Agenda Item: 8.C.

State Opportunities & Historical Recycled Water Development

SOCWA BOARD MEETING| FEBRUARY 02, 2023

AMBER BAYLOR | JIM BURROR

Drivers & Purpose

Drivers:

CASA Regulatory Workgroup Priority Item

Governor Newsom's California Water Supply Strategy

Regulatory Strategy for Local Water Supply Delivery

Purpose:

Assist agencies in permit streamlining through regional focus

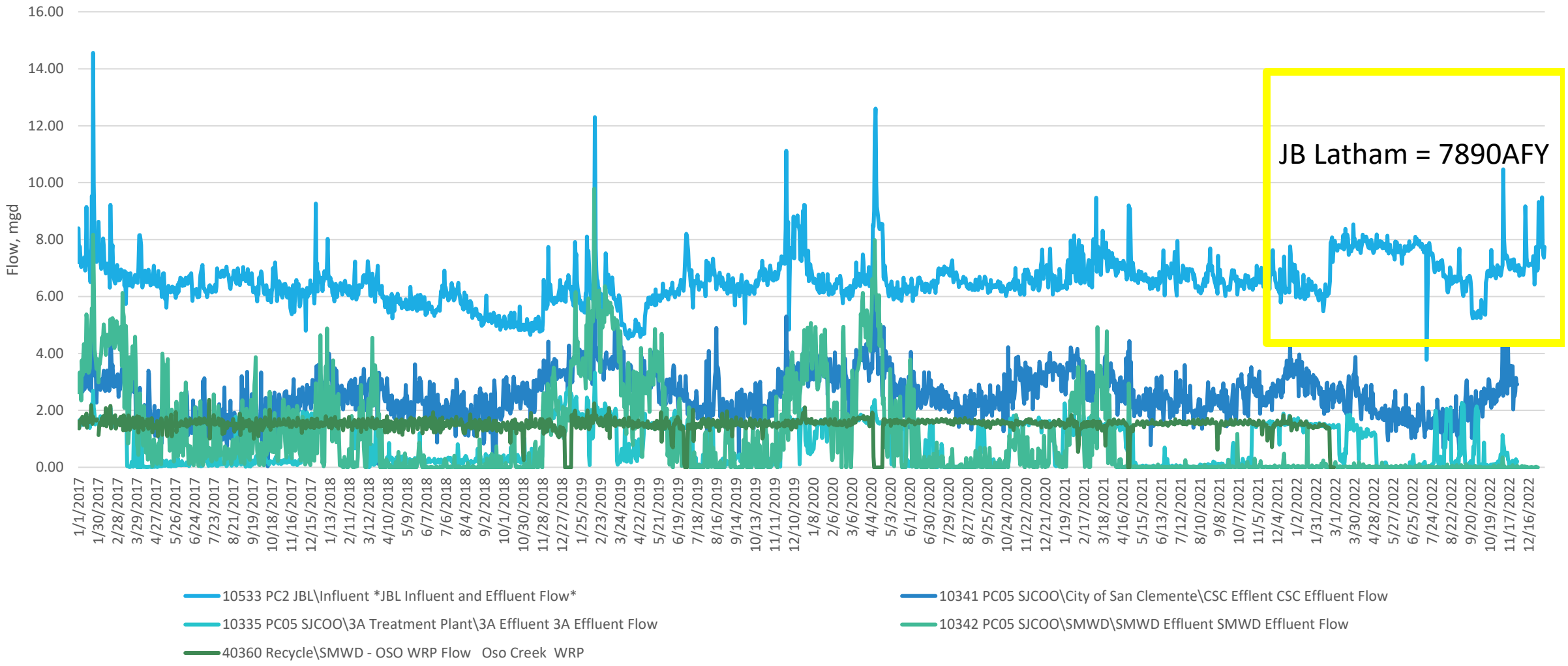
Maximize beneficial uses at each outfall

Water Supply Strike Team

1. Assist the agencies who are currently executing projects to be operational in next 7 years to ensure no short term/imminent **permitting or funding** issues disrupt their timeline.

2. Assess opportunities for more recycling in consideration of a suite of obstacles including brine management, rates, land for siting, and the need to recapitalize existing infrastructure.

Available Effluent Flow to SJCOO 2017 to 2022



History of JB Latham AWT Design & Funding

- 2000 CGvL Preliminary Design
- 2001 CH2MHill AWT Advanced Wastewater Treatment Facilities Final Design
- 2006 CH2MHill Preliminary Design
- 2007 MND/EIR for AWT
- 2008 CH2MHill J.B. Latham Treatment Plant AWT Pilot Study
- 2008 J.B. Latham Treatment Plant AWT Facility State Revolving Fund Application Assistance
- 2009 Bid Package – Membrane System for the J.B. Latham Treatment Plant Advanced Wastewater Treatment Facility
- 2009 Bid Package – UV Disinfection System for the J.B. Latham Treatment Plant Advanced Wastewater Treatment Facility
- 2013 Facility Improvement Plan TM-7 Section 6.0 Advanced Water Treatment Plan
- 2017 JBLTP Package B Planning Technical Memorandum No. 1 Liquid Treatment Train Analysis

2017 Carollo Recommendations

- Pilot testing of cloth and media pressurized. membranes performed in 2008.
- Cloth filters did not perform well.
- 2017 Recommendation of 6.2 mgd with microfiltration.
- **Goal** of 900mgl chosen and Reverse osmosis selected as the technology to achieve goal, not regulatory requirement.
- **User** requirements to determine recycled water goal.

5.2.2 Previous Work

Several studies have been performed for SOCWA in regards to Title 22 treatment, beginning with CGVL Engineers in 2000. This work effort was ended when secondary effluent quality was deemed too poor and inconsistent for conventional processes to produce Title 22 effluent.

In 2006, CH2M HILL performed a study on technologies for advanced water treatment (AWT) and evaluated membrane bioreactors, cloth media filters, and pressurized membrane filters as potential technologies for producing Title 22 effluent. The study concluded that MBR technology would be too costly to implement at JBLTP and was not evaluated further. Both cloth media filtration and pressurized membrane filters were further evaluated due to similar cost and relatively small footprint. This study noted that little information existed at the time on how cloth media filters would perform at a facility operating under non-nitrifying solids retention times (SRTs). Subsequently, CH2M HILL recommended that pilot testing of cloth media and pressurized membrane filters be done at JBLTP.

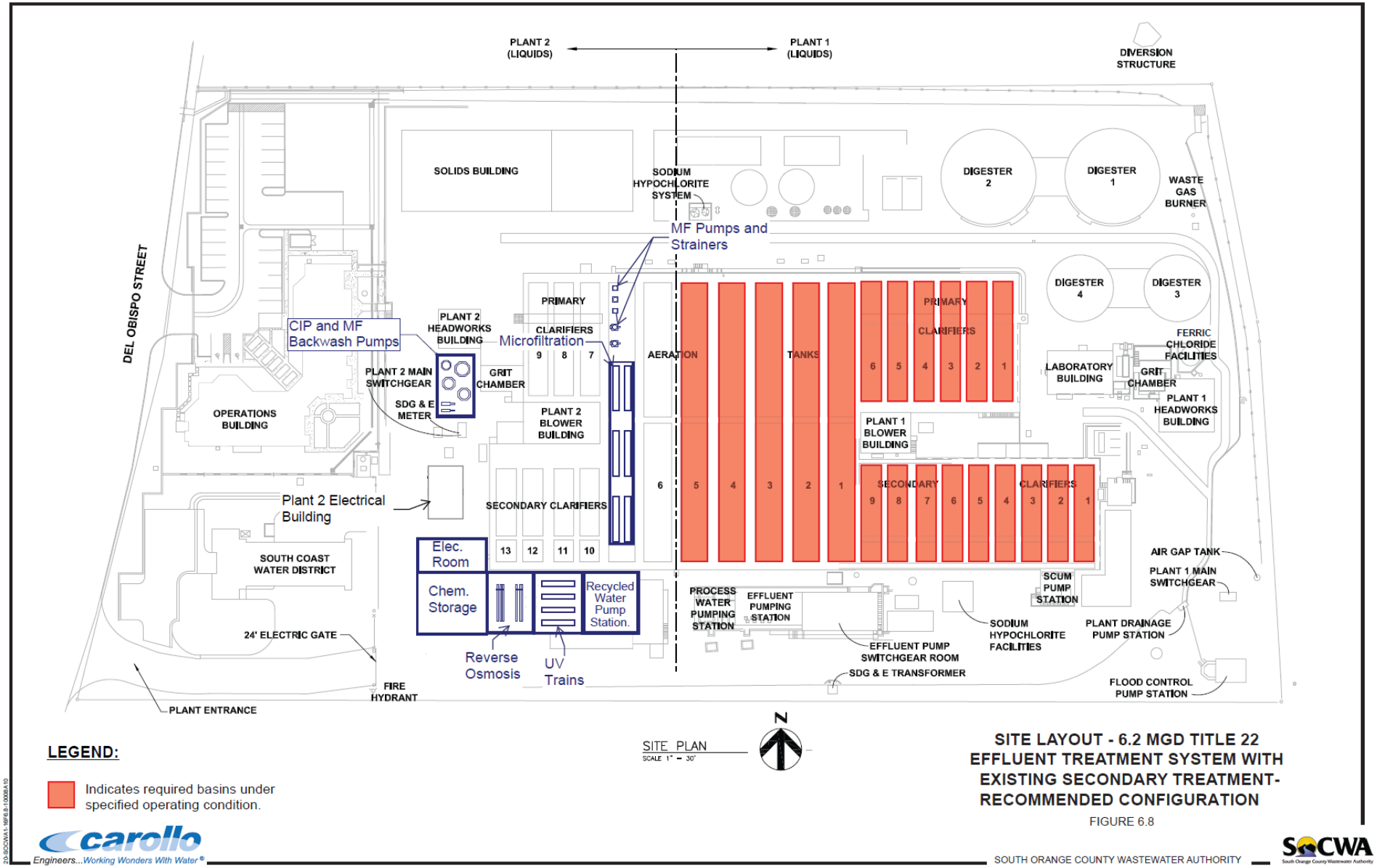
Pilot tests were performed in 2008 and showed definitively that cloth media filters did not perform well at JBLTP. However, pressurized membranes worked well during pilot testing, which led to a second technical memo where CH2M HILL updated their 2006 study based on pilot testing results. This 2009 memo further investigated the feasibility of producing Title 22 effluent with pressurized membrane filters (microfiltration) with low-pressure, high-intensity ultraviolet (UV) disinfection. This effort was eventually ended due to projected costs.

5.2.3 Salt Issues

Previous work related to Title 22 effluent has not addressed the high total dissolved solids (TDS) in JBLTP's secondary effluent. Per SOCWA at the Effluent Management Meeting, Plant 1 typically produces secondary effluent with 1,000 mg/L to 1,100 mg/L TDS, and Plant 2 normally produces 2,000 mg/L TDS. For the purpose of this evaluation, SOCWA advised that a non-potable effluent goal of 900 mg/L TDS should be used for process evaluation. This goal necessitates the use of microfiltration/ultrafiltration (MF/UF) with side-stream reverse osmosis (RO) to reduce overall TDS in Title 22 effluent to 900 mg/L. Previous work by CH2M HILL, at JBLTP, has shown that cloth media filters perform poorly at JBLTP and were therefore excluded from possible Title 22 treatment trains. Sand filters are also excluded from consideration at JBLTP due to their large footprint.

5.3 TREATMENT REGULATIONS

Any future water reuse project must meet the applicable public health criteria for either non-potable and potable water reuse, depending on the selected reuse application. Further, any new water reuse project must not cause exceedances in the JBLTP's discharge permit.



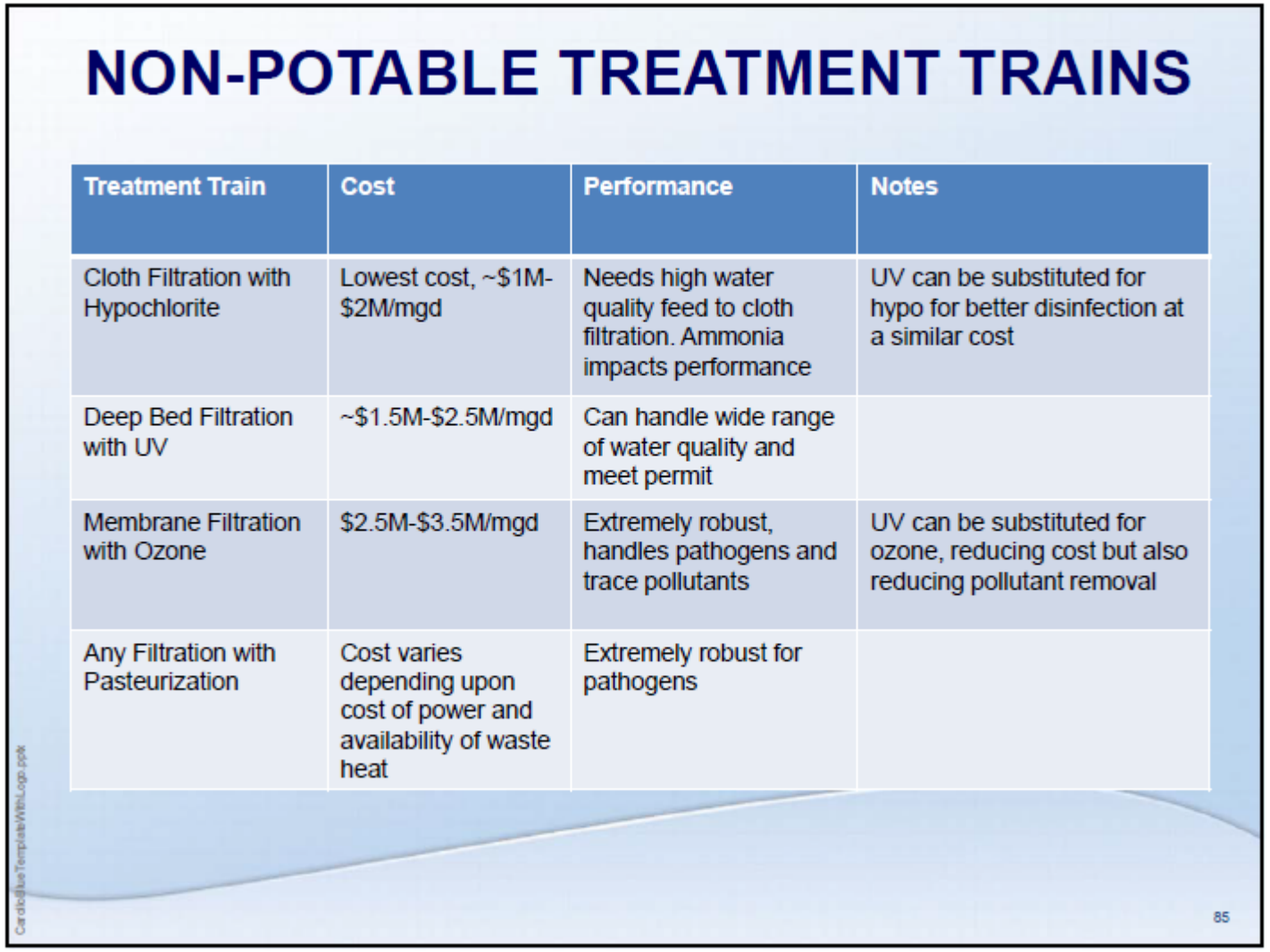
SITE LAYOUT - 6.2 MGD TITLE 22 EFFLUENT TREATMENT SYSTEM WITH EXISTING SECONDARY TREATMENT- RECOMMENDED CONFIGURATION

FIGURE 6.8

carollo Engineers...Working Wonders With Water®

SOUTH ORANGE COUNTY WASTEWATER AUTHORITY

SOCWA South Orange County Wastewater Authority



Design/Production Phase Cost

- $2.5M - $3.5M/mgd cost estimate in 2017.
- ~$17.6M - $24.6M for immediate production of recycled water.
- Engineering design & cost estimate would need to be updated at an estimated $2M requested for FY 23 -24 Capital Improvement Program (CIP).
- Staff's goal is to complete updated design, cost, and construction in 3 years.
- CIP request for CTP/RTP MBR.

Thank you!

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