

March 26, 2018

California Regional Water Quality Control Board  
Los Angeles Region  
ATTN: Elizabeth Erickson  
320 West 4th Street, Suite 200  
Los Angeles, CA 90013

U.S. Environmental Protection Agency  
Region IX  
ATTN: Becky Mitschele  
75 Hawthorne Street  
San Francisco, CA 94105

*Via e-mail to [Elizabeth.Erickson@waterboards.ca.gov](mailto:Elizabeth.Erickson@waterboards.ca.gov) and [Mitschele.Becky@epa.gov](mailto:Mitschele.Becky@epa.gov)*

**RE: Tentative Waste Discharge Requirements (WDR) and National Pollutant Discharge Elimination System (NPDES) Permit- West Basin Municipal Water District (West Basin), Edward C. Little Water Recycling Facility (NPDES Permit No. CA0063401, CI-7449)**

Dear Ms. Erickson and Ms. Mitschele:

Los Angeles Waterkeeper (LAW) submits the following comments on the tentative WDR/NPDES Permit for the existing West Basin Edward C. Little Water Recycling Facility in El Segundo.

LAW is a nonprofit environmental organization with over 3,000 members dedicated to protecting and restoring the inland and coastal surface and ground waters throughout Los Angeles County, and ensuring an environmentally sustainable water supply. LAW advocates for the “4R” approach to integrated water management: reduce use of water through conservation and efficiency; reuse greywater and capture stormwater; recycle through wastewater reclamation, preferably for potable uses; and restore watershed health through rehabilitation of our contaminated surface and drinking water sources.

#### **LAW Supports the Renewal of the WDR for the Little Recycling Facility**

LAW recognizes and applauds the leadership role West Basin Municipal Water District has historically played in the field of recycled water. LAW supports the water recycling efforts conducted by West Basin at the Edward C. Little facility, and supports approval of the tentative WDR as revised to address the concerns raised in this letter.

The facility currently recycles an average of about 22 million gallons per day, with discharges of approximately 4-5 million gallons per day of brine mixing with effluent in- and discharging through- the Hyperion five mile outfall outside the waters of California. The

recycling facility has a design capacity of 62.5 million gallons per day, and the design capacity apparently will not change as a result of the WDR approval.<sup>1</sup> (See p. F-5.) The end uses of the recycled water include irrigation, boiler and cooling tower water for the nearby refineries, and groundwater injection for the Basin Barrier Project. The recycling facility has not recorded any violations of applicable effluent limitations in its discharges during the life of the current WDR.

LAW urges the West Basin Municipal Water District to consider greatly expanding its capacity for recycling water from Hyperion to meet future potable use needs. The upcoming review of the Environmental Impact Report for the proposed West Basin Ocean Desalination Facility represents the appropriate forum for this broader analysis of expanded use of recycled water. LAW continues to oppose the proposed ocean desalination facility as part of a broad coalition of environmental groups (see <http://www.smarterwaterla.org/>). While reserving judgment on the adequacy of the soon-to-be-released EIR for the proposed ocean desalination facility, LAW continues to believe expanded use of recycled water from Hyperion is a viable long term water supply alternative for West Basin.

Nonetheless, LAW believes it is unnecessary to delay approval of the WDR renewal for the existing recycling plant until resolution of the wider, and much more contentious, issues surrounding the proposed ocean desalination project. Hyperion currently discharges enough effluent into the Pacific Ocean to meet the cumulative goals of both the existing recycled water uses and potential future West Basin potable uses with ample capacity to spare.

LAW has consistently advocated that potable uses be designated as priority uses for recycled water, rather than “purple pipe” uses such as irrigation, because of high distribution costs associated with the need for specialized infrastructure, as well as the potential to incentivize potentially wasteful and unreasonable and/or non-beneficial irrigation and landscaping practices. LAW supports the use of Little facility recycled water to meet the water needs of the West Basin Barrier project. In the context of the nearby refineries generating significant demand for boiler and cooling tower water, the use of recycled water from the Little facility to meet these industrial needs appears reasonable at this time, especially since this water would otherwise simply be wasted by discharging into the ocean from the Hyperion system.

### **Comments Specific to the Tentative WDR**

The remainder of this letter consists of LAW’s comments on the tentative WDR.

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<sup>1</sup> A 2017 Memorandum of Understanding between West Basin and the Los Angeles Sanitation Department (see attachment A) as well as the West Basin website (<http://www.westbasin.org/news/newsletter>) references up to 70 million gallons per day of tertiary treated effluent from Hyperion, while an undated fact sheet from CH2MHill (see attachment B) references a capacity of 100 million gallons per day. LAW requests clarification of whether any expansion beyond the design capacity of 62.5 million gallons per day stated in the tentative WDR would require new or amended WDR.

LAW agrees with the overall conclusion that impacts to water quality and beneficial uses from approval of the tentative WDR will not be significant. (P. F-27.) However, we are concerned the finding that the WDR approval will result in some degradation (see p. F-27 [“degradation is confined to a limited area”]) does not fully support the conclusion that “[t]he minimal degradation permitted by the Ocean Plan is consistent with the anti-degradation policy...” (P. F-26.) Support for this latter conclusion in the tentative WDR appears to be based on the considerations applicable to high quality waters contained in state anti-degradation policies in State Board Resolution 68-16 (e.g., allowing some degradation results in maximum benefit to the people of California, etc.).

As an initial matter, LAW recommends the tentative WDR be revised to include record citations in support of the conclusions regarding consistency with the requirements of Resolution 68-16, as the tentative WDR simply summarizes the required findings and concludes the tentative WDR meets those requirements. Additionally, LAW is concerned that analysis of the tentative WDR for consistency with the federal anti-degradation policy appears to be entirely lacking. The California anti-degradation policy incorporates the federal anti-degradation policy. (P. F-13) The federal policy does not permit *any* additional degradation of impaired waterbodies. (See 40 C.F.R. §131.12.) Thus, LAW requests the tentative WDR be revised to include additional analysis on a pollutant-by-pollutant basis of the consistency of the tentative WDR with the requirements of the federal policy for those pollutants for which Santa Monica Bay is impaired (i.e., DDT, debris, PCBs, sediment toxicity, and fish consumption advisories). Any findings that the minimal additional degradation allowed by the WDR and Ocean Plan is fully consistent with all applicable anti-degradation policies requires this additional analysis specific to listed impairments.

### Conclusion

LAW is supportive of water recycling efforts at the Edward C. Little facility, and supports renewal of the WDR for the Little facility independent of any wider discussion of water recycling in the context of West Basin’s ocean desalination proposal. LAW supports the approval of the tentative WDR subject to the revisions discussed above. Thank you for this opportunity to comment.

Sincerely,



Arthur Pugsley  
Senior Attorney  
Los Angeles Waterkeeper

attachments

LAW supports the requirement in the tentative WDR (p. F-14) that West Basin investigate the feasibility of recycling, conservation, and alternative disposal methods. LAW assumes any investigation would analyze the feasibility of recycling and conservation above the existing baseline levels, although any feasibility studies should clearly specify the baseline recycling assumptions.

The Fact Sheet (p. F-10) cites to Water Code Section 13389 in support of the claim that adoption of NPDES Permits are “exempt from the provisions of CEQA.” This statement overstates the scope of the exemption, which the plain language of cited section limits to *Chapter 3* of CEQA. The tentative WDR should therefore be revised to reflect the proper scope of the exemption. The tentative should also be revised to include findings on the consistency of the project with the applicable sections of CEQA, especially the Chapter 1 policies. There is ample substantial evidence in the tentative WDR that could support such findings, as well as findings that the renewal of the WDR will not have a significant negative impact on the environment.

Similarly, pursuant to Article X, section 2 of the Constitution and Water Code section 100, the tentative WDR should include findings demonstrating how the WDR ensures recycled water will be put to reasonable beneficial uses and not wasted—findings that must be based on the Regional Board’s analysis of supporting record evidence. This reasonable beneficial use analysis should, at a minimum, consist of determining what specific uses of recycled water are both reasonable and beneficial in the context of the watersheds where the recycled water will be used, and the amount of recycled water reasonably required for those beneficial uses. LAW notes that in the context of this project, such findings should be readily supportable on the existing record, especially for the uses other than irrigation. To the extent the Regional Board requires the assistance of the State Board to conduct this required reasonable use analysis, the Regional Board can, and should, consult with the State Board pursuant to Water Code section 13225(a).

The tentative WDR briefly discusses anti-backsliding requirements (p. F-26), but includes language suggesting that compliance with anti-degradation requirements equates to automatic compliance with anti-backsliding provisions. While LAW does not have any concerns with backsliding related to renewal of this WDR, we suggest clarification of the language in the tentative WDR to reflect that anti-backsliding requirements are not duplicative of anti-degradation requirements, and compliance with anti-degradation policies does not necessarily equate to compliance with both anti-degradation policies and anti-backsliding requirements.

Santa Monica Bay is listed on the 303(d) list of impaired waterbodies for DDT, debris, PCBs, sediment toxicity, and fish consumption advisories. (P. F-15.) The discussion of anti-degradation policies (p. F-13) references further discussion in Section IV.D.2 of the Fact Sheet, but that section does not appear to exist. However, further analysis of anti-degradation policies is included at pp. F-26 and F-27.

The fact sheet includes an “abbreviated anti-degradation analysis.” (P. F-27.) Presumably, this abbreviated analysis is being undertaken pursuant to the anti-degradation analysis guidance issued by the State Board (see APU 90-004), but the tentative WDR is not clear on this point. LAW requests clarification of whether the abbreviated analysis is undertaken consistent with the State Board guidance document.

**Attachment A (LASAN MOU with relevant language highlighted)**

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ORIGINAL

**MEMORANDUM OF AGREEMENT NO. WR-17-3001 BETWEEN  
LOS ANGELES SANITATION, LOS ANGELES DEPARTMENT OF  
WATER AND POWER, AND WEST BASIN MUNICIPAL WATER  
DISTRICT RELATED TO THE HYPERION MEMBRANE BIOREACTOR  
PILOT FACILITY**

**MEMORANDUM OF AGREEMENT NO. WR-17-3001 BETWEEN  
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WATER AND POWER, AND WEST BASIN MUNICIPAL WATER  
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PILOT FACILITY**

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This Memorandum of Agreement No. WR-17-3001 (hereinafter "MOA") is made and entered into by and between Los Angeles Department of Public Works - Bureau of Sanitation (hereinafter "LASAN"), Los Angeles Department of Water and Power, (hereinafter "LADWP"), and West Basin Municipal Water District (hereinafter "WBMWD"), hereinafter referred to individually as "Party," and collectively as "The Parties", to conduct a pilot study employing Membrane Bioreactor (hereafter "MBR") treatment of primary wastewater effluent for the purpose of collecting data that will be used in the planning, design, and construction of full-scale MBR facilities at the Hyperion Water Reclamation Plant (hereafter "HWRP") producing 70 million gallons per day (hereafter "MGD") of Tertiary Nitrified/Denitrified (hereafter "NdN") Recycled Water (hereafter "NdN recycled water") as source water for the WBMWD recycled water system and for distribution to LADWP's customers.

It is envisioned that 16 MGD out of the 70 MGD delivered to WBMWD will be distributed to LADWP recycled water customers and 54 MGD of the recycled water will be utilized by WBMWD customers.

#### RECITALS

WHEREAS, pursuant to Resolution 91-344, there now exists an agreement between the City of Los Angeles and WBMWD entitled, "AGREEMENT BETWEEN THE CITY OF LOS ANGELES AND WEST BASIN MUNICIPAL WATER DISTRICT, FOR TRANSPORTING SECONDARY EFFLUENT FROM THE HYPERION TREATMENT PLANT FOR TERTIARY TREATMENT BY WEST BASIN AND, THEREAFTER, BENEFICIAL REUSE OF THE RECLAIMED WATER" Agreement No. C-83502, which has been amended and extended through March 14, 2021; and

WHEREAS, Agreement No. C-83502 describes duties and responsibilities for LASAN, LADWP, and WBMWD; and

WHEREAS, Agreement No. C-83502 provides a basis for the delivery of 70 MGD of secondary effluent to WBMWD to create recycled water for delivery to WBMWD's recycled water customers within its service area and to LADWP for distribution within the City of Los Angeles; and

WHEREAS, Agreement No. C-83502 provides that secondary effluent delivered to WBMWD is delivered based upon water quality standards for discharge to the ocean without regard to the subsequent requirements and costs to produce recycled water; and

WHEREAS, WBMWD is currently constructing facilities to increase reliability and pump additional secondary effluent and deliver additional recycled water to its customers; and

WHEREAS, the Parties have conducted preliminary evaluations suggesting that the addition of MBRs employing NdN biological treatment processes at HWRP will reduce

the costs of subsequent treatment within WBMWD's recycled water system and allow increased use within WBMWD's service area and also make the addition of treatment and distribution facilities to interconnect with LADWP's distribution system economically attractive; and

WHEREAS, such an upgrade can increase the use of HWRP effluent to approximately 70 MGD, with the use of approximately 54 MGD within WBMWD's service area and 16 MGD within LADWP's service area and potential for future expansions as additional customers are developed; and

WHEREAS, preliminary studies suggest that the addition of MBR treatment at HWRP could be fully paid for by LADWP and WBMWD from revenues generated through recycled water sales and net operating savings in existing treatment processes employed by WBMWD; and

WHEREAS, the Parties desire to cooperate in the construction and operation of a pilot facility to refine understanding of this treatment potential as well as determine downstream impacts and develop design parameters for a possible future project to add MBR treatment with NdN at the HWRP; and

WHEREAS, the Parties desire to enter into this MOA in order to describe the cost sharing and schedule and management structure and proceed with design, construction and operation of a pilot facility.

NOW, THEREFORE, the Parties agree as follows:

**SECTION 1: TERMS AND CONDITIONS FOR THE DESIGN CONSTRUCTION AND OPERATION OF A PILOT FACILITY**

- 1.1 The Parties shall design, construct, and operate a pilot facility to produce NdN recycled water utilizing MBR technology to demonstrate the viability of the MBR process to produce NdN recycled water for the purpose of water reuse and developing design criteria and operating protocols for a full-scale facility.
- 1.2 The MBR pilot facility shall be located at the HWRP, a property owned by LASAN.
- 1.3 The Parties shall cooperate to develop design specifications and test protocols and shall contract with appropriate service providers or contractors to design, construct, and operate the pilot facility as further described in Attachment No. 1. It is understood that the pilot facility may employ temporary piping configurations and otherwise be adaptable to changing conditions during the testing.
- 1.4 The Parties shall share equally among themselves the cost of design, construction and operation of the pilot facility. Each party may incur additional costs for

oversight of the testing, which costs shall be borne individually by the Party incurring them.

- 1.5 Design and Construction costs shall include planning studies, plans, specifications, and environmental documents and the costs of obtaining necessary permits from all appropriate regulatory agencies including but not limited to the City of Los Angeles, Department of Building and Safety, Regional Water Quality Control Board, State Water Resources Control Board Division of Drinking Water (hereafter "DDW") for the HWRP MBR pilot facility.

## SECTION 2: TERMS AND CONDITIONS FOR THE MBR PILOT STUDY

- 2.1 LASAN shall be the Lead Agency for the MBR Pilot Study and for California Environmental Quality Act (hereafter "CEQA") processes for the full-scale MBR facilities with participation from LADWP and WBMWD.
- 2.2 LASAN shall retain a consultant team and/or contractor for the planning, design, construction, and operation of the pilot facility. LASAN shall be responsible for managing the contract documents, budget and schedule, permit applications, insurance requirements, compliance with City of Los Angeles labor policies, invoicing, and all other aspects of contract administration. The Technical Committee shall participate in the process to select the consultant team that is awarded the contract for the planning, design, construction and operation of the pilot facility. All other contracts relating to this Agreement, including the activities described in Sections 3 and 4, shall similarly be managed by LASAN.
- 2.3 The Parties shall form a Technical Committee consisting of one representative from each agency to oversee the technical aspects of the project. Consistent with applicable law, this committee shall participate in the process to select the consultant team based on the planning, design, construction, and operation of the pilot facility. This committee shall also be involved in budget monitoring, schedule development, design review, procurement management, construction oversight, permit application, and the development of detailed testing protocols and water quality requirements and sampling procedures.
- 2.4 The Technical Committee shall develop decision making criteria agreeable to all members to facilitate decision making for the duration of the MOA. Disputes by the Technical Committee shall be resolved by the Management Oversight Committee.
- 2.5 The Parties shall form a Management Oversight Committee (hereafter "Management Committee") consisting of one representative from each Party, who shall not be members of the Technical Committee, to resolve any disputes by the Technical Committee and to approve final budgets and changes to funding requirements as the pilot facility and testing protocols adapt and change. Determinations and decisions by the Management Committee must be

unanimous. This Management Committee shall consist of a designee from each Party.

- 2.6 It is anticipated that the pilot study duration will be approximately one year and the contractor operating the pilot study will issue draft and final reports on the pilot tests to the satisfaction of the Technical Committee. The Technical Committee shall be responsible for reviewing the draft report to provide comments to the contractor in a timely manner prior to finalization of the report.
- 2.7 The Parties shall collaborate collectively to work with regulatory agencies to address pertinent issues concerning the full-scale MBR system at HWRP that will produce NdN recycled water for non-potable water uses and for the West Coast Basin Barrier Project.
- 2.8 All Parties shall have immediate access to data generated from the pilot study. The Technical Committee shall oversee the use of the data for external purposes.
- 2.9 The Parties shall complete a feasibility study for the full-scale MBR system at HWRP as outlined in Attachment No. 2 that will provide sufficient information to develop an Environmental Impact Report for the future project to supply 70 MGD of NdN recycled water from HWRP to WBMWD's service area and LADWP's customers.

### SECTION 3: INDEPENDENT ADVISORY PANEL

- 3.1 The Parties shall create an Independent Advisory Panel (hereafter "IAP") for the pilot study by contracting with an independent entity specializing in independent advisory panel management. The IAP shall consist of three to seven independent experts in wastewater treatment, potable reuse, and permitting. The independent entity shall facilitate selection of the independent experts by the Parties. The IAP shall be managed by the independent entity. The Technical and Management Committees will consult with the IAP during the design, construction, and operation phases of the pilot study and consider the IAP's recommendations.
- 3.2 The Management Committee shall approve the budget and scope of the IAP and independent entity

### SECTION 4: FUNDING

- 4.1 A Fund shall be formed and managed by LASAN to pay for the pilot facility. LASAN, LADWP, and WBMWD shall each contribute to the Fund as outlined in Section 4.2. The total combined funding contributions from all Parties shall be no more than \$13.2 million, or a maximum of \$4.4 million per Party.

- 4.2 LASAN, LADWP, and WBMWD will each deposit \$1 million into the Fund managed by LASAN as the initial funding after a Notice to Proceed is given to a selected contractor for the pilot facility. As the funding is depleted to 30% remaining, LASAN, LADWP, and WBMWD will each deposit an additional \$1 million in the Fund up to the maximum agreed funding level obligation of \$4.4 million per Party until project completion.

To avoid overfunding, once the project is 80% completed, the refunding obligation is reduced proportionally to the estimated remaining costs. The monies deposited in the Fund shall be used for the activities described in Section 4.2.a. through 4.2.d. The Management Committee, with recommendations from the Technical Committee and IAP, will have final authority on which activities will proceed.

- a. To design and build a pilot MBR system at a cost of up to \$8 million to determine the treatability of HWRP primary effluent and obtain design data for the future project to supply 70 MGD of NdN recycled water from HWRP to WBMWD's service area and LADWP's customers. This includes funding the IAP and independent entity as described in Section 3.
- b. To perform a pilot study for one year at a cost of up to \$1 million to obtain treatability and design data for the future project to supply 70 MGD of NdN recycled water from HWRP to WBMWD's service area and LADWP's customers.
- c. To develop a feasibility study as outlined in Attachment No. 2 at a cost of \$1 million for the future project to supply 70 MGD of NdN recycled water from HWRP to WBMWD's service area and LADWP's customers.
- d. To develop an Environmental Impact Report at a cost of up to \$1 million for the future project to supply 70 MGD of NdN recycled water from HWRP to WBMWD's service area and LADWP's customers.

The total amount for items (a) through (d) above is \$11 million. A contingency of up to 20% may be added to the Fund, for a total not to exceed \$13.2 million.

- 4.3 At the conclusion of the pilot study, or the termination of activities as determined by the Management committee, any unused dollars in the Fund shall be reimbursed to each Party in proportion to the contributions made by each Party.
- 4.4 All Parties shall evaluate opportunities for outside funding for the pilot study and for any other eligible activities specified above. Any outside funding received shall be deposited into the Fund. The amount of outside funding will reduce the funding obligation of each Party in proportion to the contributions made by each Party.
- 4.5 Should a Party decide to withdraw from participation in the project prior to the completion of the pilot study and any of the activities specified above, the Party is still responsible to transfer money to the Fund as Specified in Section 4 for the term of the MOA. No refund shall be issued until the termination of the activities, at which time unused dollars shall be refunded as specified in Section 4.3.

- 4.6 LASAN shall invoice LADWP and WBMWD for each contribution to the fund, as specified in Section 4.2.
- 4.7 LASAN shall provide to LADWP and WBMWD, on a quarterly basis, a summary report on expenditures and the status of the capital projects and studies identified above.
- 4.8 LADWP and WBMWD have the right to audit any and all invoices, schedules, time sheets or other supporting documents during or upon termination or completion of the project. Documents requested by LADWP and/or WBMWD shall be provided by LASAN within a reasonable time frame.

#### SECTION 5: TERMS OF AGREEMENT

- 5.1 The MOA shall be effective upon the date of the last executed signature.
- 5.2 This MOA shall be effective from the day and year of execution until testing is deemed completed but no later than December 31, 2021.
- 5.3 The Parties agree that this MOA may be amended at any time by mutual written agreement of The Parties.
- 5.4 Upon mutual written agreement of the Parties, the MOA may be terminated in which case no further funding obligation from the Parties will exist except for payment from the Fund of any outstanding invoices and costs resulting from this MOA, followed by reimbursement to the Parties of any remaining monies from the Fund.

#### SECTION 6: INDEMNIFICATION

- 6.1 Each Party (i.e. LASAN, LADWP, and WBMWD) shall hold harmless, defend at its own expense, and indemnify a Party or Parties, their officers, employees, and agents against any and all liability, claims, losses, damages, or expenses, including reasonable attorneys' fees, arising from willful misconduct, negligent acts or negligent omissions to act of a Party or Parties or their officers, agents, or employees in performing under or rendering services under this MOA; excluding, however, such liability claims, losses, damages, or expenses arising solely from the Party's or Parties' negligent acts or negligent omissions to act or willful misconduct. The foregoing paragraph shall survive for a period of two years from the expiration or termination of this MOA.

#### SECTION 7: AMENDMENTS

- 7.1 Following the execution of this MOA, an individual Party may request a modification to this MOA that the requesting Party believes is necessary due to

unforeseen changed circumstances. No modification or amendment of this MOA or its Exhibits shall be valid unless the said modification or amendment is provided in writing and is signed by all Parties to this MOA.

#### SECTION 8: ASSIGNMENTS

- 8.1 No Party to this MOA shall either voluntarily or by operation of law assign or transfer its right nor delegate its duties to any third party without first obtaining a written consent of the other Parties to the MOA. Such consent shall not be unreasonably withheld. No assignment hereto shall operate to discharge a Party to this MOA of any duty or obligation hereunder without the written consent of the other Parties.

#### SECTION 9: OTHER TERMS

- 9.1 A Party's failure to enforce any provision of the MOA shall not be construed as a general waiver or relinquishment on its part of any portion of this MOA.

- 9.2 Consistent with Section 6, in no event shall any Party be liable to any of the other Parties for any special, consequential or indirect damages (including by way of illustration, lost revenues and lost profits) arising out of this MOA or any obligation arising thereunder, whether an action for or arising out of breach of contract, tort, indemnity or otherwise.

- 9.3 Any written notice under this MOA shall be deemed properly given if delivered in person or sent by registered or certified mail, postage prepaid, to the person specified below unless otherwise provided for in this MOA:

- a. If to LASAN:

Hyperion Water Reclamation Plant  
12000 Vista Del Mar Harry Pregerson 3<sup>rd</sup>  
Playa Del Rey, Ca 90293-8504  
Attention: Hyperion Plant Manager

- b. If to LADWP:

Los Angeles Department of Water and Power  
Director of Water Engineering & Technical Services Division  
111 North Hope Street, Room 1336  
Los Angeles, California 90012

c. If to WBMWD:

West Basin Municipal Water District  
17140 S. Avalon Boulevard, Suite 210  
Carson, CA 90746  
Attention: General Manager

- 9.4 Any of the Parties may, by written notice to the other Party, change the name or address of the person to receive notices pursuant to this MOA.
- 9.5 This MOA may be executed in counterparts, each of which may be deemed an original, and all of which collectively shall constitute a single instrument. Photocopies, facsimile copies, and PDF copies shall have the same force and effect as a wet ink original signature.
- 9.6 Each person signing this MOA on behalf of a Party hereto warrants and represents that he or she has authority to sign on behalf of the said Party, and that this MOA has been validly authorized and constitutes a legally binding and enforceable obligation of the said Party.



IN WITNESS WHEREOF, the Parties thereto have executed this Agreement to be executed by their duly authorized representatives.

DEPARTMENT OF PUBLIC WORKS  
BUREAU OF SANITATION  
OF THE CITY OF LOS ANGELES BY  
BOARD OF PUBLIC WORKS COMMISSIONERS OF  
THE CITY OF LOS ANGELES

By:


  
ENRIQUE C. ZALDIVAR  
Director and General Manager

Date:

1/11/18

APPROVED AS TO FORM:  
MICHAEL N. FEUTER, City Attorney

By:

  
ADENA M. HOPENSTAND  
Deputy City Attorney

Date:

1/11/18

ATTEST:  
HOLLY L. WOLCOTT, City Clerk

By:

  
Deputy City Clerk

Date:

1/18/18

C-130717



IN WITNESS WHEREOF, the Parties thereto have executed this Memorandum of Agreement to be executed by their duly authorized representatives.

DEPARTMENT OF WATER AND POWER  
OF THE CITY OF LOS ANGELES BY  
BOARD OF WATER AND POWER COMMISSIONERS

By:   
DAVID H. WRIGHT  
General Manager


Date: December 4, 2017

And:   
BARBARA E. MOSCHOS  
Secretary

Date: \_\_\_\_\_

018082  
NOV 07 2017  
AUTHORIZED BY RES.

APPROVED AS TO FORM AND LEGALITY  
MICHAEL N. FEUER, CITY ATTORNEY

OCT 11 2017  
BY   
JOHN A. CARVALHO  
DEPUTY CITY ATTORNEY

IN WITNESS WHEREOF, the Parties thereto have executed this Memorandum of Agreement to be executed by their duly authorized representatives.

WEST BASIN MUNICIPAL WATER DISTRICT

By:   
SHIVAJI DESHMUKH  
Co-General Manager

Date: 10/20/17

And:   
FERNANDO PALUDI  
Co-General Manager

Date: 10-20-17

APPROVED AS TO FORM:

By:   
STEVEN O'NEILL  
Legal Counsel

Date: 10/23/17

## ATTACHMENT NO. 1

### PILOT FACILITY DESCRIPTION

The Pilot Membrane Bioreactor (MBR) Facility shall consist of three to five packaged units downstream of one common bioreactor consisting of the vendor's smallest, full-sized membrane separation cassette/rack for the purpose of achieving the following objectives:

- Scalability for 70 MGD MBR system
- Determine the viability of the MBR process for tertiary treatment of HWRP primary effluent
- Develop selection criteria for the 70 MGD MBR system supplier
- Provide a design basis for the 70 MGD MBR system
- Develop the basis for capital and O&M cost estimates
- Determine comparative vendor performance
- Assess the treatability of MBR effluent
- Initiate regulatory review for ultimate approval of MBR pathogen log removal credits by Division of Drinking Water (DDW)
- Test the system's performance under varying conditions to determine the process stability and membrane integrity
- Evaluate downstream reverse osmosis (RO) performance and quantify impacts on operations and maintenance (O&M) of the RO systems and regulatory compliance concerning the RO product water used for the West Coast Basin Seawater Barrier Project using the existing operational conditions at ECLWRF.
- Simulation of sludge/membrane interaction
- Means of integrity monitoring
- Duplication of air scour impacts
- Reproduce mechanical systems' impacts

#### Examples of Package MBR Pilot Units

GE - 0.375 MGD for one full cassette

KOCH - 0.26 MGD for one full cassette

EVOQUA - 0.165 MGD for one train with two full racks

## ATTACHMENT NO. 2

### **A DRAFT OUTLINE OF THE FEASIBILITY STUDY FOR UTILIZING MEMBRANE BIOREACTORS TO PRODUCE 70 MGD NITRIFIED/DENITRIFIED (NdN) TERTIARY RECYCLED WATER AT THE HYPERION WATER RECLAMATION PLANT**

LA Sanitation (LASAN), Los Angeles Department of Water and Power (LADWP), and West Basin Municipal District (WBMWD) intend to plan, design, and construct facilities at the Hyperion Water Reclamation Plant (HWRP) that will utilize Membrane Bioreactor (MBR) technology to produce 70 MGD of Nitrified/Denitrified (NdN) tertiary recycled water (NdN recycled water) that will be delivered to WBMWD's Edward C. Little Water Recycling Facility (ECLWRF) Plant in El Segundo. It is envisioned that 16 MGD out of the 70 MGD would be for distribution to LADWP recycled water customers within the City of Los Angeles and 54 MGD of the recycled water would be utilized by WBMWD's customers.

The objective of the feasibility study is to provide a conceptual outline for the facilities needed to produce 70 MGD of NdN recycled water produced by utilizing MBR technology for delivery to WBMWD's ECLWRF in El Segundo, and LADWP customers.

The feasibility study will be built on findings obtained from the MBR Pilot Study and will provide but not limited to the following information:

- Project objectives
- Project description suitable for CEQA including but not limited to location and layout of project within HWRP
- Design criteria
- Water Quality Characterization and evaluation of existing plant data
- Assessment of Nitrified/Denitrified Membrane Bioreactors (NdN MBR) as a suitable treatment technology
- Evaluation of treatment component footprints and layout
- Peak wet-weather flow analysis
- Technical implications of integration/conversion of High Purity Oxygen to Conventional Air
- Preliminary development of recommended technology
  - Health risk assessment
  - Permit requirements
  - Phasing/Modernization alternatives

- Project life cycle cost implications including opinion of probable construction cost, and operation and maintenance (O&M) costs. Costs will be escalated to reflect the current economy.
- Outside funding and financing strategy analysis for offsetting and reducing the capital costs of the full scale project.
- Evaluation of potential rate structures.
- Project delivery method and procurement approach analysis (e.g. design-build, design-bid-build, etc.).
- Schedule developed using project delivery methods, including design build and design bid build.
- Conclusions and Recommendations

## **Attachment B (CH2MHILL Fact Sheet)**

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WATER  
MATCH



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## Water Reuse Case History

### West Basin Water Recycling/Petroleum Refinery Reuse Program

El Segundo, California, USA

Municipality: West Basin Municipal Water District

Companies: Two Large Oil Refineries

#### Project Fast Facts

**Industry Flowrate:** 10,400 gpm  
(2,362 m<sup>3</sup>/hr)

**Industry:** Oil and Gas; Municipal Water Supply

**Use:** Sea Water Barrier Injection Water, Cooling Water, and Boiler Feed Water

**Conveyance:** 25-mile (40-km) pipeline

In 1990, the West Basin Municipal Water District (WBMWD) initiated its Water Recycling Program to conserve available drinking water supplies for 18 cities and unincorporated areas in southwest Los Angeles County and to decrease its dependence on outside water sources. CH2M HILL has worked closely with WBMWD throughout the program to implement numerous projects that collectively divert up to 62.5 million gallons per day (mgd) of secondary effluent from the City of Los Angeles Hyperion Treatment Plant for further treatment and reuse, including reuse by local petroleum refineries.

The Phase I Edward C. Little Water Recycling Facility included two plants: a 15-mgd direct filtration plant, producing Title 22 water for irrigation, and a 5-mgd advanced treatment reverse osmosis (RO) plant, which produces drinking-water-quality injection water for the West Basin Barrier. The permit to inject recycled wastewater into the West Basin Barrier was issued by the Los Angeles Regional Water Quality Control Board (RWQCB) in January 1995. Only the second permit of its kind issued in California, it enabled the barrier to use an additional 8 mgd of purified recycled water to maintain an underground hydrogeologic barrier and to prevent seawater contamination of a drinking water aquifer. Since 1995, up to 5 mgd of purified recycled water was blended with imported potable water and injected into the ground. The percentage of purified recycled water increased in phases from 50 to 75 percent (12.5 mgd) and then to 100 percent (17.5 mgd). Simultaneously, the use of imported potable water was decreased and then eliminated, reducing the cost of maintaining the barrier by almost \$575,000 per year. The Phase II project included design of more than 25 miles of 6- to 42-inch-diameter pipelines in congested industrial, commercial, and residential areas.

In 1994 the West Basin Water Recycling Facility (WBWRF) in El Segundo, California, became operational. Using a unique combination of proven water treatment technologies, including microfiltration (MF) and RO treatment, it initially treated 20 mgd (3,167 m<sup>3</sup>/hr). Later expanded to treat 38 mgd (5,938 m<sup>3</sup>/hr), it is designed for ultimate expansion to 100 mgd (15,833 m<sup>3</sup>/hr)—making it the largest planned water recycling facility in the U.S.

CH2M HILL also delivered two offsite 5-mgd nitrification facilities to meet the stringent water quality needs of two large petroleum refineries. Piping at the WBWRF was later installed to provide boiler feed water to one of the refineries. The second nitrification plant uses advanced treatment with MF and RO to treat reclaimed water for boiler feed.



*CH2M HILL fast-tracked the WBWRF facility design because of ongoing drought conditions and potentially critical water shortages. When built out, this will be the largest single planned water reclamation project in California and one of the world's largest water reuse programs.*

**Our motive is simple: to promote beneficial wastewater reuse around the world today.  
Join us and help make matches happen. Because no water should be wasted.**



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