



City of Millbrae Project

Water Pollution Control Plant Cogeneration and Grease Receiving Station Project

EPA "Clean Fuels for California and the West" Meeting

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Chevron Energy Solutions

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Project Objectives and Goals

- Objective: Replace a 20+ year old 100kW recip engine generator
- Goal: Design and Implement Project so that it is “self funding from savings stream” and deliver system-wide improvements under a performance contract

Plant Attributes

- Small Well Run Plant (3 MGD Design Flow rate)
- Existing 100 kW Cogen (20+ year old Cat Recip engine generator running on methane)
- Ample Digester Capacity (1 Million Gallons)
- Plant Site is very space constrained
- Location has very convenient Freeway Access

Project Scope

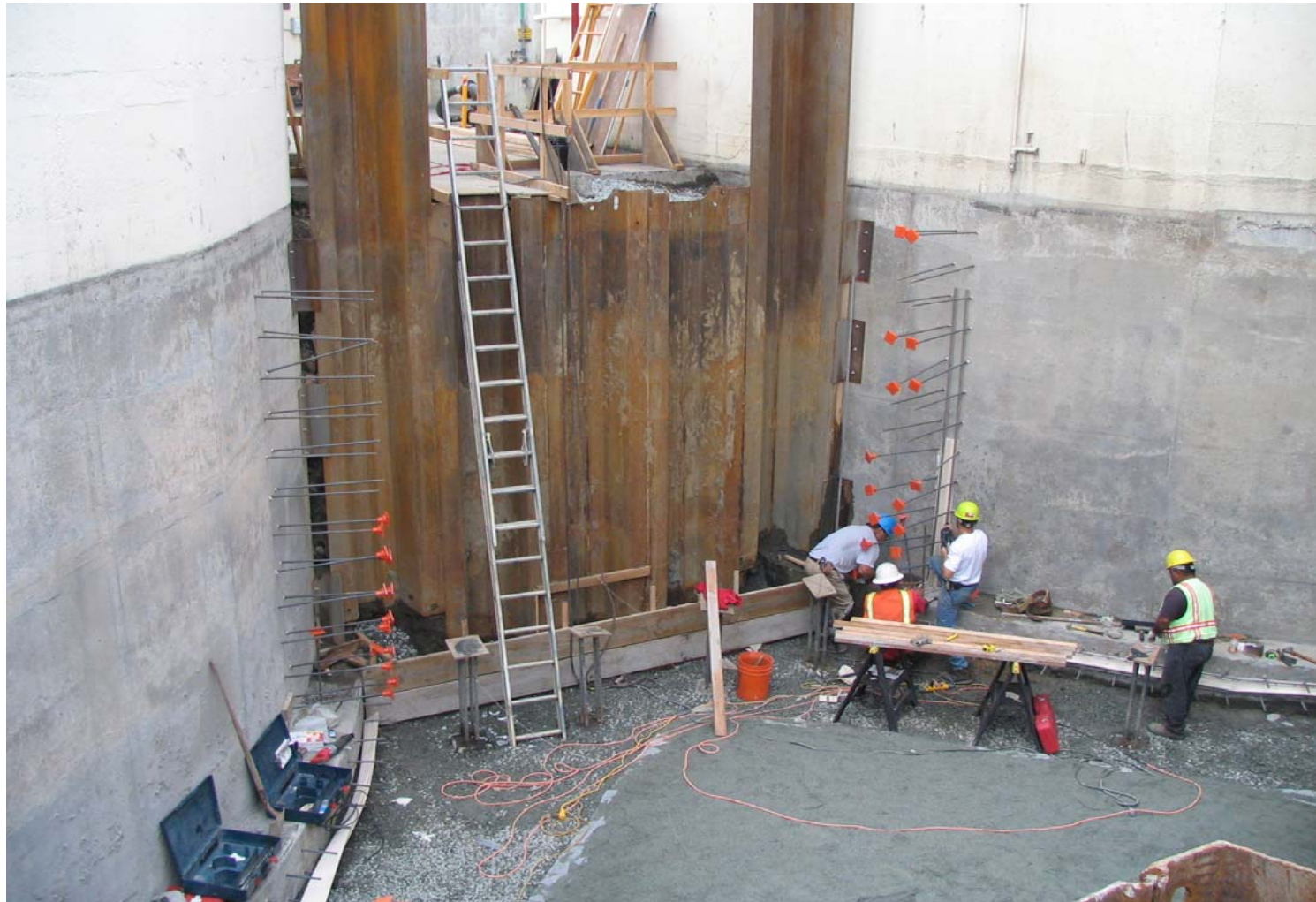
- 250 kW Micro Turbine based cogeneration system (with room for a second unit)
- Fuel treatment and blending facility
- New electrical switchgear
- New hot water and sludge heat exchanger with backup boiler
- Grease receiving station and civil improvements
- Compressed Natural Gas Storage Facility
- Digester Mixing System

Project Benefits

- \$5.5 million worth of facility improvements at no cost to the city's ratepayers
- Project provides additional stream of revenue to WWTP from grease disposal fees
- Project provides increased WWTP utility savings from additional digester produced methane fuel for microturbine
- Savings model includes all costs associated with maintenance and overhaul/rebuilds of electricity generating equipment
- Project includes over \$2 million worth of critical plant infrastructure upgrades that must be made in the near future, regardless.

Project Progress Photos

Digester Mixing System Vault Improvements



Project Progress Photos

Setting New Digester Mixing Pumps



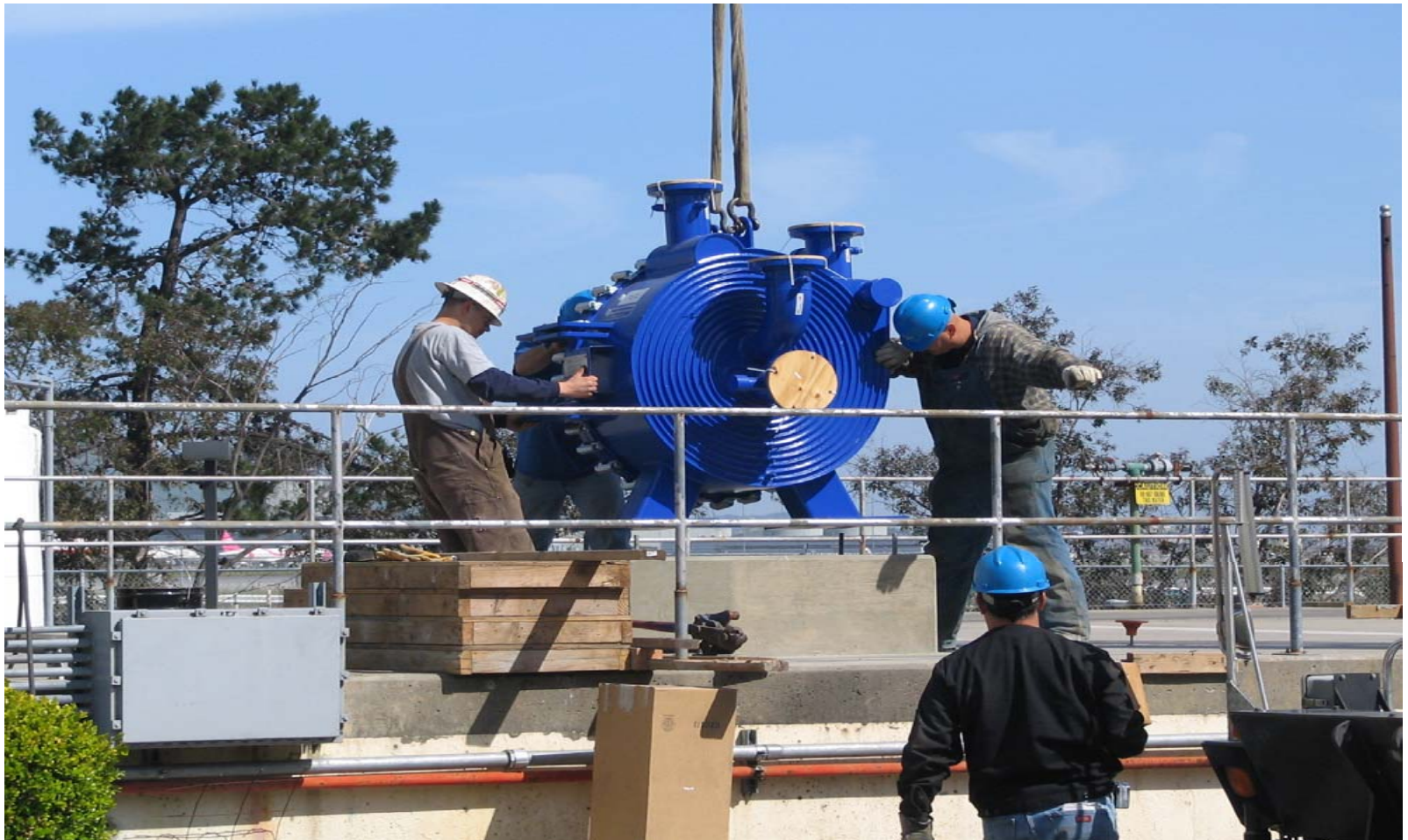
Project Progress Photos

Cogen Plant (on top of primary sedimentation tank)



Project Progress Photos

Setting Sludge Heat Exchanger



Project Progress Photos

Microturbine, Fuel Prep and Sludge Heat Exchanger



Project Progress Photos

12,000 gallon grease tank



Project Progress Photos

Compressed Natural Gas Storage



Performance Contract Model

- Development of the project is at “no risk” to the Host
- Contracting vehicle provides substantial flexibility during preliminary scoping phase
- Typical schedule is 2-4 months for preliminary feasibility study
- CES (in conjunction with Host) will develop a variety of options that are weighed and then selected with regard to importance and cost/benefit
- Project is accomplished on a self-funding basis – excess savings can be used to buy down other facility needs
- Project Delivery Model allows for selection of most qualified subcontractors – no low bid requirement for public agencies



Questions

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