

Item B-2 Public Works Advisory Board

Water Reclamation Facility Potential Change Orders

May 20, 2020

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Recommendations

- Provide input regarding the potential change orders (PCOs)

Status Update

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Current expenditures and revised budget

Project Element	Actual Expenditures to Date	Remaining Expenditures	Total Project Budget
General Program	\$9,154,000	\$3,810,000	\$12,964,000
WRF	\$8,159,000	\$63,696,000	\$71,856,000
Conveyance Facilities	\$1,807,000	\$28,181,000	\$29,989,000
Recycled Water Facilities	\$388,000	\$5,137,000	\$5,526,000
Contingency		\$10,263,000 ⁽¹⁾	\$10,264,000
Total	\$19,508,000	\$111,087,000	\$130,599,000

Notes:

(1) If all PCOs are approved by City Council (\$6.0 million), the remaining contingency would be \$4.2 million with \$1.5 million remaining for the WRF component of the Project.

Impacts of revised budget on total cost

Scenario	2018 Rate Study	2019 Financial Plan Update	2020 Debt Service Projections
Project Budget	\$126,000,000	\$125,882,000	\$130,596,000
Debt Proceeds	\$95,175,000	\$97,000,000	\$101,714,000
Total Debt Service Cost	\$179,945,000	\$132,660,000	\$128,138,000
Present Value of Total Debt Service Payments⁽¹⁾	\$107,738,000	\$81,698,000	\$74,622,000
Maximum Annual Debt Service Payment	\$5,293,000	\$4,422,000	\$3,993,000

Notes:

(1) Present value is shown in current dollars and assumes a 3-percent discount rate.

Potential Change Orders

What is a PCO?

Suggested change to the WRF identified

Determination of material change in DB scope

Development of raw order of magnitude (ROM) cost

Decision made to move forward

Development of Draft PCO

Review of Draft PCO by Program Manager

Discussion of Comments

Development of Final PCO and Negotiation

Summary of proposed PCOs

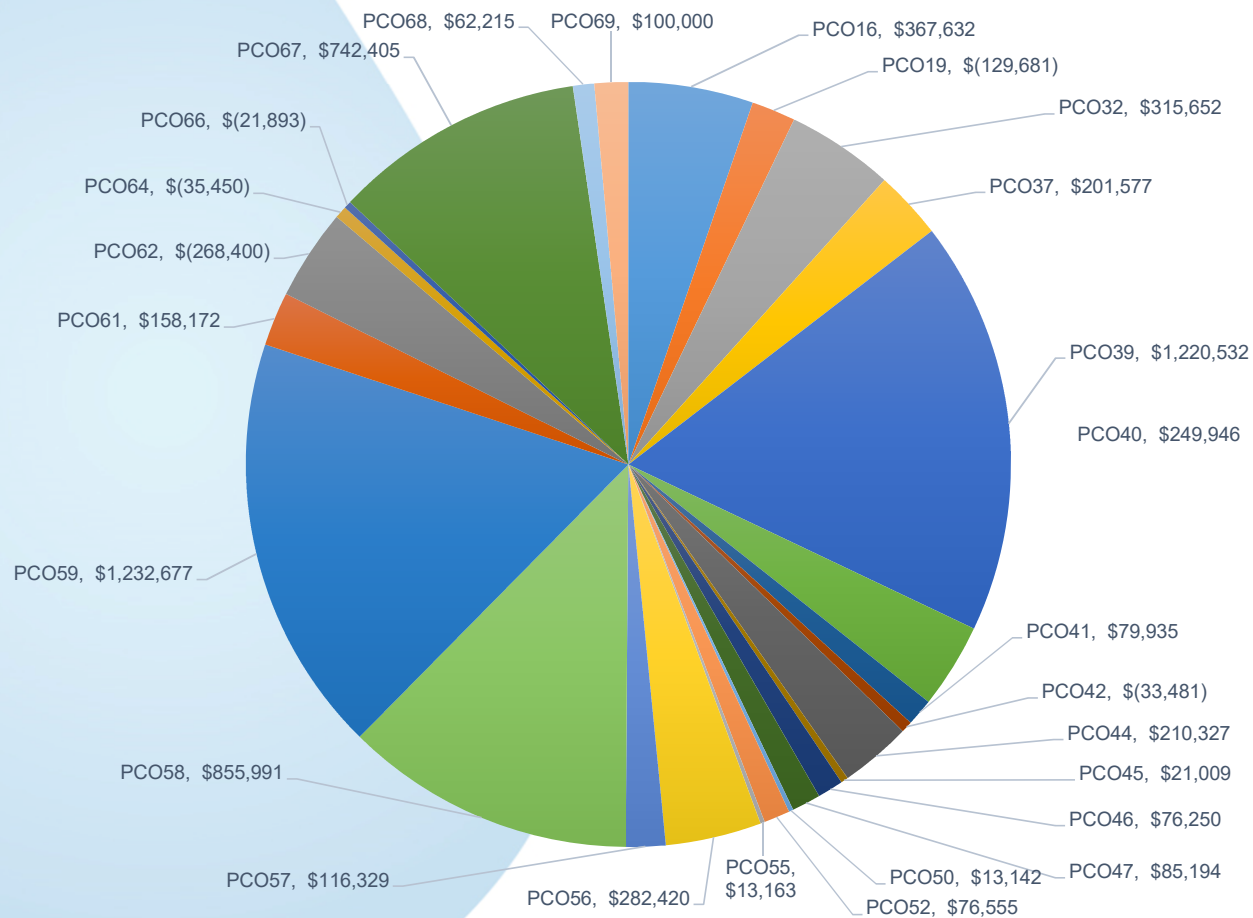
- Total 26 PCOs being considered
- Total cost impact of \$5,992,217
 - Cost increase = \$6,481,123
 - Cost savings = \$(488,905)
- Adoption of the PCOs would exceed the remaining contingency for the WRF component of the Project (\$4,541,338)

PCOs will result in an increase in the total Project Budget

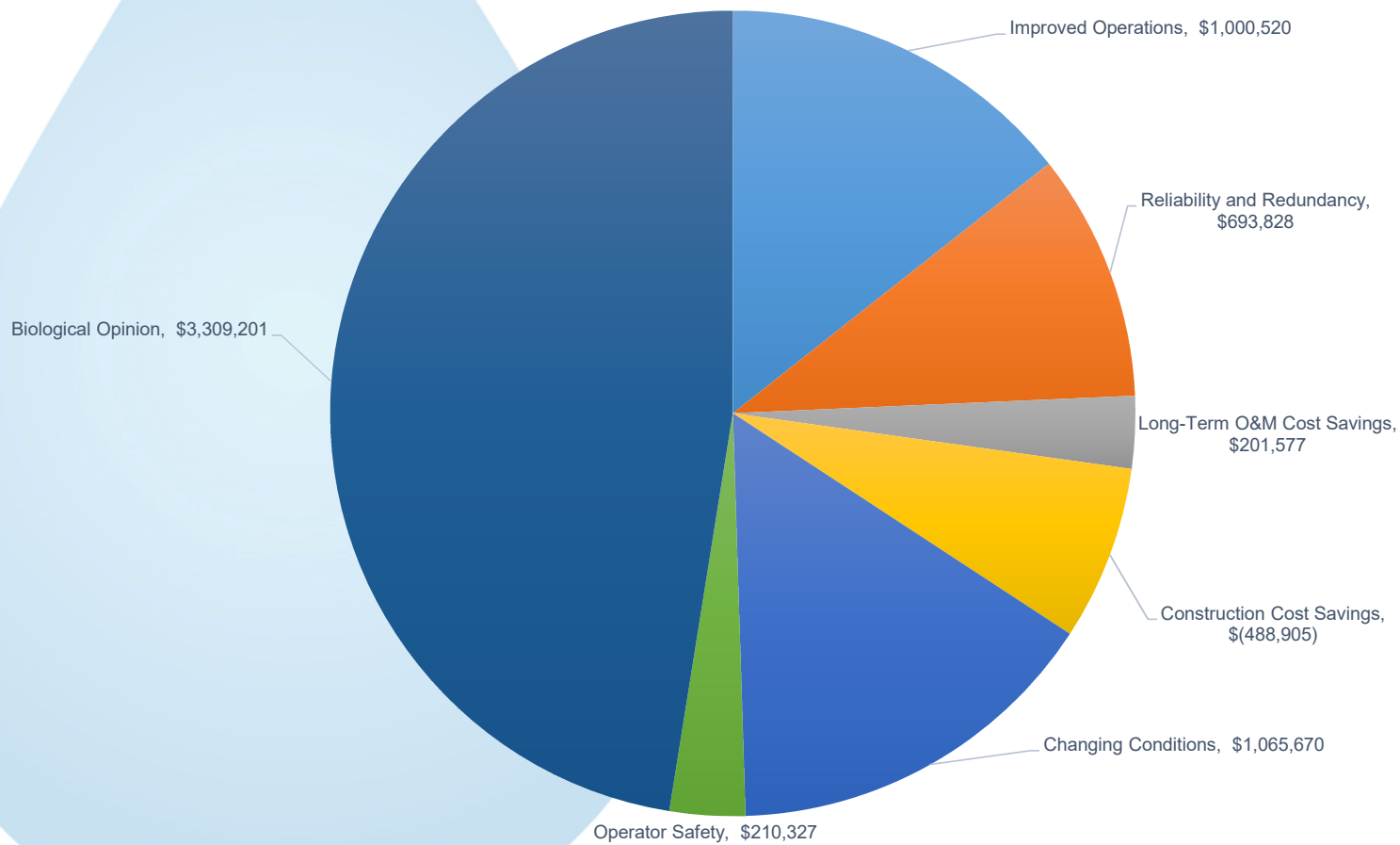
Impacts on WRF contingency

DB Contract	Amendment Value	GMP	Contingency	Contingency Revision
Original Agreement	\$0	\$67,234,512	\$6,241,333	\$0
Amendment No. 1	\$1,636,059	\$68,870,571	\$4,605,274	\$0
Amendment No. 2	\$63,937	\$68,934,508	\$4,541,338	\$0
Amendment No. 3	\$5,992,217	\$74,926,725	\$(1,450,879)	\$2,900,000
Total			\$1,449,121	

Breakdown of cost increases



Cost increase categories



Biological Opinion

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Biological opinion

- Initiated formal consultation with USFWS in December 2019 for the California Red Legged Frog
- Project financial impacts
 - Delay issuing the construction Notice to Proceed
 - Implementation of avoidance measures (temporary and permanent exclusion fencing)



PCO 039 – NTP Delay

- Contract anticipated delay up to 1 year (October 23, 2019)
- NTP delayed until March 20, 2020
- Cost negotiated with the DB team:
 - Original = \$1,487,368
 - Final = \$1,220,532

Cost = \$1,220,532

PCO 059 – Increased Escalation Costs

- Additional escalation calculated by the DB team from October 22, 2019 to March 20, 2020
- Escalation calculated based on specific Black & Veatch indices
 - Approach vetted by the Program Manager
 - Resulting increase less than if ENR was used

Cost = \$1,232,677

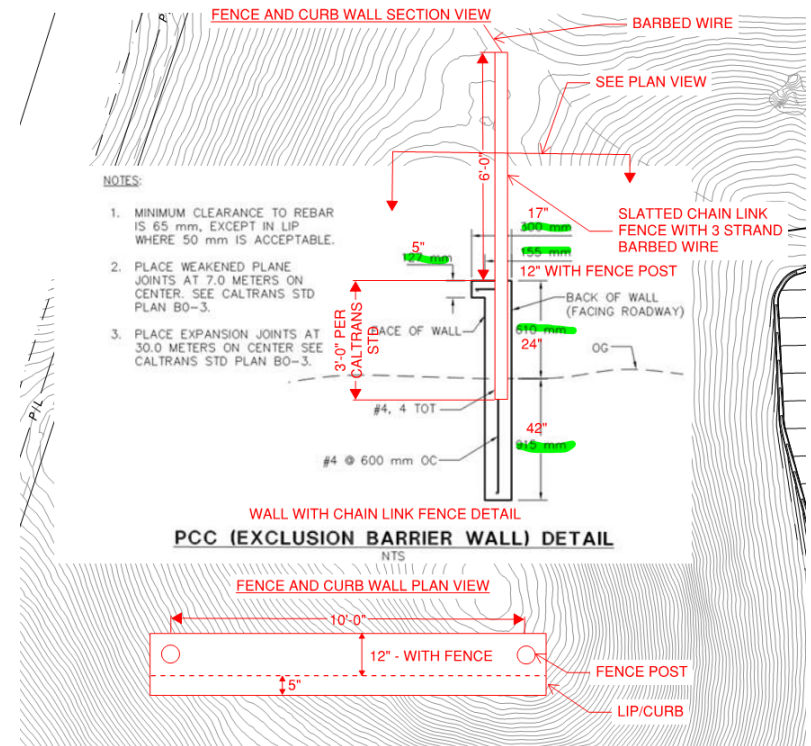
6.16 Compensable Cost Escalation

6.16.1 After the award of this Design-Build Agreement, the construction start date is anticipated to be delayed for up to twelve months until financing is approved. The Design/Build Entity will not be compensated for increases in pricing within that delay, unless the Engineering News-Record (ENR) Construction Cost Index (CCI) for San Francisco, CA exceeds 3.0% annual average for that twelve months.

PCO 058 – Permanent Exclusion Fencing

“The permanent fencing will include a concrete exclusion barrier along the eastern boundary of the site that extends 24 inches above grade. The top of the concrete exclusion barrier will include a six-inch lip that will serve as a climbing barrier for the California red-legged frog. Affixed to the top of the concrete exclusion barrier will be a six-foot chain link fence with privacy slats. The remaining perimeter of the site will include a six-foot chain link fence with privacy slats.”

Cost = \$855,991



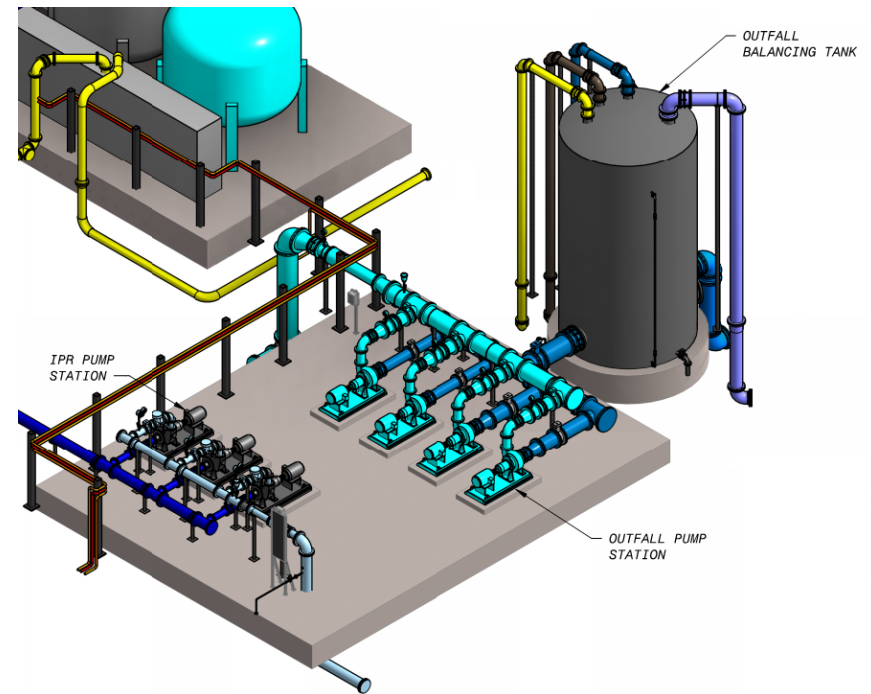
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Reliability and Redundancy

PCO 016 – Outfall Pump Station Modification

- Design criteria
 - RFP: 7.17 mgd
 - Revised: 8.14 mgd
- Original design assumed purified water production during peak wet weather events
- Final design also needed to be coordinated with the Conveyance Facilities design

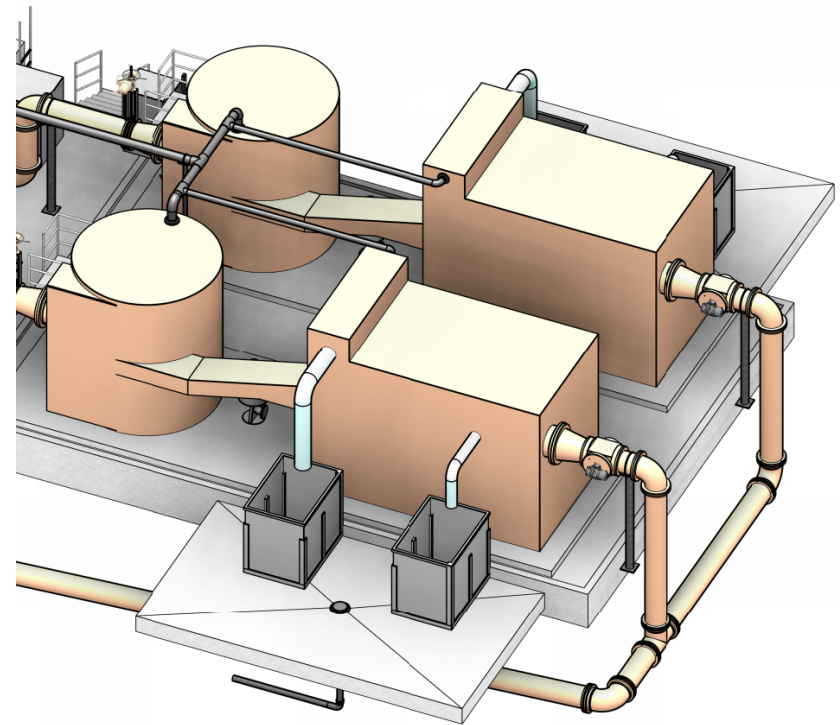
Cost = \$367,632



PCO 040 – Headworks Valve Automation

- Facility is not manned continuously
- Automated valves allows for better unattended operation
- Provides protection against localized overflows

Cost = \$249,946



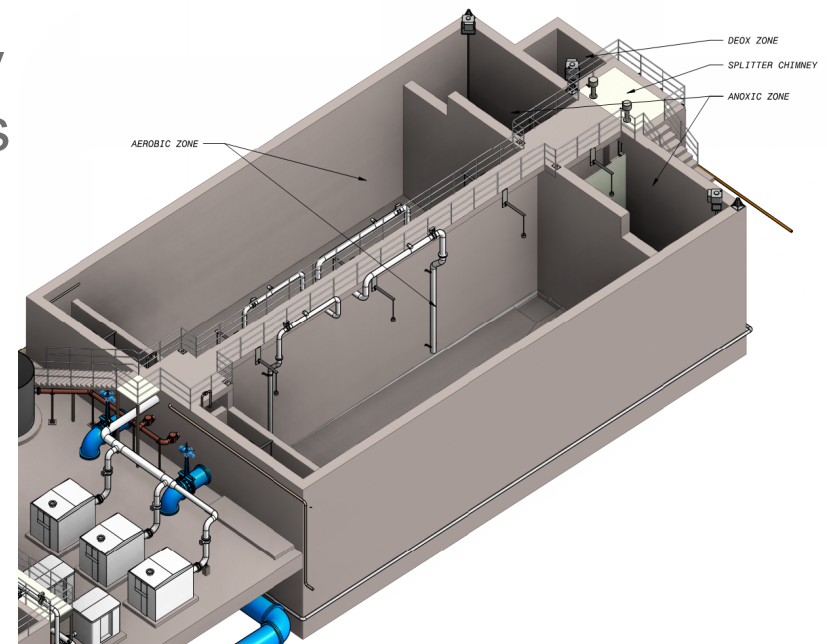
Improved Operations

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PCO 067 – BNR System Modifications

- Alternative process control proposed by DB team to save capital and O&M costs
- Decision to change to a more conventional approach
- Necessary modifications
 - Larger blowers
 - Larger air piping
 - Additional fine bubble diffusers
 - Ammonia chemical feed system

Cost = \$742,405





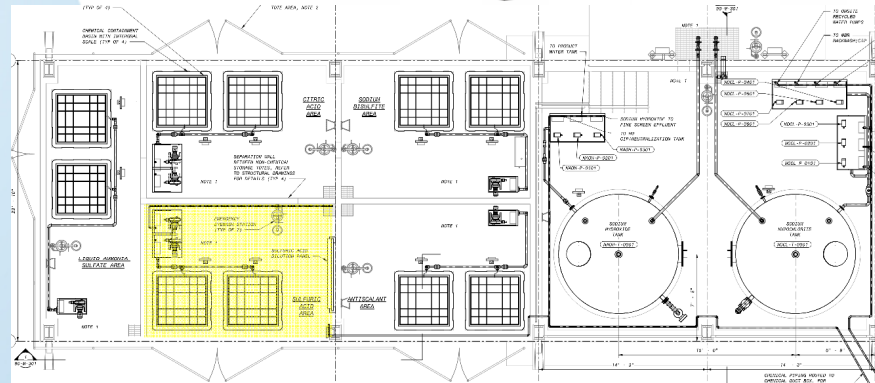
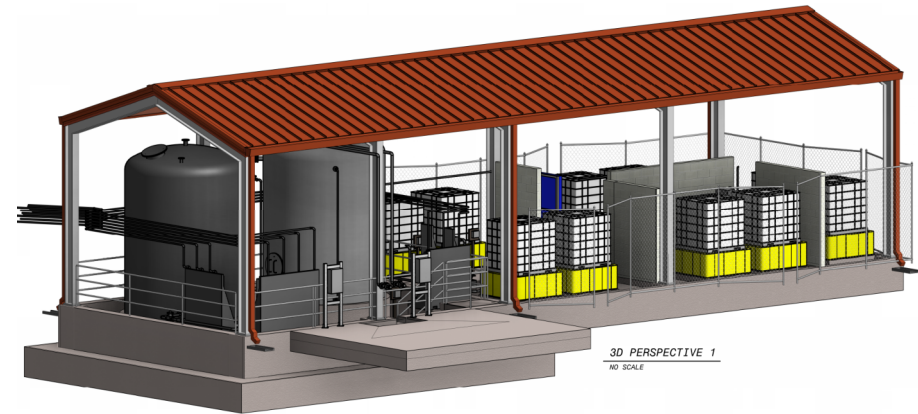
Changing Conditions

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PCO 032 – Sulfuric Acid System

- pH control needed as a result of additional water quality sampling
- Necessary modifications
 - Chemical piping (conduits and tubing)
 - Chemical bay at centralized chemical storage facility
 - New chemical feed pumps

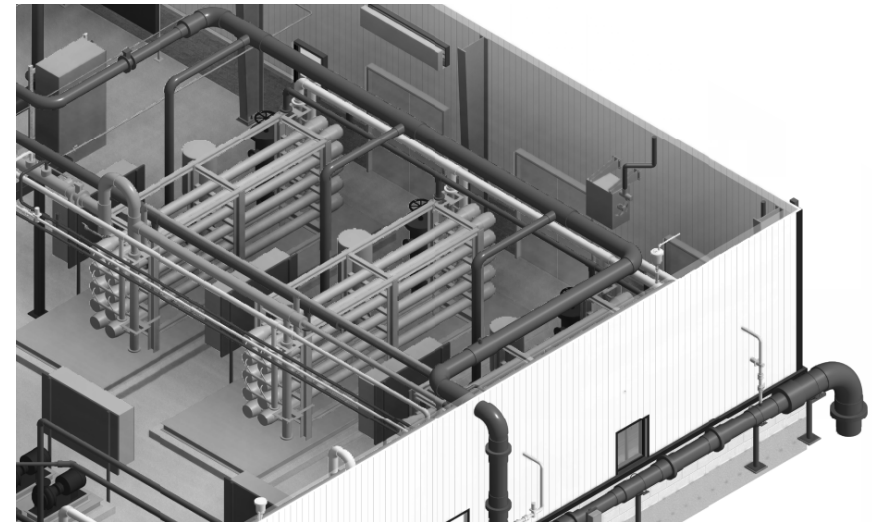
Cost = \$315,632



PCO 056 – Impacts of Water Quality Changes

- Significant, additional analysis required to investigate bromate impacts on UV-AOP system
- Revisions made to the RO system
 - Material upgrade from 316 to Duplex stainless steel
 - Increase feed and interstage pump sizes

Cost = \$282,420

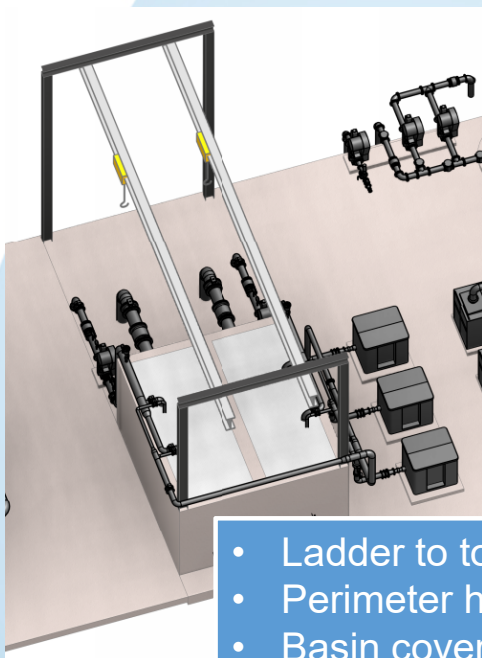


Operator Safety

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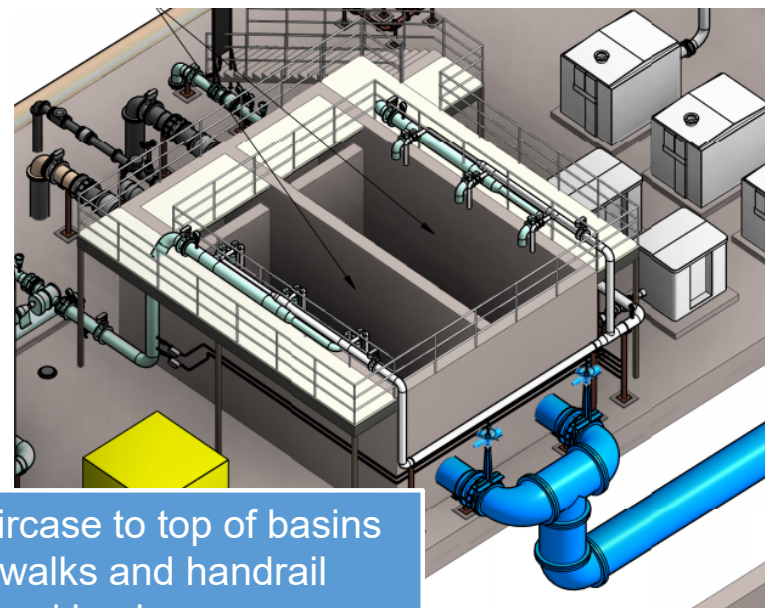
PCO 044 – Tank Access Improvements

- Access improvements to MBR basins, SAFE System, and BNR basins



- Ladder to top of basins
- Perimeter handrail
- Basin covers

Cost = \$210,327



- Staircase to top of basins
- Catwalks and handrail around basins
- Basin covers

Questions and Discussion



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