

# NEW MUNICIPAL PUMPING STATION SOLVES MAJOR BOTTLENECK

## PUMP CASE STUDY

### Northern California Power Agency

Middletown, California  
Pumping Station

### CUSTOMER APPLICATION AND KEY CHALLENGES

The Northern California Power Agency (NCPA) provides reliable green power by harnessing steam from the Geysers steam fields in the Middletown, California region. The steam feeds into the largest complex of geothermal plants in the world, collectively producing enough electricity to power a city the size of San Francisco. However, as the geothermal power plants increase output, the steam field needs to be recharged.

A 50 mile pipeline transports 11 million gallons of reclaimed water per day to replenish the steam fields, requiring several pumping stations to maintain adequate water pressure along the way. After equipment at three of the pumping stations was upgraded to increase reliability, a bottleneck emerged in the pipeline. In order to increase water flow, the construction of a new pumping station was needed at the bottleneck to boost water pressure.



The new Bear Canyon Zero pumping station that boosts pressure in the 50 mile pipeline

### THE R.F. MACDONALD CO. ANALYSIS & SOLUTION

In a recent attempt to eliminate a bottleneck in the pipeline used to pump water into the Geysers steam fields, NCPA approached R.F. MacDonald Co. to build a factory built, pre-packaged pumping station that would increase water flow and suction pressure.

During the planning stage of the new pumping station, R.F. MacDonald Co. recommended using a Goulds 3409 Double Suction Pump with Variable Frequency Drives. The Goulds 3409 horizontal splitcase pump allows easy access to its rotating assembly without disturbing the suction and discharge piping.

Because the Bear Canyon pumping station handles over 5,400 gallons of water per minute through six miles of pipeline, R.F. MacDonald Co. recommended an ITT / PumpSmart variable speed drive coupled with an Allen-Bradley PLC to control the pump and deliver flow data to the NCPA's pre-existing remote monitoring station. R.F. MacDonald Co. supplied a complete pre-packaged pump station including the equipment, start-up, laser alignment and testing of all on-site equipment.



The entire pump setup featuring a Goulds Split Case 3409

BOILERS

PUMPS

SYSTEMS

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PARTS

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The solar panel fields that supply power to the pumping station

**PROJECT RESULTS**

The new pumping station is now fully operational. The pipeline bottleneck has been eliminated and the NCPA is pleased with the results of their new pumping station. From the initial planning to the final testing, R.F. MacDonald Co. provided a prepackaged solution to a multifaceted problem.

As a single source supplier, R.F. MacDonald Co. provided the NCPA with a system capable of ensuring the longevity and efficiency of a green, renewable energy source for years to come.

**R.F. McDonald Co.'s installment and configuration of the prepackaged pump station provided NCPA an affordable and simple solution**



Allen Bradley PLC, ITT PumpSmart and Flowtronix control systems