase 9,000 cfs project with SWP contractors and MWD taking on the bulk of financial commitments. With a significant period of litigation anticipated from opponents, continued discussions over project phasing and financial commitments, and a very long construction period, actual operation of WaterFix facilities is estimated to be approximately 15 to 20 years in the future. Assumptions contained in West Basin's 2015 UWMP and derived from MWD's IRP and 2015 UWMP. MWD's IRP assumes that even under implementation of WaterFix, MWD's service area must develop an additional 230,000 AFY of new water supply within the planning period (MWD 2016).

Until water supply and species conflicts in the Delta are resolved or substantially mitigated through physical solutions such as WaterFix, reliability of SWP supplies will continue to be uncertain and the likelihood of shortages remain high. In 2015, DWR released its *State Water Project Final Delivery Capability Report 2015*, which provides current and future (2035) estimates of water delivery by the SWP. This report includes potential factors that can affect SWP deliveries and include: climate change, sea-level rise, restrictions of SWP operations from state and federal regulations protecting endangered and threatened species, and vulnerability of delta levees to floods and earthquakes. As of November 2015 (DWR 2015), DWR estimated that in 2033, SWP deliveries could be 62 percent of long-term average Table A[2] deliveries, with extended drought periods producing as low as 11 percent of Table A deliveries.

[2] DWR identifies the 29 SWP contracting agencies and their maximum yearly water allocations in "Table A."

Groundwater Supply

West Basin overlies nearly all of the adjudicated West Coast Groundwater Basin (WCGB). The WCGB is the only other potable supply available to certain water retail agencies and cities with groundwater rights within West Basin's service other than imported water. With the consideration of water conserved through water conservation, groundwater production by these retail agencies and cities accounts for approximately 18 percent of total water demand and this is expected to remain constant to the year 2040 (West Basin 2016).

The WCGB underlies 160 square miles in the southwestern part of the Los Angeles Coastal Plain in Los Angeles County. The WCGB extends southwesterly along the coast from the Newport-Inglewood Uplift to the Santa Monica Bay. Extensive overpumping of the Basin that occurred in the early 1940s led to critically low groundwater levels, which resulted in seawater intrusion along the coast. In 1961, the WCGB was adjudicated to limit the allowable annual extraction of groundwater from WCGB by water rights holders to 64,468.25 AFY in order to prevent future seawater intrusion (WRD 2017). As part of the adjudication, the court appointed DWR to serve as Watermaster to account for all water rights and groundwater extraction amounts per year. Since the adjudicated groundwater production is substantially higher than the natural recharge of the WCGB, the California State Legislature in 1959 created the Water Replenishment District of Southern California (WRD) to manage, regulate, and replenish the WCGB. Each year, WRD determines the amount of supplemental recharge that is needed for the WCGB based upon annual groundwater extractions and groundwater levels. As part of the recharge and protective duties, WRD procures imported water and recycled water for the West Coast Basin Barrier Project and Dominguez Gap Barrier Project to protect the WCGB by preventing seawater intrusion.

Approximately 11 cities and unincorporated areas of Los Angeles County within the West Basin service area hold the groundwater rights to WCGB. The average production by these groundwater rights holders between 2005 and 2015 was approximately 42,000 AFY, which accounts for 17 percent of total water demands within West Basin's service area (WRD 2017). The groundwater extraction in the WCGB has been in decline since 2011, with the extracted volume recorded in Fiscal Year 2015-16 of approximately 31,600 AFY (WRD 2017). The drivers for declining utilization of the adjudicated extraction rights are manifold. Historical contamination from leaky underground storage tanks and seawater intrusion have made finding groundwater of high quality within the WCGB challenging. Additionally, surging real estate prices and competition for land have made acquiring suitable sites that can produce high quality of groundwater with minimum treatment costly. If treatment is needed, high land costs compounded with high treatment costs further discourage retailers and other groundwater right holders to use such a resource when more economical imported water is readily available.

Although West Basin does not supply groundwater to retail agencies, it does supply a portion of the supply used for groundwater replenishment. In 2014, customer agencies operating within West Basin's service area extracted 31,288 AF of groundwater from the WCGB; however, WRD replenished 18,198 AF and 3,460 AF into the West Coast Barrier and Dominguez Gap Barrier, respectively (West Basin 2016). Although pumping rights are established, the reliability of groundwater is limited by the adjudication.

The Los Angeles County Department of Public Works owns, operates, and maintains the injection wells of the seawater barrier systems. As mentioned, WRD determines how much barrier injection water is required to maintain protective levels to protect the aquifers from seawater intrusion. WRD also determines how much water is needed to replenish the Basin to support pumping and orders this amount of water from West Basin, who then delivers advanced treated recycled water, and, if needed, the supply is supplemented with imported drinking water to meet the volumetric requirement. The local groundwater supplies are not only restricted because of Basin adjudication, but are also more limited due to seawater intrusion (noted above) and other localized areas of groundwater contamination.

West Basin's C. Marvin Brewer Desalter (Brewer Desalter), a partnership between West Basin and California Water Company (CalWater), treats brackish groundwater from the WCGB using CalWater's groundwater rights. Through a reverse osmosis (RO) treatment system whereby salt is removed from the water, the Brewer Desalter produces 5 MGD of high-quality drinking water to CalWater's customers. Groundwater pumping trends have decreased in recent years as a result of MWD[3] and WRD in-lieu incentive programs, which were enacted to reduce Basin pumping in order to lower annual Basin overdraft and decrease the Basin's artificial replenishment needs. These programs encourage Basin pumpers to purchase available imported water supplies instead of groundwater supplies by offering discounted imported water supply rates. Water quality issues and permit challenges have further decreased trends in Basin pumping. In addition, many of the private water retailers within the West Basin service area have historically preferred purchasing imported water supplies over groundwater supplies.

Recycled Water Supply

West Basin is a recognized world leader in water recycling because of early adoption and implementation of a Recycled Water Program for non-potable and indirect potable reuse through groundwater replenishment. West Basin's transformation from imported water wholesaler to a leader in conservation and water recycling can be traced back to California's severe drought period between the late 1980s and early 1990s. In 1992, West Basin received state and federal funding to design and build a world-class, state-of-the-art water recycling treatment facility in the city of El Segundo. The facility, known as the Edward C. Little Water Recycling Facility (ECLWRF), is the flagship of West Basin's Recycled Water Program and includes a visitor education center to promote water awareness, water recycling, and water conservation to the public.

Since 1994, when the ECLWRF began operation, West Basin has continued to expand and invest in water recycling for its service area. Through continued planning, investment, and expansion, West Basin's Recycled Water Program currently consists of more than 110 miles of recycled water distribution pipeline, four treatment facilities, three remote pump stations, two disinfection stations, and more than 330 commercial and industrial recycled water customer connections. Today, the West Basin Recycled Water Program produces approximately 40 MGD of non-potable and indirect potable reuse water, and relies on a long-term partnership with the City of

3 MWD stopped providing seasonally discounted In-Lieu water in 2011.

Los Angeles for access to secondary effluent from the Hyperion Water Reclamation Plant (Hyperion).

West Basin's Recycled Water Program is the first in the country to produce "designer" or custom-made recycled water that meet the unique needs of West Basin's municipal, commercial, and industrial customers. West Basin's customer uses vary, but are defined in CCR Title 22, Division 4, Chapter 3 for Water Recycling Criteria. The customer uses predominantly include irrigation, cooling, industrial boiler feed, and groundwater recharge–subsurface application. To meet specific customer needs, West Basin produces five distinct qualities of recycled water, including disinfected tertiary recycled water, nitrified-disinfected tertiary recycled water, low-pressure boiler feed recycled water, high-pressure boiler feed recycled water, and seawater intrusion barrier recycled water.

West Basin continues to explore the expansion of its Recycled Water Program and intends to increase capacity to allow for the recycling of 70 MGD of secondary effluent. To prepare for that eventuality, West Basin is currently adding additional capacity and electrical reliability to its secondary effluent pump station located at the Hyperion. Expansion of West Basin's Recycled Water Program has been impacted from a problematic decline in source water quality from Hyperion. High turbidity and ammonia levels in the secondary effluent delivered to the ECLWRF have resulted in suspension of some industrial recycled water deliveries or, in some instances, replacing recycled water for industrial customers with imported water service.

West Basin has entered a three-party Memorandum of Agreement (MOA) between West Basin, the Los Angeles Department of Sanitation (LASAN) and the Los Angeles Department of Water and Power (LADWP) to investigate treatment improvements at Hyperion that would allow for the optimization and expansion of the West Basin Recycled Water Program. Specifically, the MOA includes the design, construction, and operation of a Membrane Bio-Reactor (MBR) pilot project that would inform the design for a 70 MGD retrofit of a portion of the existing Hyperion treatment system. Any further investigations beyond the pilot project would require subsequent interagency agreements between LASAN, LADWP and West Basin for additional planning and design, construction and operation of facilities as well as the assignment of cost responsibilities for financing and operating the project.

The future 70 MGD MBR project would also include extension of West Basin's recycled water distribution system to allow 16 MGD of the 70 MGD to be delivered to LADWP customers in the LA Harbor area. West Basin's Recycled Water Program includes the production of approximately 15 MGD of indirect potable reuse (IPR) for the West Coast Basin Barrier Project, which offers a secondary benefit of replenishment for the WCGB. The 70 MGD MBR project noted above could allow West Basin to increase its IPR production to 16 MGD in order to completely offset the use of imported water for WCGB injection. Although West Basin is the water provider for the WCGB for IPR purposes, it does not have groundwater rights to extract the replenished groundwater, as some local retail agencies and cities do.

There are currently no regulatory pathways to allow for implementation of direct potable reuse (DPR) projects, and as such, West Basin's Recycled Water Program does not include DPR; refer to Section 7, *Alternatives to the Proposed Project*.

Summary of Need for Project

The proposed Project is necessary due to increasingly more frequent and severe prolonged drought conditions, coupled with current and anticipated future limitation in the long-term reliability of imported and groundwater supplies, which account for 63 percent and 20 percent of West Basin's total water supply portfolio (in 2020 without accounting for conservation). With West Basin's near-term and long-term reliability being interconnected with the availability of imported supplies, the strategy of diversification and reducing dependence on imported water has proven to be the most effective path forward, the proposed Project is necessary to further reduce West Basin's reliance on imported water and increase its drought and climate change resiliency. As discussed in Section 7*, Alternatives to the Proposed Project*, increased conservation and currently feasible water recycling alone are not capable of fully offsetting these water supply limitations. The timing of need for the Project is further driven by the uncertainty as to the schedule for final implementation of California WaterFix or other improvements to the reliability and dependability of the SWP. Best-case estimates from the state and federal lead agencies for commencement of operations is 15 to 20 years.

Further, the Project would provide the only hydrologically independent, locally controlled water supply source for the West Basin service area.

The following issues provide a summary of the project need:

- MWD's imported SWP supplies face severe restrictions due to environmental rulings, regulatory limitations on the amount of water supply that can be exported from the existing facilities for consumptive use, and more frequent and extended periods of drought and unfavorable hydrologic conditions. These factors have resulted in water rationing for West Basin in 4 of the past 9 years (2010–2011, 2015-2016)). Final implementation of California WaterFix is uncertain and at best case is 15 to 20 years from commencement of operations, leaving the MWD service area vulnerable to continued shortages and export restrictions.
- Competing demands for the Delta's resources from in-Delta users and agricultural/municipal water exporters and environmental and water quality needs are anticipated to continue. If WaterFix is implemented in the best-case 15- to 20-year timeframe, compliance with ESA incidental take permits under federal Section 7 Consultation and California Fish and Game Code Section 2081 (b), as well as the volume of exports, are more uncertain than envisioned under the BDCP HCP/NCCP 50-year permits.
- Delta levees and infrastructure face substantial seismic risk that threatens water supply reliability under present and foreseeable future conditions.
- MWD's imported Colorado River supplies have experienced an extended period of drought and unfavorable hydrologic conditions since the early 2000s with record low levels of system storage. These conditions have resulted in multi-state and international discussions to revise shortage sharing rules on the Colorado River, which could make it more challenging for MWD to maintain a full CRA and, under extreme circumstances, impact California's and MWD's basic apportionment of water and efforts at shortage sharing. These factors have

further contributed to the need by MWD and its member agencies to increase the amount of local supplies in the service area.

- The existence of high-saline and other localized contamination impacts the groundwater supply's usability. Although there are plans to increase extraction of the WCGB at a regional level, given the constraints of the Basin adjudication, extensive use of groundwater, brackish or fresh, will be limited.
- Secondary effluent produced at the Hyperion facility and delivered to West Basin for recycling has experienced high levels of turbidity and ammonia that is restricting the ability of West Basin to beneficially reuse recycled water, requiring advanced treatment for delivery of higher-quality water, including indirect potable reuse. Additionally, the expansion of recycled water production and use under the City of Los Angeles's OneWater Program is expected to limit West Basin's recycled water program's ability to access no more than 70 MGD of effluent for recycling. Considering contractual obligations to non-West Basin service area customers, LADWP, and the City of Torrance, as well as treatment losses, there will only be approximately 38 MGD of non-potable and potable reuse water remaining for West Basin's service area. Expansion of West Basin's recycled water program is contingent on the negotiation and execution of interagency agreements with LADWP and LASAN.

2.3.2 State and Local Water Supply Plans

The Project would assist West Basin in fulfilling the water supply obligations outlined in several adopted state and local plans. As discussed below, the proposed Project would demonstrate compliance with the California Water Plan, California Water Action Plan, MWD's Integrated Water Resources Plan, and West Basin's Strategic Business Plan and 2015 UWMP. Each of these plans identifies ocean desalination as a key component of a reliable diverse water supply portfolio. West Basin is committed to diversifying its water supply portfolio by including a full-scale ocean water desalination facility.

Cobey-Porter Saline Water Conversion Law

The Cobey-Porter Saline Water Conversion Law declares that the State has a "primary interest" in the development of desalination projects which could "eliminate the necessity for additional facilities to transport water over long distances, or supplement the services to be provided by such facilities, and provide a direct and easily managed water supply to assist in meeting the future water requirements of the state." (Water Code Section 12946). In addition, the Legislature has found that seawater desalination is feasible and "consistent with both state water supply and efficiency policy goals, and joint state-federal environmental and water policy and principles promoted by the Cal-Fed Bay Delta Program." (Water Code Section 12947(a)). Furthermore, the Law also states that "it is the policy of this state that desalination projects developed by or for public water entities be given the same opportunities for state assistance and funding as other water supply and reliability projects, and that desalination be consistent with all applicable environmental protection policies in the state." (Water Code Section 12947(b)). The Law also states that "DWR shall provide assistance to persons or entities with state and local desalination facility permit applications seeking to construct desalination facilities for reducing the concentration of dissolved solids in brackish groundwater or seawater in the state." (Water Code Section 12948.1)

California Water Plan Update

DWR is currently in the process of preparing the California Water Plan Update 2018. A draft was released in January 2018. Since the previous update in 2013, extreme water events such as droughts and floods have threatened water supplies, decreased agricultural production, increased groundwater overdraft, and harmed ecosystems. The draft California Water Plan Update 2018 reaffirms the State's commitment to an equitable, sustainable future and describes how the State needs to support and empower local and regional entities to make the vision of sustainable water resource management a reality. The draft update identifies ways water managers and users can promote sustainability.

The update identifies local water sources as an integral part in achieving sustainability. According to the draft California Water Plan Update, "Recycled water and desalination, which were once cost prohibitive, are now becoming more viable sources." The update states that local projects, such as desalination, have helped "increase regional self-reliance and resiliency" (DWR 2018).

California Water Action Plan

The California Water Action Plan (Water Action Plan) was originally released under the administration of Governor Brown in January 2014 in response to the state's severe and extended drought (California Natural Resources Agency 2016). The Water Action Plan was produced in a joint effort led by the California Natural Resources Agency (CNRA), California Department of Food and Agriculture (CDFA), and the California Environmental Protection Agency (Cal EPA) in order to address the state's long-term water supply availability issues in light of extended periods of drought. The Water Action Plan addresses several water supply issue areas, including: uncertain water supplies; water scarcity/drought; declining groundwater supplies; poor water quality; declining native fish species and loss of wildlife habitat; floods; supply disruptions; population growth; and climate change. These issues are addressed through 10 Statewide Actions. Statewide Actions identified in the Water Action Plan include:

- Make conservation a California way of life.
- Increase regional self-reliance and integrated water management across all levels of government.
- Achieve the co-equal goals for the Delta.
- Protect and restore important ecosystems.
- Manage and prepare for dry periods.
- Expand water storage capacity and improve groundwater management.
- Provide safe water for all communities.
- Increase flood protection.
- Increase operational and regulatory efficiency.
- Identify sustainable and integrated financing opportunities.

An Implementation Report for the Water Action Plan was submitted to the state legislature in 2015. The Water Action Plan was last updated in 2016 to reflect the State's progress toward the goals identified in the January 2014 document. The Water Action Plan recognizes the importance of supply diversification, including by means of ocean water desalination, to “relieve pressure on foundational supplies and make communities more resilient against drought […] population growth and climate change” (California Natural Resources Agency 2014).

Metropolitan Water District Integrated Water Resources Plan 2015 Update

The IRP 2015 Update is MWD’s strategic plan for water reliability over the next 25 years (through the year 2040) (MWD 2016). The IRP’s framework places an increased emphasis on regional collaboration, as well as continuing its tradition of assessing and adapting to changing conditions facing Southern California. Additionally, it seeks to stabilize MWD’s traditional imported water supplies and continue developing additional local resources. It also advances long-term planning for potential future contingency resources, such large-scale seawater desalination, in close coordination with MWD’s 26 member public agencies and other utilities. Among the IRP’s components is a core resources strategy to manage water supply and demand conditions and to stabilize MWD’s traditional water supply imports (Colorado River and Northern California). In addition to this strategy, MWD and its member agencies propose to increase water supply reliability through further local supply development, including ocean water desalination and demand management.

As part of MWD’s 2000 Seawater Desalination Program, a competitive bid process was released to solicit projects from among its 26 member agencies. The objective was 150,000 AFY, or approximately 134 MGD of sustained production by 2020. West Basin was among the five member agencies that submitted projects totaling a projected yield of 142,000 AFY, or approximately 127 MGD (MWD 2016). West Basin’s 20 MGD seawater desalination project was one of five projects selected through the competitive bid process.

The primary supplies considered for local resource augmentation in MWD’s 2015 IRP (meeting the 20x2020[4] goals) include ocean water desalination. The IRP explains that seawater desalination represents a new local supply that could be used to fill future identified gaps between imported water availability and the overall regional water supply need, as it represents a means to diversify the region’s water resources. According to the 2015 IRP, Table 3-5, which outlines the targets for further development of these local resources, MWD’s target for local resources augmentation (seawater desalination and groundwater recovery) is 194,000 AF by 2020 and 218,000 AF by 2040. IRP Appendix 5, Table A.5-3, which lists the existing and planned ocean water desalination projects in MWD’s Seawater Desalination Program (i.e., those that formed the basis for setting resource targets), identifies the West Basin Seawater Desalination Project as a feasible project producing 22,400 AFY, or approximately 20 MGD.

West Basin 2015 Urban Water Management Plan

As discussed above, MWD has embarked on a comprehensive program to stretch water supplies through a variety of programs, including ocean water desalination. As a member agency of

4 The Water Conservation Act of 2009 calls for the State to reduce per capita water use 20 percent by the year 2020 (20x2020) as part of a larger effort to ensure reliable water supplies for future generations and restore the Delta.

MWD, it is West Basin's mission to provide a safe and reliable supply of water to the retail water purveyors in its region.

The 2015 UWMP details how West Basin manages its water supplies and demands under all hydrology conditions. It also demonstrates how West Basin proposes to meet its service area's retail demands over the next 25 years and provide long-term water reliability. The 2015 UWMP includes the most recent projections of future water demands for its service area through 2040. The 2015 UWMP also concludes that West Basin's projected water demand of approximately 200,000 AFY would be maintained from 2020 through 2040.

Table 2-1 outlines West Basin's service area projected water supply, according to supply source, from 2020 through 2040. As shown, including conservation, West Basin's water supply would range between 198,000 and 206,000 AFY from 2020 through 2040. As also shown, West Basin is projecting to significantly increase current recycled water supplies as well as invest in over 21,500 AFY of ocean water desalination supply. Combined with an additional increase of conserved supply through water use efficiency programs, imported water use by 2040 is expected to be reduced by 15 percent from 2020 levels.

TABLE 2-1
EXISTING AND PROJECTED WATER AVAILABILITY (AFY)

Supplies	2015	2020	2025	2030	2035	2040
Groundwater	32,994	36,293	36,293	36,293	36,293	36,293
Imported Water	105,569	104,426	77,654	77,673	77,913	77,491
Recycled Water	16,707	21,894	27,135	27,135	27,135	27,135
Desalination	690	1,000	22,500	22,500	22,500	22,500
Total	**155,960**	**165,613**	**163,582**	**163,601**	**163,841**	**163,419**
Conservation	28,512	32,280	35,190	37,928	40,255	42,773
Total	**184,472**	**197,893**	**198,772**	**201,529**	**204,096**	**206,192**

The 2015 UWMP also indicates how West Basin plans to provide long-term water reliability through supply diversification. As shown in Table ES-3 of the 2015 UWMP, West Basin projects 21,500 AFY, or approximately 20 MGD of ocean water desalination supply. This ocean water supply, combined with other supplies, would enable West Basin to reduce its overall imported water use.

2.4 Notice of Preparation / Early Consultation (Scoping)

In compliance with the CEQA Guidelines, West Basin has provided opportunities for various agencies and the public to participate in the environmental review process. During preparation of the Draft EIR, efforts were made to contact various federal, state, regional, and local government agencies and other interested parties to solicit comments on the scope of review in this document. This included the distribution of an Expanded Notice of Preparation (NOP) to various responsible agencies, trustee agencies, and interested parties. Pursuant to CEQA Guidelines Section 15082, West Basin circulated the NOP directly to public agencies (including the State Clearinghouse Office of Planning and Research), special districts, and members of the public who had requested such notice. The NOP was distributed on August 31, 2015, with a 45-day public review period concluding on October 15, 2015. The purpose of the NOP was to formally announce the preparation of a Draft EIR for the proposed Project, and that, as the lead agency, West Basin was soliciting input regarding the scope and content of the environmental information to be included in the EIR. The Expanded NOP provided preliminary information regarding the anticipated range of impacts to be analyzed within the EIR. The Expanded NOP and NOP comment letters are provided in **Appendix 1A**, **Expanded Notice of Preparation** and **Appendix 1B**, **NOP Summary Report**.

During the scoping process, certain environmental issues were identified as having the potential for significant environmental impacts. The following issues are addressed in detail in this EIR:

- Aesthetics, Light & Glare
- Air Quality
- Biological Resources – Terrestrial
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Marine Biological Resources
- Noise
- Public Services
- Recreation
- Transportation and Traffic
- Utilities and Services Systems

The following issues identified as "no impact" in the NOP are addressed in Section 8:

- Agriculture and Forestry Resources
- Mineral Resources
- Population and Housing

2.4.1 Public Scoping Meetings

In addition, notice of a public scoping meeting for the Project was included within the Expanded NOP. A public scoping meeting was held on September 30, 2015, at the ECLWRF, located at

1935 South Hughes Way, El Segundo, California. In addition to this public scoping meeting, three additional outreach meetings were held: for the environmental community on September 29, 2015; for neighboring El Porto community residents within 300 feet of the proposed ocean water desalination facility site on September 29, 2015; and for agencies and interested parties on September 30, 2015. These meetings were formatted as an informational open-forum where members of the environmental community, neighboring El Porto residents, public agencies, and interested parties/members of the public could learn about the proposed Project as well as orally present input directly to West Basin, in an effort to assist in further refining the intended scope and focus of the EIR, as described in the NOP. A total of 19 comment letters were received in response to the NOP. The comment letters received during the NOP comment period, along with a summary of the issues raised during the public scoping meetings, are included in Appendix 1B.

2.4.2 Native American Consultation

Pursuant to Assembly Bill (AB) 52, West Basin conducted Native American consultation as part of the CEQA process. In addition to notification through the NOP, Native American tribal consultation was conducted in the fall of 2015, including consultation with the Native American Heritage Commission. AB 52 consultation and correspondence is included in **Appendix 7C, Native American Consultation**.

2.4.3 Stakeholder Outreach

In addition to required public notifications under CEQA, West Basin has implemented an extensive, comprehensive, and ongoing outreach to Project stakeholders, as summarized below:

- **CEQA Public Scoping** – West Basin has exceeded the CEQA requirement of one public scoping meeting as noted above, with three additional outreach meetings for a total of four formal public scoping meetings provided.
- **Regulatory Agency Consultation** – West Basin has been providing regular information on its ocean desalination program to various permitting agencies since early 2000, when the ESGS Desalination Pilot Project was permitted and constructed. Following release of the NOP, West Basin has consulted (mainly through briefings and conference calls) with the following regulatory permitting agencies regarding the proposed Project:
  - U.S. Army Corps of Engineers
  - U.S. Fish and Wildlife Service
  - NOAA National Marine Fisheries Service
  - State Water Resources Control Board
  - Los Angeles Regional Water Quality Control Board
  - State Water Resources Control Board Drinking Water Program
  - California Ocean Protection Council
  - California Coastal Commission
  - California State Lands Commission
  - California Energy Commission

- California Department of Fish and Wildlife
- City of El Segundo

- **Utility Consultation** – In addition to regulatory agency consultation, West Basin has been in ongoing communication with its member agencies, MWD, and other local interest groups. West Basin has been in regular communication with the ESGS property owner, NRG El Segundo Operations, Inc. (NRG).

- **Draft EIR Public Notification** – Although CEQA only requires notification of the general public by one of three methods (newspaper ad, mailing to contiguous property owners and occupants, or posting onsite), West Basin provided both a newspaper notice and a mailing to property owners and occupants within a 300-foot radius of the site. The Draft EIR mailing list was subsequently expanded to include additional areas in the El Porto community south of the site to Rosecrans Avenue. The NOP and Draft EIR were also made available at local public libraries, the West Basin offices, and on the West Basin website.
- **Draft EIR Public Meetings** –West Basin is holding two Draft EIR public meetings to receive public comments on the Draft EIR (refer to the Notice of Availability).

2.5 Compliance with CEQA

2.5.1 Public Review of Draft EIR

The Draft EIR is available to the general public for review at the locations listed below and on the West Basin website at http://www.westbasindesal.org/.

- West Basin Municipal Water District (17140 South Avalon Boulevard, Carson, CA 90746)
- Carson Library (151 East Carson Street, Carson, CA 90745)
- Culver City Julian Dixon Library (4975 Overland Avenue, Culver City, CA 90230)
- El Segundo Public Library Central Library (111 West Mariposa Avenue, El Segundo, CA 90245)
- Gardena Mayme Dear Library (1731 West Gardena Boulevard, Gardena, CA 90247)
- Inglewood Public Library (101 West Manchester Blvd, Inglewood, CA 90301)
- Malibu Library (23519 West Civic Center Way, Malibu, CA 90265)
- Manhattan Beach Library (1320 Highland Avenue, Manhattan Beach, CA 90266)
- Palos Verdes Peninsula Center Library (701 Silver Spur Road, Rolling Hills Estates, CA 90274)
- Redondo Beach Main Library (303 North Pacific Coast Highway, Redondo Beach, CA 90277)
- West Hollywood Public Library (625 North San Vicente Boulevard, West Hollywood, CA 90069)

In accordance with CEQA Guidelines Sections 15087 and 15105, this Draft EIR will be circulated for a 60-day public review period starting on March 27, 2018, and ending on May 25, 2018. The public is invited to comment in writing on the information contained in this document.

Interested agencies and members of the public are invited to provide written comments on the Draft EIR and are encouraged to provide information that they believe should be included in the Draft EIR and identify where the information can be obtained.

Comment letters should be sent to:

Desalination Draft EIR
Zita Yu, Ph.D., P.E., Project Manager
West Basin Municipal Water District
17140 South Avalon Boulevard, Suite 210
Carson, CA 90746-1296
Email: DesalEIR@WestBasin.org

2.5.2 Final EIR

Upon completion of the 60-day Draft EIR public review period, West Basin will evaluate all written comments on significant environmental points received from persons/agencies reviewing the Draft EIR. Pursuant to CEQA Guidelines Section 15088, West Basin will prepare written responses to comments raising environmental issues. Pursuant to CEQA Guidelines Section 15132 (Contents of Final Environmental Impact Report), the Final EIR will be prepared, which will consist of:

a) The Draft EIR and revisions to the Draft
b) Comments and recommendations received on the Draft EIR either verbatim or in summary
c) A list of persons, organizations, and public agencies commenting on the Draft EIR
d) The lead agency's responses to significant environmental points raised in the review and consultation process

Additionally, pursuant to CEQA Guidelines Section 15088 (Evaluation of and Response to Comments), after the Final EIR is completed, West Basin will provide a written proposed response to each public agency on comments made by that public agency at least 10 days prior to certifying the EIR.

2.5.3 Certification of the Final EIR

The Draft EIR, as revised by the Final EIR, will be considered by the West Basin Board of Directors (the decision-making body for the Project) for certification, consistent with CEQA Guidelines Section 15090, which states:

> *Prior to approving a project the lead agency shall certify that:*
>
> *1) The final EIR has been completed in compliance with CEQA;*
>
> *2) The final EIR was presented to the decision-making body of the lead agency, and that the decision-making body reviewed and considered the information contained in the final EIR prior to approving the project; and*
>
> *3) The final EIR reflects the lead agency's independent judgment and analysis.*

Regarding the adequacy of an EIR, according to CEQA Guidelines Section 15151, "An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure."

2.5.4 Project Consideration

After certification of the Final EIR, the West Basin Board of Directors may consider approval of the proposed Project. A decision to approve the Project would be accompanied by specific, written findings, in accordance with CEQA Guidelines Section 15091 and a specific, written statement of overriding considerations if required, in accordance with CEQA Guidelines Section 15093.

2.6 Format of the EIR

The Draft EIR is organized into the following 9 sections:

Section 1, *Executive Summary*, provides summaries of the Project description, environmental impacts, and mitigation measures.

Section 2, *Introduction and Purpose*, provides CEQA compliance information.

Section 3, *Project Description*, provides a detailed Project description indicating Project location, setting, background, and history as well as Project characteristics, objectives, phasing, and associated discretionary actions required.

Section 4, *Basis for the Cumulative Analysis*, describes the approach and methodology for the cumulative analysis.

Section 5, *Environmental Analysis*, contains a detailed environmental analysis of the existing (baseline) conditions, potential Project impacts, recommended mitigation measures, and possible unavoidable adverse impacts.

Section 6, *Other CEQA Considerations*, discusses the long-term implications of the proposed Project. Irreversible environmental changes that would be involved in the proposed action, should it be implemented, are considered. The Project's impacts respective to environmental justice are evaluated (see Section 2.9 below). The Project's growth-inducing impacts, including the potential for population growth impacts, are also discussed.

Section 7, *Alternatives to the Proposed Project*, describes a reasonable range of alternatives to the Project or its location that could avoid or substantially lessen the Project's significant impacts and still feasibly attain the Project's basic objectives.

Section 8, *Effects Found Not to Be Significant*, provides an explanation of potential impacts that have been determined not to be significant.

Section 9, *List of Preparers*, lists the preparers of the EIR and its technical studies, in addition to a summary of the federal, state, and local agencies; other organizations; and individuals consulted.

The appendices contain the Project's technical documentation.

2.7 Responsible and Trustee Agencies

Certain projects or actions undertaken by a lead agency require subsequent oversight, approvals, or permits from other public agencies in order to be implemented. Such other agencies are referred to as Responsible Agencies and Trustee Agencies. Pursuant to CEQA Guidelines Sections 15381 and 15386, as amended, Responsible Agencies and Trustee Agencies are respectively defined as follows:

> *"Responsible Agency" means a public agency, which proposes to carry out or approve a project, for which [a] Lead Agency is preparing or has prepared an EIR or Negative Declaration. For the purposes of CEQA, the term "responsible agency" includes all public agencies other than the Lead Agency, which have discretionary approval power over the project. (§15381)*
>
> *"Trustee Agency" means a state agency having jurisdiction by law over natural resources affected by a project, which are held in trust for the people of the State of California. Trustee Agencies include; The California Department of Fish and Game, The State Lands Commission; The State Department of Parks and Recreation and The University of California with regard to sites within the Natural Land and Water Reserves System. (§15386)*

Responsible and Trustee Agencies and other entities that may use this EIR in their decision-making process or for informational purposes include the following, among others:

- U.S. Fish and Wildlife Service
- National Oceanic and Atmospheric Administration National Marine Fisheries Service
- U.S. Army Corps of Engineers
- California State Lands Commission
- California Coastal Commission
- California Department of Fish and Wildlife
- State Water Quality Control Board
- Local municipalities (City of El Segundo and other Project area jurisdictions)

Refer to Table 3-11 for the complete list of agencies that may use the EIR in their decision-making process.

2.8 Incorporation by Reference

Pertinent documents relating to this EIR have been cited in accordance with CEQA Guidelines Section 15150, which encourages incorporation by reference as a means of reducing redundancy and the length of environmental reports. The following documents are hereby incorporated by reference into this EIR. Information contained within these documents has been used for various sections of this EIR. Copies of these documents are available for viewing in multiple locations or in hard copy for cost of printing at West Basin, at 17140 South Avalon Boulevard, Suite 210, Carson, CA 90746, and on West Basin's Ocean Water Desalination Project website at http://www.westbasin.org/Desal.

West Basin 2015 Urban Water Management Plan. The 2015 UWMP details how West Basin manages its water supplies and demands under all hydrology conditions. It also demonstrates how West Basin proposes to meet its service area's retail demands over the next 25 years and provide long-term water reliability. The 2015 UWMP describes MWD's comprehensive program to stretch water supplies through a variety of programs. The 2015 UWMP identifies ocean desalination as a key component of a reliable diverse water supply portfolio. The 2015 UWMP was used in this EIR as a source of baseline and forecast data for water demand, supplies, and infrastructure. The document is available for review on West Basin's website at http://www.westbasin.org/sites/default/files/documents/uwmp-2015.pdf.

El Segundo Local Coastal Program (Certified July 1980). The *El Segundo Local Coastal Program* (LCP) consists of two elements: Issue Identification and Coastal Zone Specific Plan. The Issue Identification section identifies and summarizes coastal issues relevant to El Segundo. The Coastal Zone Specific Plan provides detailed land use proposals and the implementing ordinances for the city's coastal zone. The LCP is referenced in this EIR as it contains the land use plan, policies, and regulations for El Segundo's coastal zone, where the Project is located. The City of El Segundo LCP can be accessed online at http://www.elsegundo.org/depts/planningsafety/planning/.

California Ocean Plan Amendment. This EIR is intended to support future regulatory agency permits and approvals, including a Water Code Section 13142.5(b) determination pursuant to the State Water Resources Control Board's (SWRCB's) California Ocean Plan Amendment (OPA) adopted in May 2015. A major component of OPA compliance is the 13142.5(b) determination by the Regional Water Quality Control Board in consultation with the SWRCB and other state agencies. The 13142.5(b) determination is required by the OPA to demonstrate that an ocean desalination facility is using the "best available site, design, technology and mitigation" as discussed further below. West Basin has included this analysis of best available site, best available design, best available technology, and best available mitigation measures to determine the best combination of feasible alternatives to minimize intake and mortality of all forms of marine life pursuant to the OPA.

The OPA requires new or expanded seawater desalination plants to use the best available, site, design, technology, and mitigation measures feasible to minimize intake and mortality of all forms of marine life (SWRCB 2015). Consistent with the principles embodied in the OPA, West

Basin's Ocean Water Desalination Project is the outcome of a planning process spanning more than a decade to reduce dependency on imported water supplies as part of West Basin's comprehensive Water Reliability Program. Including ocean desalination as a key component of West Basin's water supply portfolio has been evaluated and documented in numerous state-approved water planning documents including West Basin's 2010 and 2015 UWMPs and MWD's Integrated Regional Water Management Program and 2016 UWMP. The proposed Project represents the culmination of West Basin's stepwise approach in carefully evaluating ocean desalination. This stepwise approach has included extensive pilot testing, siting studies, demonstration testing of full-scale processes, developing a comprehensive Program Master Plan (PMP), and evaluating the feasibility of subsurface intakes. Since 2002, research gathered from these studies has helped formulate various implementation alternatives for the inclusion of a desalinated water supply source into West Basin's water supply portfolio, and has further refined the proposed Project's basic components and objectives. More specifically, numerous studies have analyzed alternative locations for the siting of an ocean water desalination facility, alternative intake/discharge technology, and alternative treatment processes.

2.9 CEQA-Plus

This EIR is intended to satisfy the "CEQA-Plus" requirements for the State Revolving Fund program for low interest loans to public agencies. The SWRCB administers the SRF Loan Program, which is partially funded by the U.S. Environmental Protection Agency (USEPA) and is a low-interest loan funding source for large water and sanitation projects. To receive State Revolving Funds, a Project applicant must demonstrate compliance with several federal regulations, including the ESA, National Historic Preservation Act (NHPA), and the General Conformity Rule for the Clean Air Act (CAA). Rather than utilizing a separate document to comply with the National Environmental Policy Act for the SRF distribution, USEPA uses CEQA in conjunction with the following additional requirements as mandated by ESA, NHPA, and CAA, generally referred to as CEQA-Plus. In addition, the Environmental Justice analysis complies with CEQA-Plus requirements; refer to Section 6.3, *Environmental Justice*.

2.9.1 Endangered Species Act

The purpose of the ESA is to protect and recover imperiled wildlife and plant species and the habitats/ecosystems upon which they depend for survival. Section 7 of the ESA requires federal agencies to use their legal and discretionary authorities to conserve and assist in the recovery of threatened and endangered species. Federal agencies are required to consult with the USFWS to ensure actions they authorize, permit, fund, or implement are not likely to jeopardize the continued existence of the listed threatened or endangered species. To comply with the ESA, a project applicant analyzes the project's effects on threatened and endangered species, as well as any critical habitat designated for any of the species. The applicant uses biological assessments that have been prepared for the Project, as well as any documents pertaining to the Project's effects on listed species and designated critical habitat. If a listed species may be adversely affected by a project, SWRCB staff will confer with the USFWS, and/or NMFS to inform these agencies of project impacts to any federally listed species or critical habitat. If USFWS/NMFS and SWRCB staff determine the project will adversely impact a federally listed species or designated critical habitat, formal consultation is initiated, where USEPA assumes the role as the lead agency. ESA compliance is addressed in Sections 5.3, *Biological Resources - Terrestrial*, and 5.11, *Marine Biological Resources*.

2.9.2 National Historic Preservation Act

Federal agencies are required to determine an SRF project's significant impacts on historic properties pursuant to Section 106 of the NHPA and to initiate consultation with the Advisory Council on Historic Preservation. Historic properties are defined as historic-era buildings, archaeological sites, and traditional cultural properties. USEPA delegates the SWRCB's Cultural Resource Officer the responsibility of carrying out NHPA Section 106 consultation. NHPA compliance is addressed in Section 5.4, *Cultural Resources*.

2.9.3 Clean Air Act

The CAA General Conformity analysis applies only to projects in a nonattainment area or an attainment area subject to a maintenance plan, and is required for each criteria pollutant for which an area has been designated nonattainment or maintenance. If a project's emissions are below the *de minimis* thresholds established for the area and are less than 10 percent of the area's inventory specified for each criteria pollutant in a nonattainment or maintenance area, further general conformity analysis is not required. If a project's emissions are above the *de minimis* thresholds established for the area, a conformity determination must be made. A conformity determination can be made if facilities are sized to meet only the needs of current population projections that are used in the approved State Implementation Plan for air quality (SWRCB 2004). CAA compliance is addressed in Section 5.2, *Air Quality*.

2.10 Project Development Background

West Basin was formed in 1947 as an imported water wholesaler for the southwestern portion of Los Angeles County. West Basin's 185-square-mile service area is composed of 17 cities and several unincorporated areas. As a regional water wholesaler, West Basin purchases water from the MWD as one of its 26 member agencies. MWD obtains water from Northern California (from the SWP) and the Colorado River (from the Colorado River Aqueduct). As of 2015, West Basin serves a population of approximately 813,000 residents within the Los Angeles coastal region and provides recycled water to over 400 sites. Population is expected to increase minimally through 2040 because many cities in the service area are older cities that anticipate reaching build-out in the near-term. Approximately 900,000 people are anticipated to be living in West Basin's service area in 2040, representing an average growth of 0.4 percent annually (West Basin 2016). An elected five-member Board of Directors, each serving a geographic division of the service area, governs West Basin.

Since the severe and extended drought experienced in the region in the 1990s, West Basin has been proactive in improving its service area's water supply reliability, drought resiliency, and water security through demand management such as conservation programs and the production of recycled water to augment industrial and irrigation potable water demand. In 1991, West Basin was an original signatory to the Memorandum of Understanding Regarding Urban Water

Conservation in California and has aggressively pursued demand management opportunities throughout its service area. Through its successful efforts and investments in recycled water, conservation, public education, groundwater replenishment, and ocean water desalination research started in 2000, West Basin continues acting as a leader in water reliability by investing in a well-balanced and water-efficient water supply portfolio.

In January 2008, the West Basin Board of Directors adopted a Strategic Business Plan to address water supply issues through the implementation of various actions, including focusing on producing new sources of local water. The Strategic Business Plan also established a goal to decrease its service area's dependence on drought-susceptible and environmentally sensitive imported water by 50 percent between 2008 and 2015 (West Basin 2008). To achieve this goal, West Basin expanded its recycled water customer base, explored the feasibility of undertaking an ocean water desalination project, and broadened its water use efficiency programs and outreach methods.

To further address water supply issues, West Basin adopted the Water Reliability Program, previously Water Reliability 2020. Water Reliability is a program to reduce dependency on less-reliable imported water supplies. Specifically, Water Reliability proposes to decrease West Basin's imported water supplies from 66 percent to 33 percent and add a new supply to the region—through ocean water desalination—to further diversify its future water supplies by the year 2025 (West Basin 2016). West Basin intends to achieve its Water Reliability goals by more than doubling its effort to recycle water, maximizing its conservation efforts, and increasing its conservation education programs. Specifically, as much as 14 percent of West Basin's dependence on imported water has been shifted to recycled water and conservation, further protecting the service area against drought conditions. West Basin's water supply portfolio is projected to include 43 percent imported water, 21 percent groundwater, 15 percent recycling, 12 percent conservation,[5] and 9 percent ocean water desalination assuming implementation of the Project (West Basin 2016).

Additionally, in response to California's 20x2020 Water Conservation Act of 2009 (SB X7-7), which sets forth a statewide road map to maximize the state's urban water efficiency and conservation opportunities between 2009 and 2020, West Basin has put in motion various measures intended to comply with the Plan (achieve the 20 percent per capita reduction in urban water demand by 2020). West Basin has assessed present and proposed future measures, programs, and policies that would help its retail agencies achieve the goals outlined by SB X7-7. To address SB X7-7, West Basin has partnered with several federal, state, and local entities to

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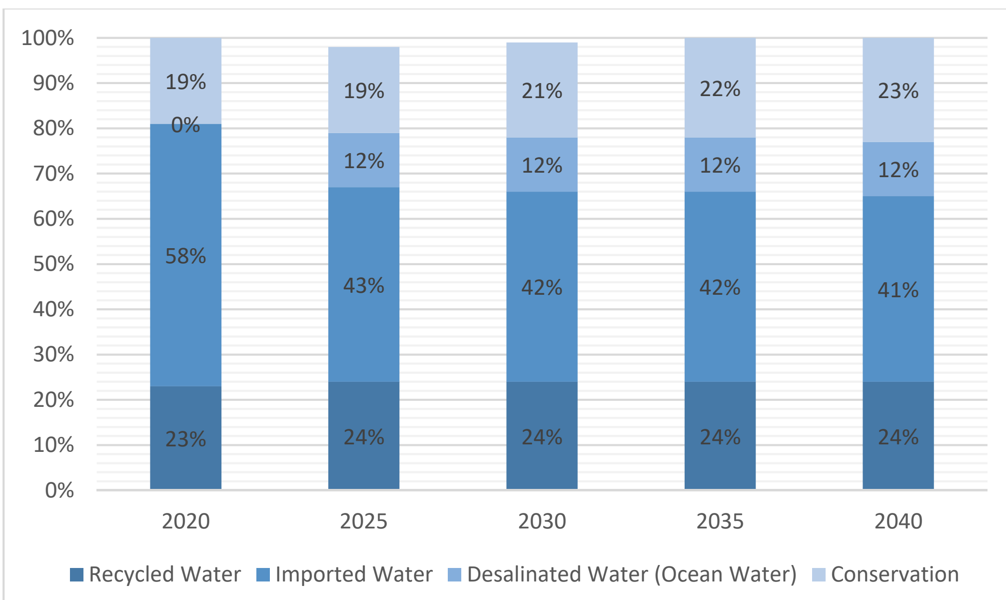
5 West Basin determines conservation consistent with the method used by MWD. Conservation savings are commonly estimated from a base-year water-use profile. Beginning with the MWD 1996 IRP, MWD identified 1980 as the base year for estimating conservation because it marked the effective date of a new plumbing code in California requiring toilets in new construction to be rated at 3.5 gallons per flush or less. Between 1980 and 1990, the MWD service area saved an estimated 250 thousand acre feet per year as the result of this 1980 plumbing code and unrelated water rate increases. Within the MWD planning framework, these savings are referred to as "pre-1990 savings." MWD's conservation accounting combines pre-1990 savings and estimates of more recently achieved savings from the following: active conservation, code-based conservation and price-effect conservation. SB X7-7 (20x2020) requires a 20 percent reduction in urban per capita water use by 2020 as compared to 2009. However, retail water suppliers (wholesalers are not subject to SB X7-7) receive partial credit for past efforts in conservation and recycled water, therefore not all agencies need to reduce per capita demand by an additional 20 percent.

implement active and passive water conservation programs. West Basin's conservation efforts have included a wide variety of cost-effective programs that contribute to conserving water, improving water quality, reducing energy and imported water needs, and increasing water supply reliability for West Basin's customers.

West Basin's 2015 UWMP describes how West Basin plans to provide long-term water reliability through supply diversification and conservation. UWMPs are prepared by California's urban water suppliers to support their long-term resource planning, and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 AF of water annually or serves more than 3,000 urban connections is required to assess the reliability of its water sources over a 20-year planning horizon, and report its progress on 20 percent reduction in per-capita urban water consumption by the year 2020, as specified in the Water Conservation Bill of 2009 SB X7-7. The plans must be prepared every 5 years and submitted to the DWR.

As shown in West Basin's 2015 UWMP Table ES-3 (West Basin's Service Area Projected Water Supply (AFY), along with more than doubling its current recycled water supplies to 27,135 AFY and further increasing conserved supply through water use efficiency programs, West Basin plans over 20,000 AFY of ocean water desalination supply (through the Local Project and subsequent Regional Project that are analyzed in this EIR). This diversified plan would enable West Basin to reduce its overall imported water use by nearly half—from 58 percent in 2020 to 42 percent by 2030 and 41 percent by 2040; refer to **Figure 2-1**.



SOURCE: West Basin Municipal Water District, 2015 Urban Water Management Plan, Figure 4-1, West Basin Service Area Projected Water Supplies, June 2016.

Figure 2-1
West Basin Projected Water Supply

West Basin does not hold any groundwater rights in the region and therefore does not supply groundwater; groundwater is produced and supplied by groundwater rights holders in the West Basin service area; see also Table 3-1, Existing and Projected Water Availability that includes available groundwater within the West basin service area.

As mentioned earlier, in an effort to further reduce dependency on imported water, West Basin has taken a stepwise approach to integrating desalinated ocean water as a portion of its local water supply portfolio. This stepwise approach is described in detail below and has included extensive pilot testing, demonstration testing of full-scale processes, developing a comprehensive ocean water desalination PMP, and evaluating the feasibility of subsurface intakes. Refer to **Figure 2-2** for a brief overview of the research milestones West Basin has completed toward integrating desalinated water into its local water supply portfolio.

The MWD IRP provides a long-term water vision for the MWD service area (including West Basin). The first IRP in 1996 anticipated moments of potential shortages and embodied the lessons learned from a historic drought in late 1980s and early 1990s that prompted a complete rethinking about Southern California water planning. Expectations of adequate imported supplies regardless of hydrology were set aside. In its place, the inaugural IRP envisioned the diversification of water resources to include water conservation and local resource development. It also envisioned a vast storage network of reservoirs and groundwater banks for Southern California. The IRP called for capturing water in wet years, storing those ample supplies for dry years, lowering demand through conservation, and developing a more diverse supply portfolio.

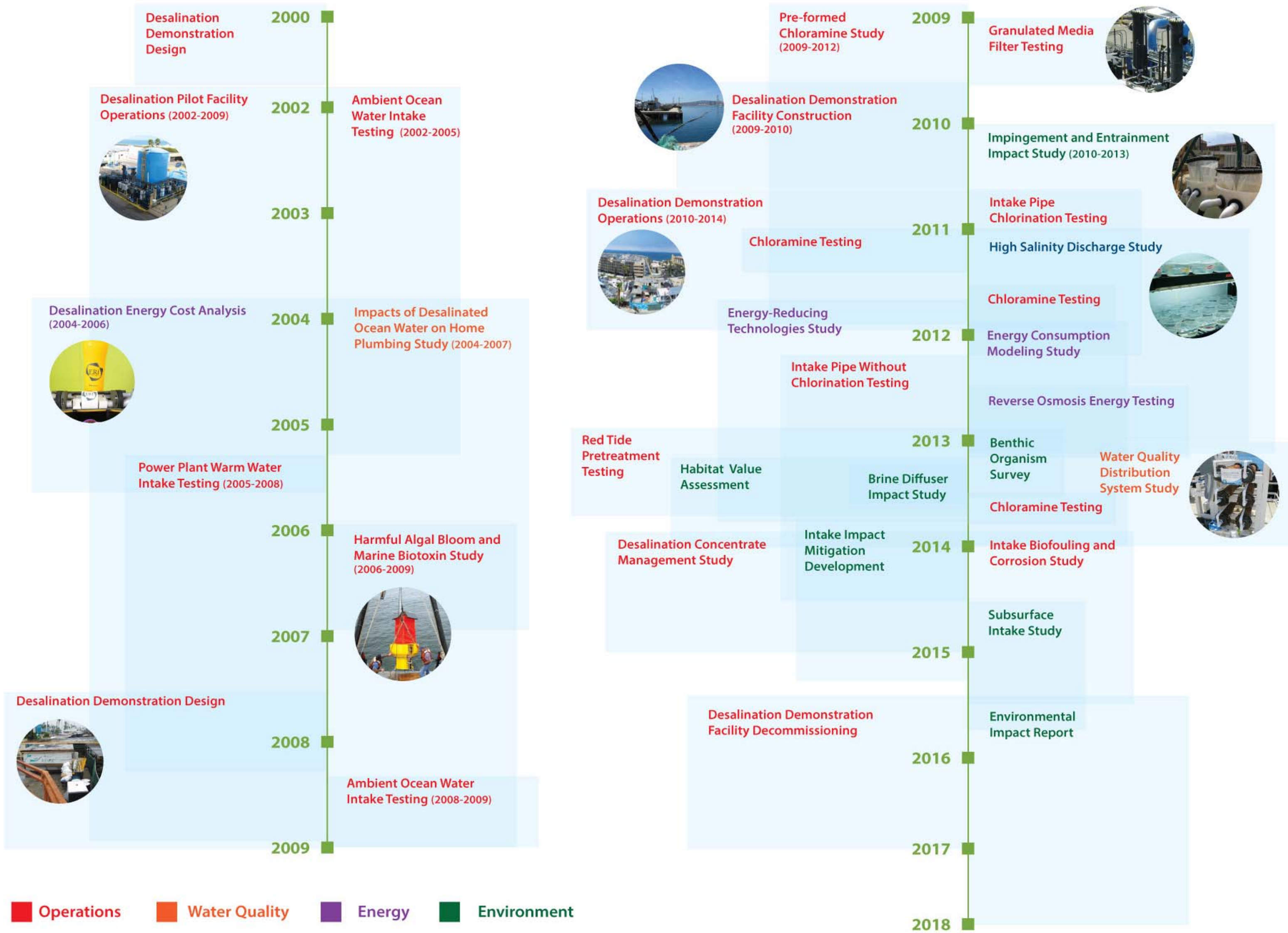


Figure 2-2
West Basin Ocean Desalination Program - Stepwise Approach Timeline

The MWD 2015 IRP identifies the need for 230,000 AFY in new local supply from MWD member agencies by the year 2040. The pool of future projects includes water recycling, groundwater recovery, and seawater desalination projects. West Basin's proposed Local Project is included among the local supply projects noted in the IRP from where the additional 230,000 AFY in additional local supplies will be developed (MWD 2016). The 2015 IRP identifies that in 2040 the conservation target would reduce retail demand for water by approximately 26 percent (or approximately 1,519,000 AFY of the total 5,792,000 retail demand before conservation).

As indicated in the West Basin 2015 UWMP, it is anticipated that MWD imported water would provide 41 percent of the overall West Basin supply in 2040 (and that conservation would reduce the needed water supply by 23 percent) (West Basin 2016). If the 12 percent of supply anticipated to be provided by the Local Project were not to materialize, it is likely that MWD would not be able to provide an equivalent amount of additional imported water and that West Basin would need to seek alternate methods of providing this 12 percent of supply in 2040. As discussed in the Alternatives chapter of this EIR, alternatives to the Local (and Regional) Project(s), including the No Project Alternative, are subject to a number of challenges (see Section 7, *Alternatives to the Proposed Project*). Furthermore, the No Project Alternative could prevent West Basin from exploring the potential of implementing direct potable reuse through raw water augmentation by blending highly treated recycled water with raw ocean water when there is a regulatory pathway to proceed in the future (see Section 7, *Alternatives to the Proposed Project*).

2.10.1 West Basin Pilot Project

During the period of 2000–2009, West Basin performed desalination pilot testing at its Ocean Water Desalination Pilot Project (Pilot Project), located at the ESGS (Separation Processes Inc. 2010). This project was supported by more than a dozen institutions and other interested parties, including water agencies and agricultural associations. By definition, a pilot-scale facility is an early step in the evaluation process that uses small-scale equipment to test for basic water quality and operating parameters as cost-efficiently as possible.

The West Basin Pilot Project had several specific objectives, shown in the chart below, over the course of 7 years of testing, each of which provided data which enhanced and/or influenced the West Basin Ocean Water Desalination Demonstration Facility and ultimately the design of the proposed Project.

Pilot Project Objectives	Benefit to Proposed Project
Documentation of seasonal variations in source water and their impact on treatment performance, including algal bloom events (e.g., red tide)	Provides a large body of source water quality data taken over 7 years to develop an accurate design feedwater quality range.
Evaluation of membrane filtration as a RO pretreatment	Demonstrated the capability of membrane filtration to provide high-quality feedwater to the RO process, thereby minimizing RO membrane fouling.
Strainer evaluation (prior to membrane filtration), including high-rate granular media filtration	Established viability for strainer alternatives for protection of membrane filtration fibers, and benefits of High-Rate GMF during red tide events.
Latest generation of commercial RO membrane evaluation	Provided field data to characterize RO performance for rejection of critical contaminants such as boron and bromate.
Approaches to meet specific stringent product water quality objectives (e.g., chloride, boron, and bromide)	Informed the design of the Demonstration Project regarding membrane selection and second pass RO pH adjustment. Demonstrated complete removal of neurotoxin domoic acid during the study period, including during severe red tide events.
Novel bio-growth control techniques for piping and treatment processes	Established the viability of preformed chloramines as bio-growth control method, later refined in the Demonstration Project.

The core components of the Pilot Project included microfiltration and RO, and processed approximately 40 GPM of ocean water, or approximately 0.06 MGD. Through more than 35,000 water quality tests, over 7 years, the Pilot Project documented wide variations in the source water quality, seasonally as well as year to year. Algal blooms (e.g., red tide) varied in frequency and intensity. Long-term pilot testing allowed for comprehensive characterization of the local source water and development of process design parameters that can operate effectively and efficiently under this range of conditions. Various water treatment technologies were piloted and, in addition to source water, extensive water quality monitoring of the brine discharge and product water were performed. The Pilot Project identified that membrane pretreatment followed by RO effectively treated seawater to meet West Basin's potable water standards, and was successful in identifying optimal design and operating parameters for implementing desalination within its service area.

2.10.2 Ocean Water Desalination Demonstration Facility and Water Education Center

The Demonstration Facility was a temporary installation serving as West Basin's next step of due diligence toward implementing responsible large-scale ocean water desalination for production of potable water. The Demonstration Facility's overall goal was to demonstrate an environmentally responsible, energy-efficient, reliable desalination process (Separation Processes, Inc. 2016). The Demonstration Facility, located at the Science, Education, & Adventure Lab (SEALab), approximately 4 miles south of the Project site in Redondo Beach, completed construction and commenced operation in October 2011. The facility integrated the results of the Pilot Project, and was designed to intake approximately 580,000 gallons per day (GPD) (347 GPM) of ocean water, testing various pretreatment and post-treatment options, with implementation of full-scale components for long-term evaluation. The Demonstration Facility concluded operation in September 2013 and was decommissioned in June 2014.

Demonstration Facility Project Objectives	Benefit to Proposed Project
Successfully demonstrate full-scale treatment equipment	Provided field data to demonstrate design effectiveness and efficiency and develop design parameters for full-scale implementation.
Investigate feasibility of wedgewire intake screen technology in an open ocean environment to reduce marine life effects	Provided field data to develop design criteria and material selection of wedgewire intake screen that are corrosion and biofouling resistant.
Test and evaluate various pretreatment and post-treatment operating conditions	Demonstrated approach to control bio-growth in intake piping through shock chlorination. Established the ability to operate the first-pass RO without antiscalant addition
Evaluate a pressure-exchanger energy recovery device (ERD)	Demonstrated 95 percent efficiency of the ERD, which reduces the RO process energy consumption by 43 percent
Determine the energy consumption of the seawater RO process	Refined the RO membrane selection and two-pass RO configuration to minimize energy consumption and resulting GHG.
Conduct extensive water quality analyses to characterize different stages of the treatment system	Established the requirements for partial two-pass RO operation to achieve target water quality goals (chloride, boron, bromide), including over seasonal temperature variations, to further optimize the RO processes to achieve greater energy efficiency.
Study the effects of brine discharge on local marine life	Allowed West Basin to collect field data to evaluate the correlation between salinity levels and toxicity.

The Demonstration Facility's specific objectives were to develop data for the permitting, design, construction, and operation of West Basin's proposed full-scale desalination facility. The Demonstration Facility ultimately provided field data for optimizing the proposed Project design that would achieve high-quality product water requirements to safeguard public health as well as minimize environmental impacts.

In addition to demonstrating technological feasibility, West Basin also evaluated the use of wedgewire screens made with copper-nickel alloys as a means to protect sea life. West Basin experimented with three different copper-nickel (Cu-Ni) alloy wedgewire screens to evaluate their corrosion and antifouling characteristics during the pilot demonstration study. Two of them were made by Cook Legacy (a non-true 90-10 alloy) and Johnson Z-Alloy (a proprietary 90-10 Cu-Ni alloy) and one was made by Hendricks (true 90-10 Cu-Ni alloy (CDA 706)). The Cook Legacy screens were installed in October 2010. Signs of corrosion of the Cook Legacy screens were reported in late 2010 and cathodic protection using zinc anode was subsequently installed to reduce the corrosion rate. The use of cathodic protection was reported to have impaired the screens' antifouling property, allowing macro-biofouling to occur. Severe macro-biofouling had caused structural failure of these screens, which were removed in January and March 2012, respectively. The Cook Legacy screens were replaced by the Johnson Z-Alloy screens, which were installed at the end of March 2012. A Hendricks screen was installed to replace one of the Johnson Z-Alloy screens in March 2013.

Water quality samples during the demonstration study showed that copper concentrations in ocean water sampled downstream of the wedgewire screens were found to be higher than the ambient ocean water levels when the Cook Legacy screens were found to have extensive macro-biofouling and structure failure resulting from the use of cathodic protection. Elevated copper concentration measured in a sample collected at the same location was also observed approximately 3 months after installation of the Johnson Z-Alloy screens. The copper concentration was found to be comparable to ambient ocean water concentration approximately 12 months after the Johnson Z-Alloy screens had been in use. After the installation of the Hendricks Tee (true 90-10 Cu-Ni alloy) screen, which was in alternate use with the Johnson Z-Alloy screen, elevated copper concentrations were not observed. Such a finding indicates that true 90-10 Cu-Ni alloy is more stable than other Cu-Ni alloys tested in Santa Monica Bay. Copper-leaching issues related to the true 90-10 Cu-Ni alloy immediately after submerging the metals were observed to be short-lived. Hence, it is expected that the use of true 90-10 Cu-Ni alloy would have negligible long-term water quality impacts. The findings and lessons learned from this study also helped guide West Basin to develop the Intake Biofouling and Corrosion Study supported by MWD, presented below.

2.10.3 Harmful Algal Bloom and Marine Biotoxin Study

Harmful algal blooms (HABs, also known as red tides) are capable of releasing metabolic by-products, which can bio-accumulate in shellfish and be toxic to humans or animals that consume the shellfish. HABs are known to naturally occur within the Santa Monica Bay. Beyond HABs, discharges resulting from stormwater runoff can effect source water quality. In an effort partially funded by DWR under Proposition 50, West Basin prepared the *Stormwater and Marine Biotoxin Monitoring Final Report* in 2009 (Trussell Technologies 2009). Monitoring activities for this program identified stormwater input and harmful algal bloom effects on the desalination process at the West Basin Pilot Project. *Stormwater and Marine Biotoxin Monitoring Study* goals included:

- Identifying baseline water quality data through ongoing water quality monitoring and data collection at ocean intakes located near El Segundo and Redondo Beach.
- Characterizing phytoplankton taxonomy at the El Segundo ocean intake.
- Monitoring key water quality parameters during stormwater runoff events.
- Identifying water quality constituents caused by storm events.
- Sampling and analyzing raw and RO permeate water from the Pilot Plant for select marine biotoxins.
- Conducting bench-scale experiments for testing RO membrane performance in removing select marine biotoxins.
- Correlating water quality parameters with algal blooms and the production of marine biotoxins, to the extent possible.

The report was successful in that it identified the objectives, results, and recommendations from stormwater and marine biotoxin monitoring to be applied to the operation of a membrane seawater desalination system.

2.10.4 Impingement and Entrainment Study

On August 13, 2015, West Basin released the *Intake Effects Assessment Report* (IE Report) for the Demonstration Facility (Tenera 2014). The IE Report's objectives were to: (1) determine the potential intake effects on marine organisms due to the operation of the demonstration and full-scale facilities and (2) determine the efficiency of wedgewire screens at reducing entrainment and impingement impacts.[6] This IE Report assessed impingement and entrainment impacts for the Demonstration Facility and a conceptual full-scale facility. IE Report findings suggest that operation of the Demonstration Facility and conceptual full-scale facility would result in very minor impacts to fish and invertebrate populations. Specifically, modeling results found that Demonstration Facility operations, which had a maximum daily intake volume of 0.511 MGD, resulted in estimated larval entrainment losses for fishes and crabs of 0.01 to 0.001 percent of the source water population for the majority of taxa analyzed. Concerning the 20 MGD facility, modeling results found that operation at a maximum daily intake volume of 45.1 MGD resulted in estimated larval entrainment losses of 1 to 2 percent of the source water population for the majority of taxa analyzed. When calculations for the Demonstration Facility were scaled to represent the 20 MGD facility, report findings indicate that screened ocean intakes fitted with wedgewire screens significantly reduce or eliminate potential impingement effects and entrainment impacts.

2.10.5 Ocean Water Desalination Program Master Plan

The Demonstration Project's results were used as the foundation for development of a full-scale design, permitting, and operations approach, which is presented in the PMP (Arcadis 2013). The PMP was specifically prepared to define the overall desalination program scope and key project components. These critical components include supply availability, water demands, siting alternatives, intake and discharge facilities, treatment process engineering and technological requirements, conveyance and distribution requirements, environmental and permitting requirements, and power supply development, among others. The PMP comprises a number of technical memoranda that address each of the critical program components, analysis, calculations, exhibits, drawings, and conclusions.

Technical memoranda included:

- TM 1 – Conceptual System Design and Program Requirements
- TM 2 – Power Supply Development
- TM 3 – Project Entitlements and Acquisition
- TM 4 – Environmental Review Plan
- TM 5 – Project Permitting Plan
- TM 6 – Facility Operations and Maintenance Plan
- TM 7 – Project Costs and Funding Plan
- TM 8 – Project Delivery

6 "Impingement" occurs when adult marine organisms become trapped on the screens covering desalination intake pipes. "Entrainment" occurs when smaller marine organisms (i.e., larvae and fish eggs) pass through the intake's protective screens and become entrapped.

The PMP provides design concepts for a Local Project and a Regional Project ranging from 10 MGD to 60 MGD, respectively, at both the ESGS and Redondo Beach Generating Station (RBGS) sites, including various designs and operational alternatives. In this Project Description, some of the PMP design concepts have been modified and additional concepts have been added in order to ensure that the most comprehensive possible impacts of the Project have been analyzed.

2.10.6 West Basin High-Salinity Sensitivity Study

West Basin prepared the *High-Salinity Sensitivity Study: Short- and Long-Term Exposure Assessments* (HSS Study) to comprehensively evaluate potential short- and long-term exposure effects of high-salinity discharges from the Demonstration Facility on nearshore marine organisms living in soft- and hard-bottom environments (Weston Solutions Inc. 2013). The HSS Study evaluated both acute toxicity (mortality effects) and chronic toxicity (mortality and sub-lethal effects) on test organisms that would typically be found in nearshore environments off the Southern California coast. HSS Study findings indicated that most nearshore organisms that have matured past the larval stage of development are tolerant of long-term exposure to salinities as high as 47.5 parts per thousand (ppt). The HSS Study was successful in that it identified the potential biological effects of brine discharges in order to determine the appropriate salinity thresholds representative of acute and chronic toxicity.

2.10.7 Desalinated Ocean Water Quality Integration Study

To ensure that product water is non-corrosive to piping materials, desalinated ocean water must be “stabilized” through post-treatment, to reintroduce minerals (calcium and alkalinity) before entering distribution systems. In recognition of the significance of post-treatment stabilization, West Basin partnered with MWD to prepare the *Ocean Water Desalination Water Quality Integration Study* (Integration Study). The Integration Study’s objective was to analyze potential impacts of introducing high-quality desalinated ocean water into drinking water distribution systems that had previously been exposed to MWD water and/or groundwater sources (Hazen and Sawyer Environmental Engineers 2014). In addition, the Integration Study analyzed disinfectant residual stability and disinfection by-product formation at both pilot-scale and bench-scale. The Integration Study found that adding stabilized desalinated product water into a range of representative potable water distribution system materials did not negatively impact water quality, cause corrosion, or result in a significant loss of disinfectant residuals. This study demonstrated that stabilized desalinated water can be successfully integrated into the existing MWD potable water distribution system without any adverse effects.

2.10.8 Brine Diffuser Impact Study

West Basin prepared the *Dilution Issues Related to Use of High Velocity Diffusers in Ocean Water Desalination Plants: Remedial Approach Applied to the West Basin Municipal Water District Master Plan for Sea Water Desalination Plants in Santa Monica Bay* (Brine Diffuser Impact Study) in May 2013 to identify the possible issues associated with sheer and entrainment mortality of high-pressure discharge diffusers (Scott A Jenkins Consulting 2013). The Brine Diffuser Impact Study analyzed the brine diffusion capabilities of different diffusers as well as the mortality rates to determine environmental impacts. The Brine Diffuser Impact Study analyzed 17 diffuser design modifications in order to produce a modified 20 MGD Phase 1 diffuser design, which would minimize turbulence mortality to juvenile adult and mature larvae. Results of the Brine Diffuser Impact Study helped West Basin to further identify an optimal brine diffuser discharge design, which would minimize the effects of turbulence shear stress and brine toxicity.

2.10.9 Intake Biofouling and Corrosion Study

West Basin partnered with MWD to prepare the *Ocean Water Desalination Intake Biofouling and Corrosion* Study in 2016 to further investigate the impacts of biofouling and corrosion rates related to wedgewire screens in open ocean water intake structures (Tetra Tech 2016). Wedgewire screens are a required feature for open ocean water intakes for ocean water desalination facilities to protect marine life if subsurface intakes are determined to be infeasible per OPA requirements. The success of using wedgewire screens, from an operational point of view, is dependent upon the management of corrosion and biofouling (macro- and micro-biofouling) as these processes will affect the overall maintenance requirements as well as the longevity of the screens. For example, corrosion affects the integrity of the screens through chemical processes, and macro-biofouling affects screen integrity by adding biomass. Thus, corrosion-resistant and anti-biofouling materials designed for deployment in marine environment are necessary for successful operation of the project. Other benefits of using corrosion resistant and anti-biofouling materials include less frequent boat trips, which would result in less air and underwater noise emissions; less frequent diving assignments for monitoring and conducting maintenance work would result in reduced safety risks associated with diving services; and less frequent replacement of screens would result in fewer disturbances to the seabed and thus less impacts to benthic organisms.

Recognizing the above importance, it is clear that proper material selection for the screens would be prudent for minimizing the long-term environmental impacts of the project. As such, West Basin commissioned an Intake Biofouling and Corrosion Study in 2016 to identify suitable materials that are corrosion resistant and anti-biofouling to field-demonstrate their long-term corrosion and anti-biofouling performance. The study identified two main types of metals: copper-nickel alloys and steel alloys. The characteristics of these materials are summarized below:

- **Copper-nickel alloys:** Copper-nickel alloys are commonly used in marine environment in a range of industries, including naval and commercial shipping, offshore oil and gas exploration, aquaculture, and desalination, due to their anti-biofouling, and high resistance to chloride pitting and crevice corrosion and chloride stress corrosion cracking. The alloys' corrosion-resistant property is provided by a protective surface double-layered film when in contact with seawater (Michel J. H. Powell et al. 2011). The primary layer is composed of a relatively impervious cuprous oxide that is formed once the alloy is exposed to seawater. This is followed by the formation of a thick and porous cupric hydroxychloride and/or cuprous hydroxide. The outer layer serves as a barrier for diffusion of copper ions into seawater. Because of the presence of the cupric hydroxychloride and/or cuprous hydroxide, the alloys are not fully immune to biofouling and biofilm formation on the alloy surface, and some macro-biofouling can be formed in stagnant environment (The International Nickel Company

2018). It has been reported macro-biofouling is usually loosely attached to the alloy surface and is easily sloughed off in ocean current, hence preventing macro-biofouling from building up. The protective layer typically takes six to eight weeks to form and mature (Nickel Institute 1982). Prior to the formation of the protective surface layer, short-lived leaching of cupric ions from the alloys has been reported in copper-nickel alloys but ceases after 3 to 4 months of operations, and elevated copper concentrations typically become undetectable (A. Tuthill 1998). It is noted that almost all cupric ions are bound to natural ligands such as dissolved organic matter, thus greatly diminishing the bioavailability and potential for toxicity to organisms away from the solid surface. This explains why attached or pelagic organisms can exist in close proximity to the alloy surfaces, such as ships and pilings of piers and docks (Michael J.H. Powell 2011). The long-term steady-state corrosion rate for copper-nickel alloys can be as low as 0.002 mm/year.

- **Steel alloys:** Specialty steel alloys have been used in a variety of marine installations. Although these specialty alloys are corrosion-resistant when in contact with seawater, these alloys are inherently prone to micro- and macro-biofouling. Antifouling coatings have been used to address such a concern; however, the coating's life span is highly dependent on the marine conditions and are susceptible to erosion by suspended solids.

Based on the characteristics of the two types of alloys summarized above, the following five types of screen intake materials were field deployed in the Santa Monica Bay to allow for evaluation of their corrosion resistant and anti-biofouling performance:

- 90-10 Cu-Ni (UNS C70600) (made by Hendricks)
- Johnson Screen Z-Alloy (a proprietary 90-10 Cu-Ni alloy)
- 70-30 Cu-Ni (UNS C71500) (made by Hendricks)
- 2205 Duplex stainless steel
- 2205 Duplex stainless steel coated with a Sherwin Williams Foul Release System

After exposure to marine environment for an extended period, wedgewire screen samples made of the selected copper alloys were found to have minimal amount of weight change (up to 10.9 percent for 70-30 Cu-Ni alloy, **Table 2-2**) indicating some micro-biofouling occurred while macro-biofouling was limited. On the other hand, the uncoated duplex stainless steel sample showed rapid weight change (up to 138.7 percent), indicating extensive macro-biofoulant was developed on the surface. The coating on the duplex stainless steel was shown to have helped reduce biofouling, but the mass of the biofoulant was found to be at least three times higher than those measured in the copper alloy samples (Table 2-2). This study demonstrated that 70-30 Cu-Ni has greater stability in seawater compared to 90-10 Cu-Ni and Z-Alloy. Furthermore, it demonstrated that Cu-Ni alloys have superior fouling resistant characteristics which would help reduce the maintenance needs.

TABLE 2-2
SAMPLE WEIGHT CHANGE

Wedge-wire Samples	After 1 Year Weight Change, Percent	After 3 Years Weight Change, Percent
90-10 Cu-Ni (UNS C70600)	2.8%	No data+
Johnson Z-Alloy	-0.6%	No data+
70-30 Cu-Ni (UNS C71500)	4.7%	10.9%
Uncoated 2205 duplex stainless steel	78.5%	138.7%
Coated 2205 Duplex stainless steel	15.8%	37.8%

NOTES: +Samples were lost in the sea during the testing period.

2.10.10 Subsurface Intake Evaluations[7]

A critical aspect of any seawater desalination project is the means in which source water is retrieved from the ocean. Since 2007, West Basin has extensively evaluated the technical, economic, social and environmental feasibility of incorporating subsurface seawater intake (SSI) systems into project design. These efforts are briefly summarized below.

Technical Memorandum for the Temporary Ocean Water Desalination Demonstration Project Phase A – Preliminary Design Development

In 2007, West Basin released a technical memorandum for the Demonstration Project to address alternative intakes (MWH 2007). The technical memorandum evaluated both surface and SSI and their capability to reduce entrainment or impingement by 95 percent or more. The survey presented several SSI types, including wells, infiltration galleries, and seabed filtration systems, and briefly evaluated each for their advantages, capabilities, suitability, and cost-effectiveness for both the ESGS and RBGS location alternatives. Four criteria were used to identify feasible intake alternatives, including: the intake’s ability to meet entrainment/impingement goals; the intake’s ability to avoid significant capture of the highly contaminated freshwater lens at the coastline; the intake’s precedence as a proven technology; and the intake’s feasibility at a flow rate anticipated for the Local Project (defined as 42 MGD). Although the technical memorandum found that SSIs could have advantages over screened ocean intakes with regard to impingement and entrainment and pretreatment requirements, results indicated that significant additional geotechnical feasibility studies would be required for this intake option. The study identified seabed infiltration systems as the most feasible SSI alternative for the demonstration facility, and recommended that this intake type be pursued alongside a screened ocean intake system during the demonstration phase.

Modified Seabed Infiltration Pilot Testing

In 2011, West Basin tested a modified seabed infiltration pilot (SIP) apparatus alongside the Demonstration Project equipment. The objectives of the SIP system were to provide an

7 SWRCB amended the California Ocean Plan on May 6, 2015, to address desalination facilities withdrawing seawater (“Desal Amendments”). As a result, Ocean Plan Section III.M.2(d)(1) now requires that in requesting a Water Code Section 13142.5(b) determination for an ocean desalination facility, the owner or operator of a proposed seawater desalination facility must consider whether subsurface intakes are feasible to minimize intake and mortality of all forms of marine life.

opportunity to test potential impingement and entrainment reduction and also to observe filter operational characteristics related to bed clogging. Based on these results, further modifications to the system would be contemplated to possibly test additional parameters such as wave and current characterization, and bed porosity and hydraulic conductivity of the constructed media (i.e., sediments).

The extremely low filtrate flows associated with the small-scale size of the SIP proved difficult to reliably measure and gauge the filters' operational characteristics. Additionally, preliminary test results indicated no loss of fish eggs (early development stage) in the SIP filtrate. The SIP systems' operating conditions were further refined and results evaluated; however, overall, the bed flow volumes were far too low to guarantee statistically the accuracy of predation/organism fate. Because these objective/results could not be guaranteed, the decision was made to discontinue testing.

Ocean Water Desalination Program Master Plan

In 2013, West Basin further evaluated the feasibility of SSIs in the PMP (Arcadis 2013). The PMP helped to define the overall key project components for seawater desalination, including the potential application of SSI technologies at the ESGS and RBGS sites. PMP Section 4.2, Subsurface Intake Alternatives, discusses the advantages and disadvantages related to the use of SSI systems. The PMP evaluated five types of SSI technologies including:

- Infiltration galleries and Seabed filtration systems
- Horizontal collector wells
- Horizontal directional-drilled (HDD) wells (also known as "sub-seafloor drains")
- Slant wells
- Conventional vertical wells

Each SSI alternative was evaluated using six assessment criteria, including potential for groundwater contamination, sediment transport, ocean floor erosion and scour, beachfront infrastructure, environmental impacts, and seismic risk. The PMP concluded that SSI options would be less feasible than most surface intake options largely because of their potential for severe impacts to beach and nearshore seabed during subsurface well installation, the large Project area the wells would cover, and potential scouring impacts.

Feasibility Assessment of Subsurface Seawater Intakes

Overview

In 2015, West Basin initiated a site-specific study of SSIs to evaluate their feasibility for providing feedwater to the proposed desalination facility at the ESGS facility along the coastal margin of the West Coast Basin. The site-specific SSI feasibility assessment, which is referred to as the *Feasibility Assessment of Subsurface Seawater Intakes* (Feasibility Assessment), was conducted in compliance with the updated California Ocean Plan (Geosyntec 2016)[8]. The study included:

- A literature study and overview of SSIs
- Development of a general guidance tool for evaluating technical feasibility of SSIs
- Application of the guidance tool for initial screening of technical feasibility of SSIs for the proposed desalination facility at the ESGS facility
- Field investigations and analyses to generate field data to follow for site-specific SSI feasibility evaluation

Development of the SSI guidance tool and the Feasibility Assessment were federally funded through a grant provided by Reclamation and subjected to a transparent, public, and independent peer-review by a technical advisory panel facilitated by the National Water Research Institute (NWRI 2016). The Feasibility Assessment, site-specific data, and findings are contained in **Appendix 2, Final Feasibility Assessment of Subsurface Seawater Intakes**. These results are also discussed further in Section 7, *Alternatives to the Proposed Project*.

Eight SSI technologies were evaluated:

1) Vertical wells
2) Slant wells
3) Radial collector wells
4) Horizontal directional-drilled (HDD) wells (sometimes called drains)
5) Seabed wells installed in trenches
6) Seabed infiltration galleries (SIGs)
7) Beach infiltration galleries (BIGs)
8) Deep infiltration galleries (water tunnels)

The feasibility of SSI technologies depends on a variety of site-specific conditions and criteria, including hydrogeologic, oceanographic, geochemical and water quality constraints, land use and sensitive habitat, maintenance requirements, and other technical and economic risk factors and uncertainties, such as complexity of construction, performance risk, and economic viability. As such, the eight intake technologies were evaluated based on five general categories to allow for a systematic evaluation. These categories were:

1) SSI construction
2) SSI operation
3) Treatment system operation
4) Potential inland interference
5) Risk and uncertainty for project implementation

8 The 2015 California Ocean Plan chapter III.M defines feasible as "capable of being accomplished in a successful manner within a reasonable period, taking into account economic, environmental, social, and technological factors." The Feasibility Assessment was conducted in accordance with the May 2015 Ocean Plan Amendment Section 13142.5(b) requirements.

These five categories were further broken down into 18 “challenge” criteria that were used to evaluate the overall feasibility of each SSI technology. Without factoring in any site-specific constraints including extent of SSI infrastructure, the initial screening results using the guidance tool developed as part of the Feasibility Assessment indicated that all the SSI technologies are theoretically feasible.

- Further site-specific evaluation of the SSI technologies was conducted using available local hydrogeologic information supplemented with additional geotechnical field investigations for characterization of the shallow offshore stratigraphy, and groundwater flow model simulations to evaluate SSI performance.

Based on extensive research and site-specific field-testing and analysis, none of the eight SSI technologies are feasible for the design intake rate of 40 MGD at the ESGS facility. Construction of SSIs beyond the extent of the ESGS facility would be subject to the same fatal flaws and challenges with added complications presented by residential beachfront properties and protected snowy plover habit, and thus are not feasible. In addition, due to the similar setting, many of the same fatal flaws and challenges would apply to construction of SSIs at the AES Power Plant Facility at Redondo Beach, which was also considered by West Basin for the proposed desalination facility. The key findings of the site-specific SSI feasibility assessment are summarized below.

Site-Specific Findings and SSI Feasibility Assessment

Results of the field investigations indicate the presence of two shallow clayey layers beneath the coastal margin at approximately 20 feet and 50 to 60 feet depth below the seafloor. Groundwater modeling indicates that these low-permeability layers would limit the potential hydraulic connection between the ocean and potential SSIs beneath the clayey layers (i.e., vertical, slant, radial collector, or HDD wells with screens beneath either or both clayey layers). Also, the clayey layers would increase the contribution to water pumped by the SSIs from adjudicated inland coastal margin aquifers, which include contaminated groundwater and areas that are de-listed for municipal use.

Moreover, pumping from SSI wells would impact the performance of the West Coast Basin Injection Barrier, which protects existing potable water supplies from seawater intrusion. And, to meet capacity demands, SSI wells would need to extend beyond the ESGS power plant facility, which would still result in drawing water from the adjudicated groundwater basin, mobilization of contamination plumes and interference with the West Coast Basin Injection Barrier.

Shallow HDD wells above the 20-foot low-permeability clayey layer would result in better hydraulic connection to the ocean; however, no known examples exist of HDD wells installed at depths shallower than 20 feet below the seafloor, and the presence of cobbles and gravels in the shallow seafloor sediments are a major impediment for successful drilling and installation of HDD wells. Moreover, shallow HDD wells would be vulnerable to seafloor instability and potential deposition of silts and clays on the Santa Monica Bay seafloor that can occur with El Nino storms, which could decrease the yield of the HDD wells and require difficult, expensive, and potentially damaging maintenance. The uncertain feasibility of the construction, maintenance, and long-term performance coupled with an estimated cost of $80M to $120M for an intake capacity of 40 MGD to drill and install the HDD wells is an unacceptable technical and economic risk for West Basin as a public agency. Thus, HDD wells installed above the 20-foot low-permeability layer are also deemed not feasible.

Seabed wells installed in trenches were considered as an alternative to HDD wells due to the challenges associated with horizontal drilling above the low-permeability layer approximately 20 feet below the seabed, and the presence of cobbles and gravel above the shallow low-permeability layer (Geosyntec 2017a). The estimated capital cost to construct a system of 14 seabed wells to produce 40 MGD of intake water is at least $372M.

BIGs are considered technically infeasible due to the high-energy environment resulting from exposure to long-period swells from Gulf of Alaska winter storms. This results in beach erosion and nourishment cycles, with associated migration of the beach and surf zone that would compromise the performance of beach infiltration galleries.

SIGs are considered infeasible due to the requirement to be located beyond the "closure depth" where there is minimal change in seafloor elevation over time. Because of the high-energy environment at El Segundo, the closure depth is approximately 6,500 feet offshore at about a 50-foot depth (Jenkins 2015). Construction in this offshore location, depth, and high-energy environment would require specialized methods with estimated life-cycle costs ranging from $192 million to $411 million, or $4.8 million to $11.0 million per MGD of capacity, respectively, for an intake capacity of 40 MGD; while the costs of the wedgewire screen only option would range from $12 million to $25 million, or $0.3 million to $0.6 million per MGD of capacity, respectively. This represents a 16-fold increase in the overall estimated total costs if full-size SIG meeting 100 percent intake requirement was to be used.

The life cycle costs were also estimated for hybrid 40 MGD intake systems consisting of both an open ocean intake wedgewire screen and a SIG for a range of SIG and wedgewire screen capacities (Geosyntec 2017b). Lowering SIG intake rates could decrease the overall intake costs but it would diminish the economies of scale. For example, the estimated costs for a SIG intake rate of 2.5 MGD accounting for 6 percent of the intake requirements (i.e., 2.5 MGD out of a total of 40 MGD) would range between $53 million and $113 million, or $21.2 million and $45.2 million per MGD of capacity, respectively. This translates to approximately four times of the estimated total costs of the wedgewire screen only option or, on a cost-per-unit-volume-water-intake basis, more than 70 times more expensive than the wedgewire screen only option. (**Appendix 2B, Seabed Infiltration Gallery Construction and Life-Cycle Costs**).

Moreover, potential deposition of silts and clays on the Santa Monica Bay seafloor can occur with El Nino storms and decrease the performance yield and require difficult, expensive, and environmentally disrupting maintenance of the SIGs. These represent unacceptable technical and economic risk for West Basin.

Similarly, deep infiltration galleries (water tunnels) are not a proven technology for offshore marine alluvial settings. The extreme construction complexity, coupled with potentially high technical risks and lack of precedence for comparable conditions, results in deep infiltration galleries being deemed technically and economically infeasible for West Basin.

2.10.11 Relationship to NRG Facility

The ESGS, which is a natural-gas-fired electrical power plant located in the southernmost limit of El Segundo, is operated by NRG. The power generated by the plant is delivered to the adjacent Southern California Edison substation. From the substation, electricity is transmitted to users by a transmission and distribution network. The El Segundo Power Plant Redevelopment Project (Redevelopment Project), which received final approval by the California Energy Commission (CEC) February 2, 2005, included removal and replacement of two electric generation units (Units 1 and 2) at the north end of the site with new Units 5, 6, and 7. Additionally, the Redevelopment Project included the installation of a landscaped berm along 45th Street. The new units generate 630 megawatts (MW) under normal operating conditions, or 280 MW more than the old Units 1 and 2. The Redevelopment Project improved fuel efficiency, greenhouse gas emissions, and decommissioned seawater-cooling of the boiler units.

In 2010, the CEC published the *Commission Decision to the Amendment (CDA) to Modify the Commission Decision* approving the construction and operation of the El Segundo Power Redevelopment Project to eliminate once-through cooling and implement the use of dry-cooling (CEC 2010). In addition, the CDA approved the replacement of originally approved turbines with rapid-response combined-cycle technology, as well as other improvements. The CDA includes several Conditions of Certification (COC) for the El Segundo Power Redevelopment Project.

In 2015, the CEC published a *Petition to Amend for the El Segundo Power Redevelopment Project* (PTA) (CEC 2015). The PTA proposes to replace the existing utility boiler Units 3 and 4 with one new combined-cycle generator (Unit 9), one new steam turbine generator (Unit 10), and two simple-cycle gas turbines (Units 11 and 12). In addition to the proposed demolition of Units 3 and 4 for installation of new Units 9 through 12, the amendment includes the replacement of the facility's existing once-through ocean-water cooling system with dry-cooling technology, as well as the construction of new, combined administration/maintenance/ operations building. The PTA addresses improvements that encompass portions of the proposed ocean water desalination facility site. Existing Units 3 and 4 would require demolition if the ESGS North Site is used for the Project. CEC's authority would cease upon the approval of NRG's power generation license amendment after Units 3 and4 have been demolished and the closure document has been issued by CEC. Pertinent reports and documents can be found at http://www.energy.ca.gov/sitingcases/elsegundo/.

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