

# A-Side Primary Clarifiers Replacement at Plant No. 2

## Contract No. P2-98A

Construction Contract Award

Presented by:  
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Engineering  
Manager  
Operations  
Committee  
May 5, 2021



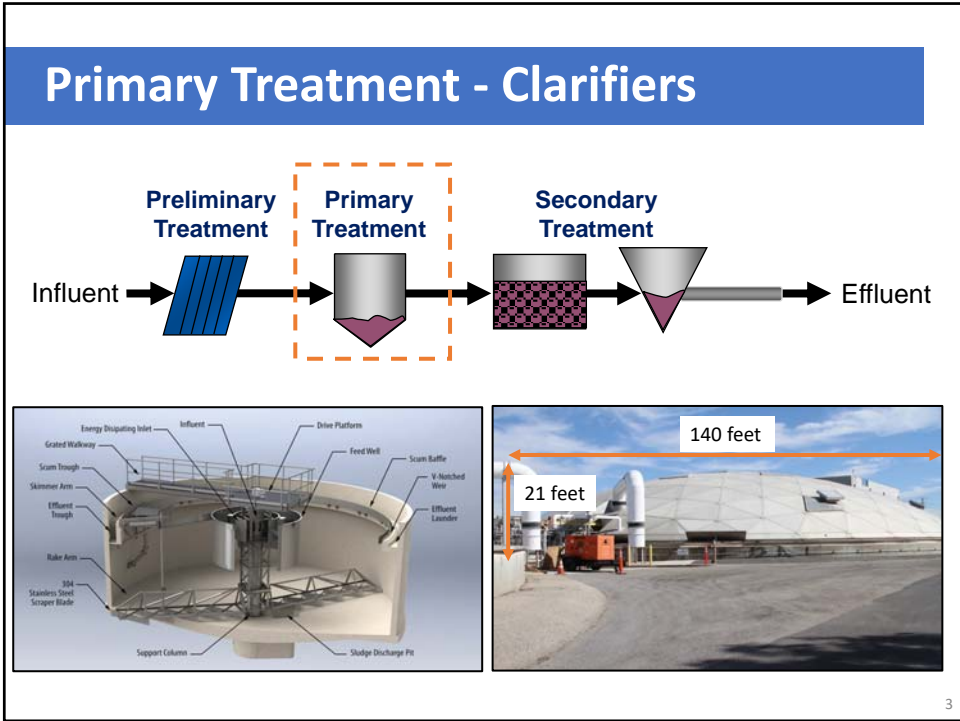
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## Plant No. 2 - Project Site Plan

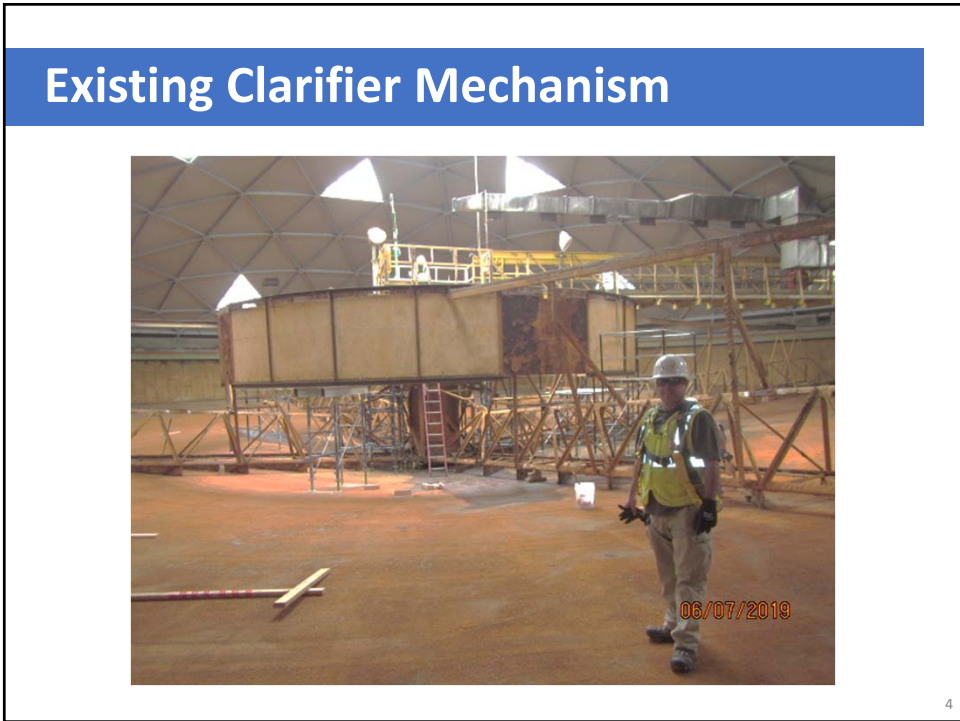


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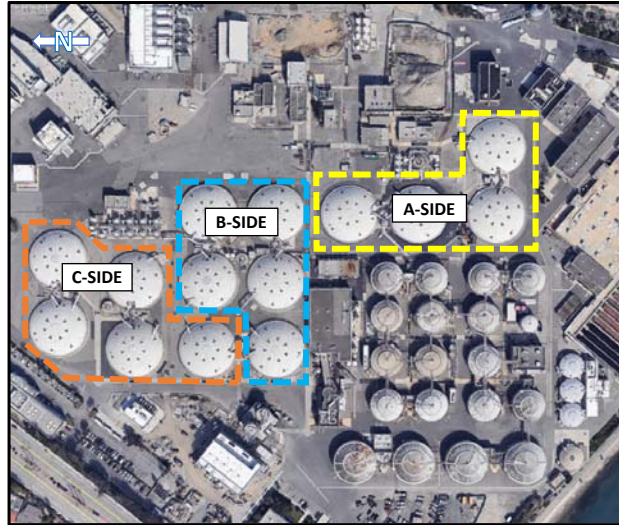
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## Primary Treatment Rehabilitation

**P2-98A** Replace four A-Side Clarifiers

**P2-98B:** Interim repairs for B- & C-Sides (Construction Complete June 2021)

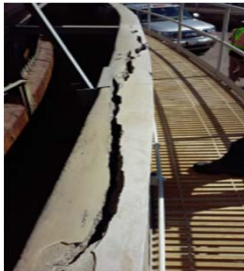
**P2-98C (now P2-133):** Major Rehab for B- & C-Sides (Construction Start 2031)



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## A-Side Primary Clarifiers Require Replacement



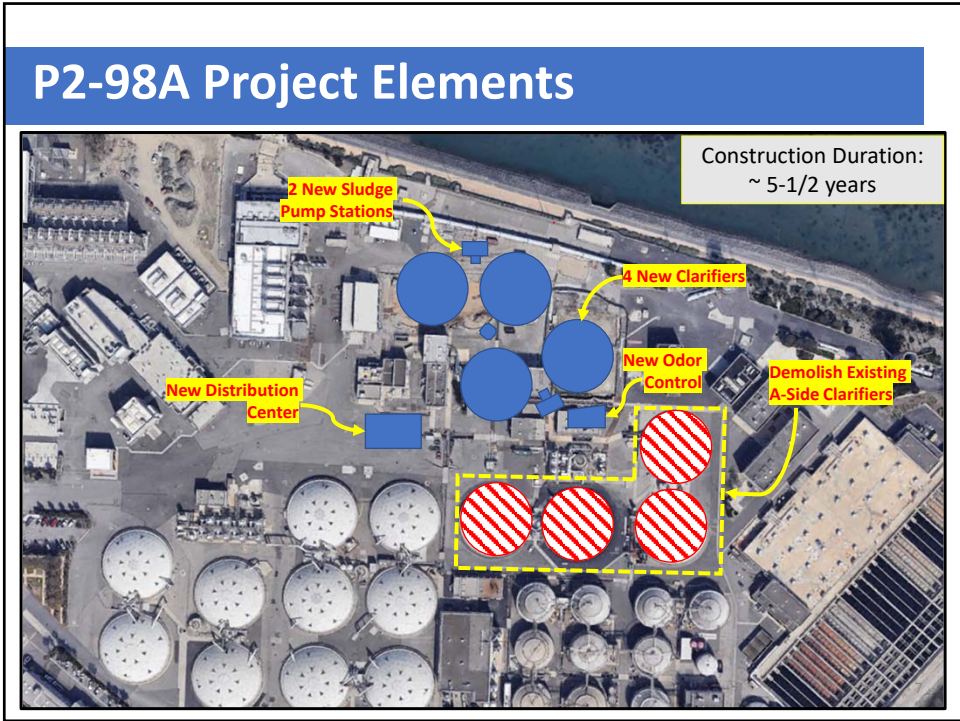
Built between 1960-1963



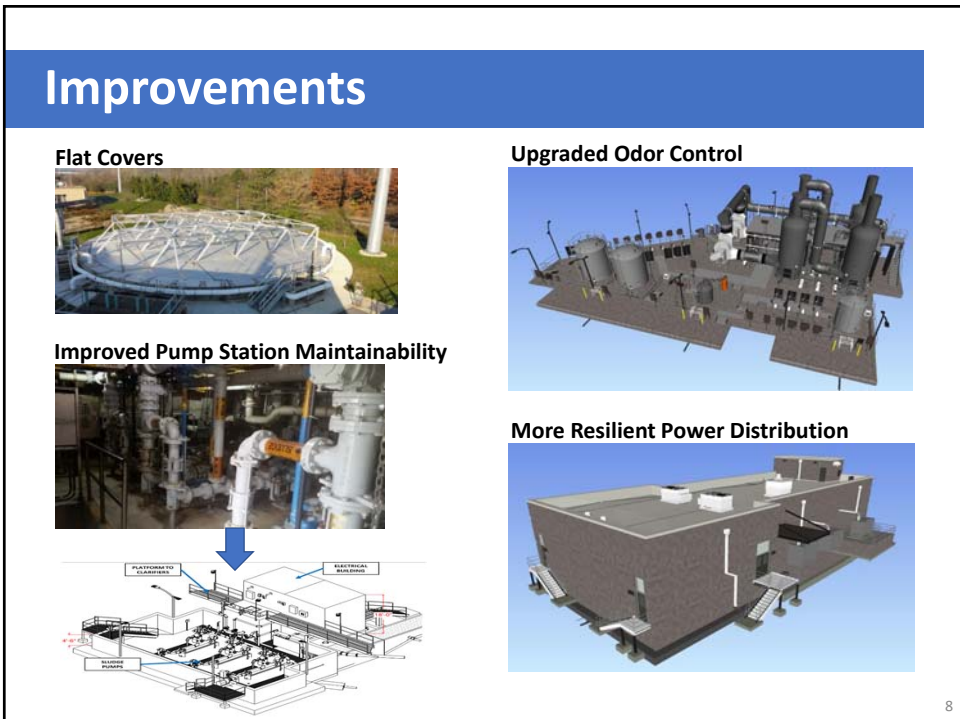
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## Risk Management Process



**Identify** ⇒ **Analyze** ⇒ **Develop Response** ⇒ **Control**

- 57 project-specific risks identified
- Accept
  - Avoid
  - Mitigate
  - Transfer

- Strategies
- Action Plans

- Monitoring
- Reporting

Risk Identification	Phase	Impact Categories	Risk Qualification	Risk Quantification	Risk Mitigation / Response	Phase of Mitigation	Responsible Party	General Notes
Risk Title	Description of Risk Event	All Phase	Design	Procurement	Construction	Operation	Decommissioning	Comments
CO2M Space	Inadequate space allocated for CO2M equipment and/or mobile bench space	X	X	X	X	X	X	Mitigation: Space requirements have been reviewed and compared to those needed during a 1510 which is currently in progress. <b>COMPLETED</b>
CO2M Tubing	Inadequate criteria for or management of tubing from CO2M	X	X	X	X	X	X	Mitigation: CO2M tube already installed for testing for use in <b>SCALE</b> . <b>COMPLETED</b>
Common Riser for CO2M	Inadequate control rates for CO2M for initial work prior to installation testing. Control for risk begin with allowing blow out string, then need to increase for additional required production.	X	X	X	X	X	X	Mitigation: Project team to review the CO2M design, including SA/SC, requirements for CO2M, test scenario, and controls, in conjunction with H2O, brought from E&P
Efforts Involving up and	Local soil subsidence, heaving, slough and movement will be required before well is completed off site to locate. Due to large number of construction projects at FT, there may be inadequate ground on site for this activity, or the lateral spread may be too great which results in higher risk for this work activity.	X	X	X	X	X	X	Mitigation: After review (including costs of offsite processing), it was decided to investigate another. CO2M has made "2" a minor modification to the site during 2018 or discuss an alternative. <b>COMPLETED</b>
Quality of Materials	Quality of materials does not meet specified requirements, such as EOR materials used to ensure lower grade than indicated.	X	X	X	X	X	X	Mitigation: "Understand" including "H2O" regarding well test reports for identified well materials.
Finalized Installation Methods	Inadequate definition of allowable installation installation requirements leading to settlement of existing basins.	X	X	X	X	X	X	Mitigation: Settlement control requirements for impacted basins and others are provided in open 2019. Environmental Controls. <b>COMPLETED</b>

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## Construction Dewatering Risk


- Construction delays
- Extended overhead costs
- More wells needed, higher costs
- Potential structural damage

Design Phase Responses

- Learn lessons from Plant 2 projects
- Performed dewatering study
- Specified stringent dewatering reqmts

Construction Phase Responses

- Geotech inspection of dewatering wells
- Weekly review of dewatering performance
- Review sampling data for biofouling
- Scope for as-needed support



Installation of dewatering well

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## Work Sequence and Shutdowns Risk

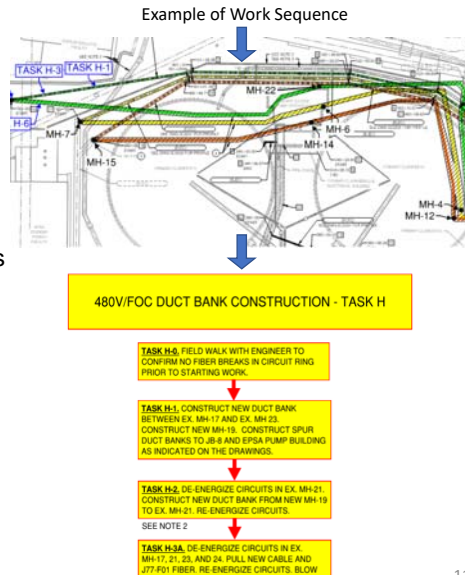
- Safety impacts
- Operational impacts
- Spills, permit violations
- Construction delays
- Change orders

### Design Phase Responses

- Extensively tracked interdependencies
- Planned shutdowns in detail
  - 40 shutdowns itemized
  - 200 utility tie-ins
- Specified detailed work sequence

### Construction Phase Responses

- Require 60-day shutdown notices
- Dedicated shutdown coordinators:
  - Engineering, O&M, Contractor



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## Bid Results

Bidder	Amount of Bid
Engineer's Estimate	\$129,000,000
PCL Construction, Inc.	\$111,405,880 ★
Kiewit Infrastructure West Co.	\$112,849,000
J.F. Shea Construction, Inc.	\$119,360,000

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## Construction Contingency

Construction Cost	\$111,405,880
Contingency	\$6,684,353
% of Construction Cost	6%

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## Recommended Action



Recommend to the Board of Directors to:

- Receive and file Bid Tabulation and Recommendation for A-Side Primary Clarifiers Replacement at Plant No. 2, Contract No. P2-98A;
- Award a Construction Contract to PCL Construction, Inc. for A-Side Primary Clarifiers Replacement at Plant No. 2, Contract No. P2-98A, for a total amount not to exceed \$111,405,880; and
- Approve a contingency of \$6,684,353 (6%).

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Questions



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