A large, artistic splash of water in shades of blue and white, with droplets and bubbles, framing the right side of the slide.

Delivering Water Quality, Supply and Reliability

Using Alternative Delivery to Modernize Montevina Water Treatment Plant

Acknowledgements

Facilities Plan

Todd Reynolds, Doug Henderson

Kennedy/Jenks

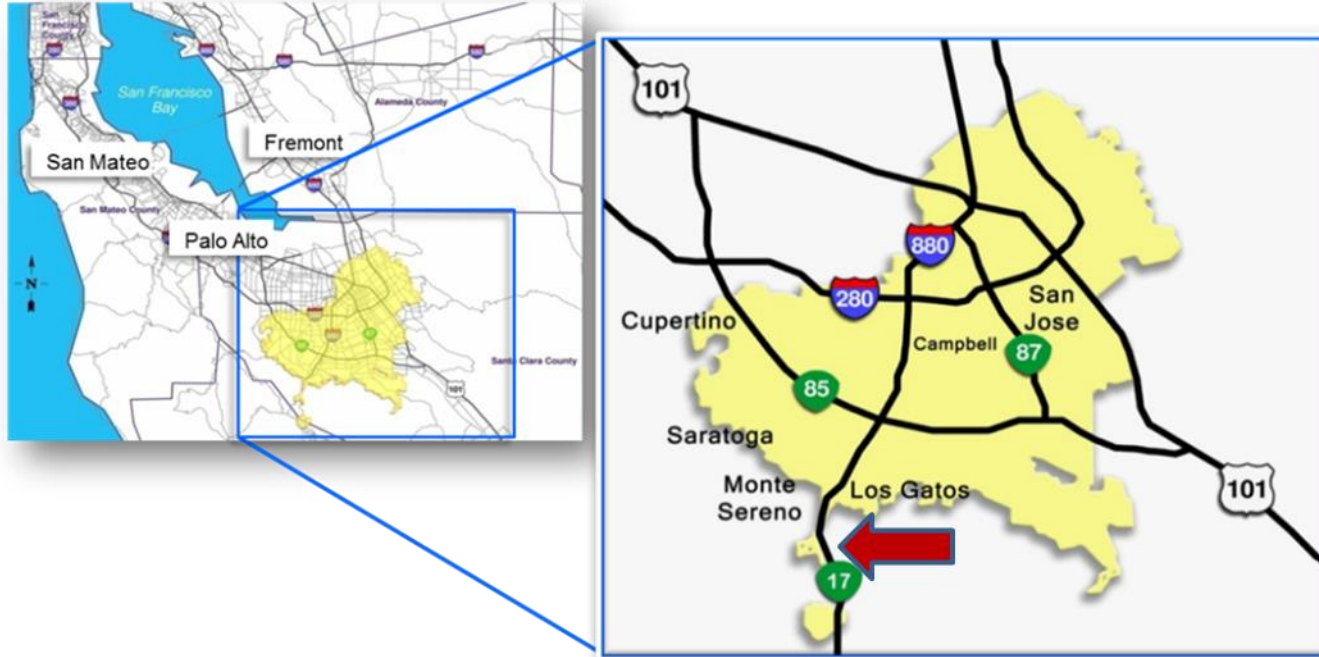
Progressive Design-Build

Larry Johnson, Karen Pappas



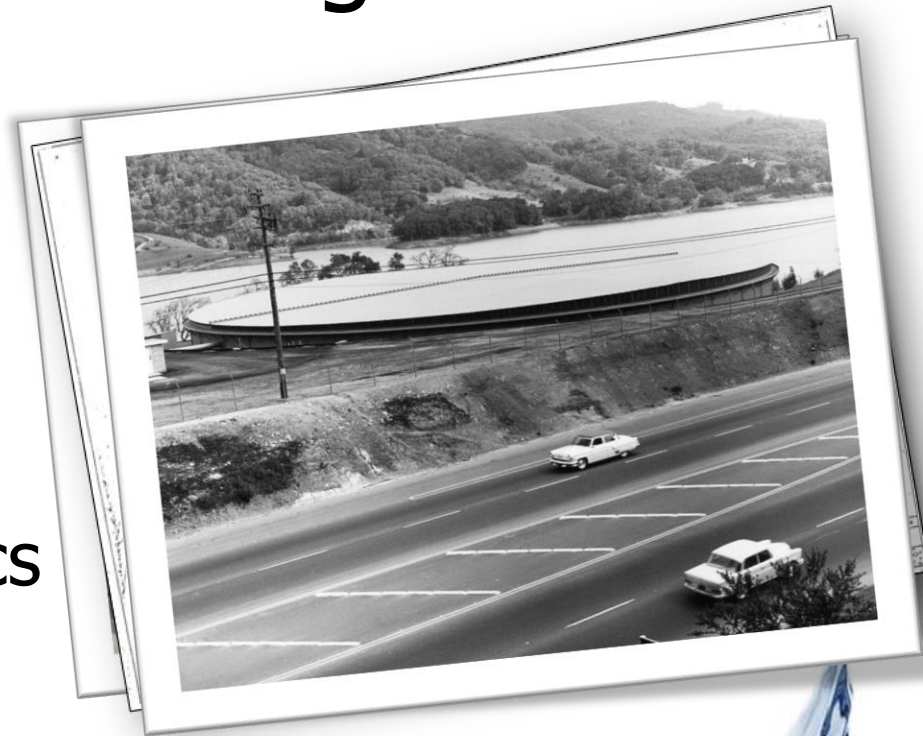
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Project Location



Montevina WTP Background

- 30 MGD direct filtration
- Constructed in 1969 on existing tank site
- Not designed to treat high turbidity or organics
- No provisions for T&O removal
- Aging facilities

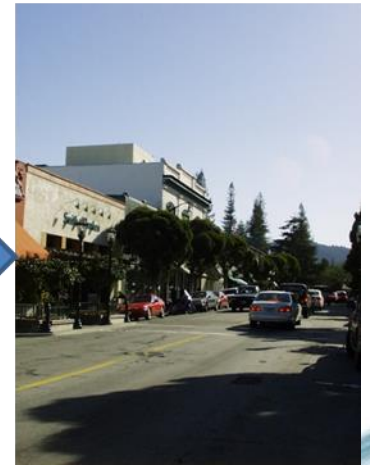


Aging Facilities



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Montevina Source Water



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Project Objectives

- Reliably meet State and Federal SDWA
- Robust treatment to maximize production from local source (historic water rights)
- Cost effective treatment to reduce organics, DBPs, periodic T&O
- Update or replace aging facilities
- Use technology to leverage manpower

Process

- Conduct Facility Plan Study
- Pilot recommended treatment technologies
- Seek approval for cost recovery from CPUC
- Select project delivery method
- RFQ, RFP, Award
- Basis of Design Report
- Proof of Performance test
- Final design, construct and commission

Project Drivers

- Small plant site
- Need to maximize production during construction
- Compressed timeline (regulatory compliance)
- Build the plant we want
- Utilize assets that have remaining life
- Maximize value of project (water rights)

The small plant site was a driver for the treatment process and delivery method chosen

Washwater
Treatment
Facilities

Lexington
Reservoir

Highway 17

Water Treatment
Facilities



Facility Plan and Piloting

- Membrane alternative recommended
 - Lowest 30-year lifecycle cost
 - Reliably treat highly variable source water (+1BG/yr.)
 - Better suited to meet future regulations
 - Allows production during construction
 - Maximizes use of tight plant site
- Pilot testing on source water
 - Proved treatment capable of meeting objectives
 - Provided performance data for plant design

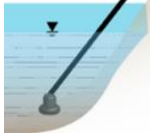
Pilot Plant at Ostwald Intake, Los Gatos Creek

Intake

Coagulation

Chemical

MF



Pilot Plant Intake
in Los Gatos Creek



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Project Delivery Criteria

SJWC desired:

- High degree of design involvement
- Input on technology, equipment decisions
- Single point of project responsibility
- Compressed schedule

SJWC had:

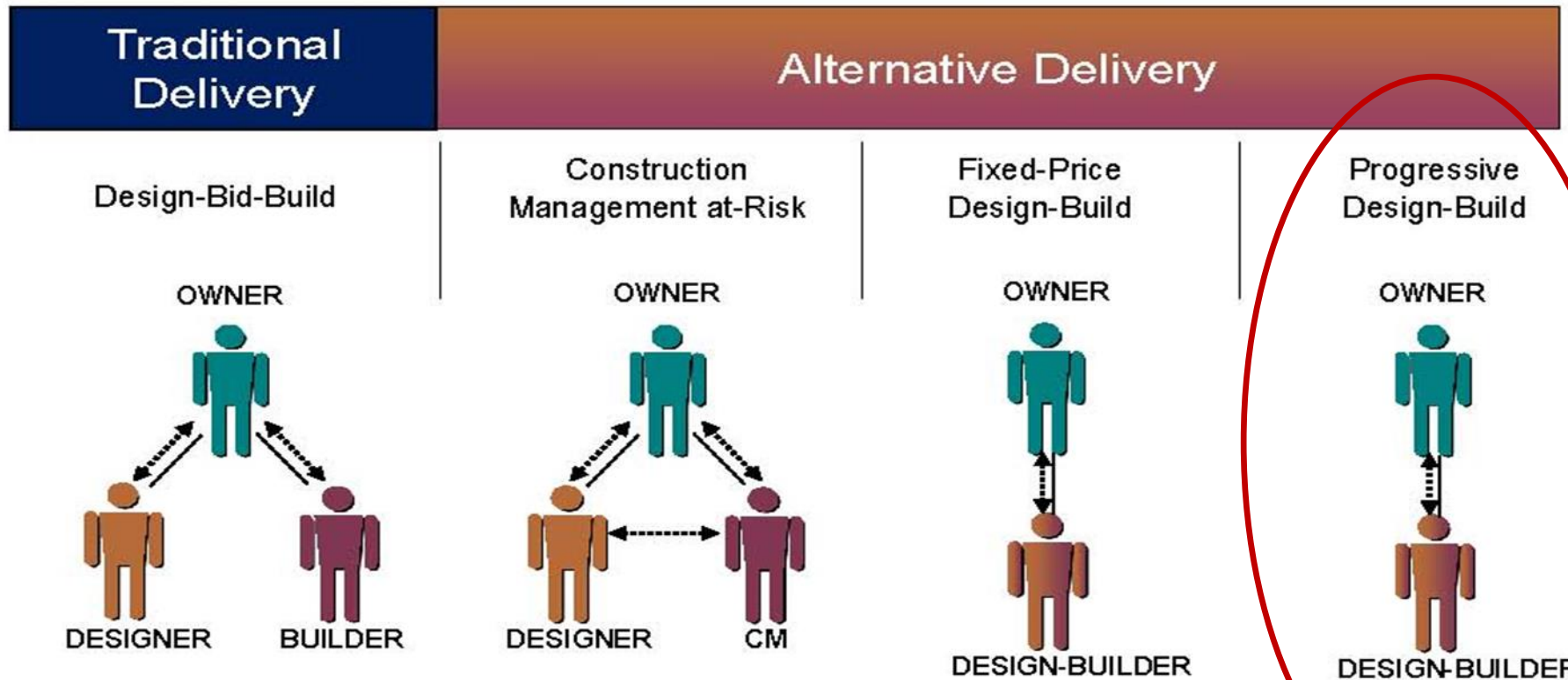
- Fixed budget
- Small plant site



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Several Methods Evaluated

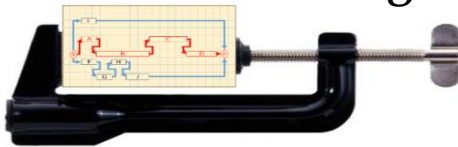


What is PDB?

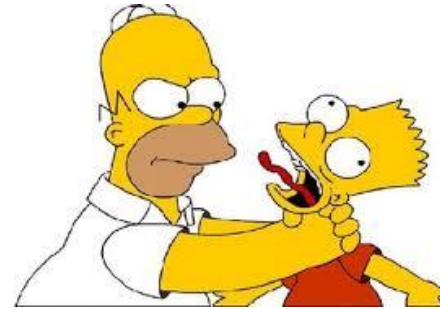
- DB firm selected on qualifications
- 2 phases, 2 contracts
 - Phase 1: Design services (to 60% and GMP)
 - Phase 2: Design-Build
- Off ramp at 60% design (if needed)
- Competitively bid construction, equipment
- Fair and reasonable risk share
- Owner involvement in design

PDB Benefits

Schedule savings



Single point of responsibility



"one throat to choke"

Reduction
of change
orders &
claims



TOTAL

Final cost as
quoted

Design to budget



Owner control &
flexibility



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Phase 1 Completed in 16 Months

January '14

March '14

Summer 2014

March '15

July '15



D-B
Selection

Start Work

Proof
Selected
Membrane

Complete
60% Design

Finalize
GMP



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Proof of Performance Test

- Selected membranes tested on raw water
- Coagulation and settling strategies demonstrated
- Pilot site was ready for quick mobilization



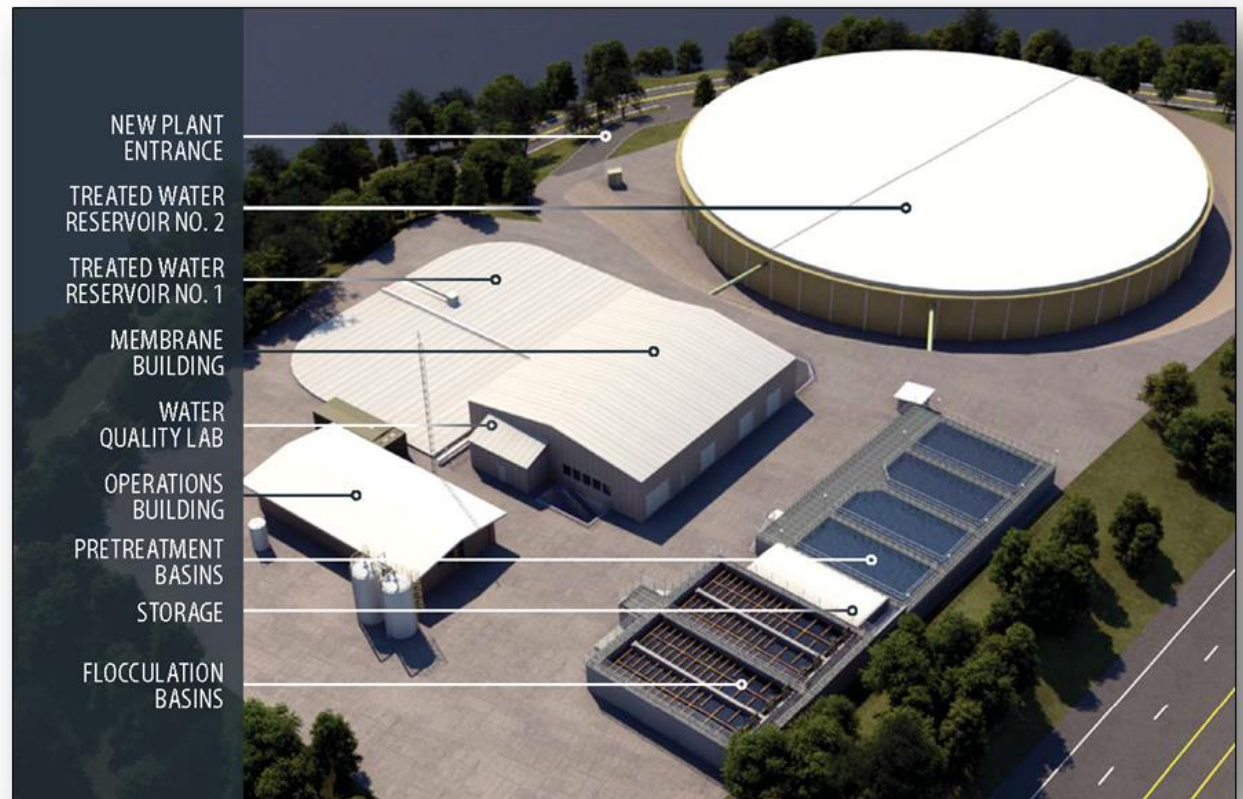
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The Project

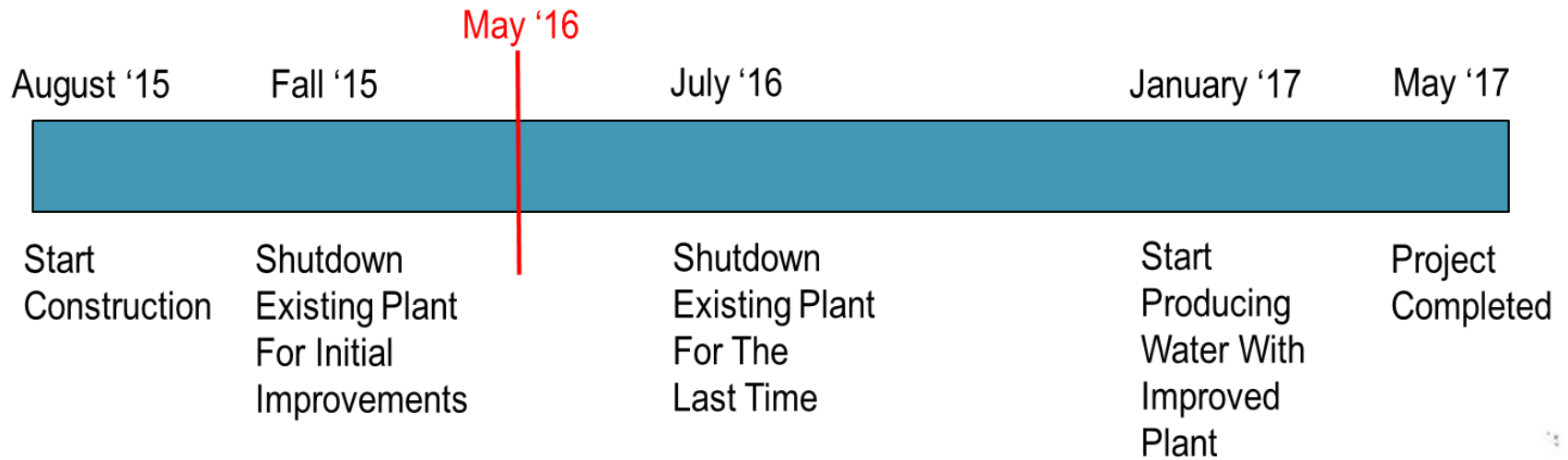
- BASF *inge* Dizzer UF Membranes – 30 MGD
- Retain but reinforce hydraulic flocculation
- New membranes in former Off-Spec basin
- Operate old plant during construction
- 2 shutdowns (dry season)
- Convert old filters to plate clarifiers
- PAC, enhanced coag, turbidity to 300 NTU
- Automated sludge thickening, dewatering

PDB Led to Design Innovations

- Improved flash mixing & hydraulic flocculation
- Maximizing use of existing concrete structures
- Plant in operation during construction
- Robust membrane selection process
- Improved plant access



Phase 2 Will Continue Until May 2017





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