Medical Center Fuel System Design
Urban Central Plant UCSF

earthsafe
Fuel Systems for Critical Power

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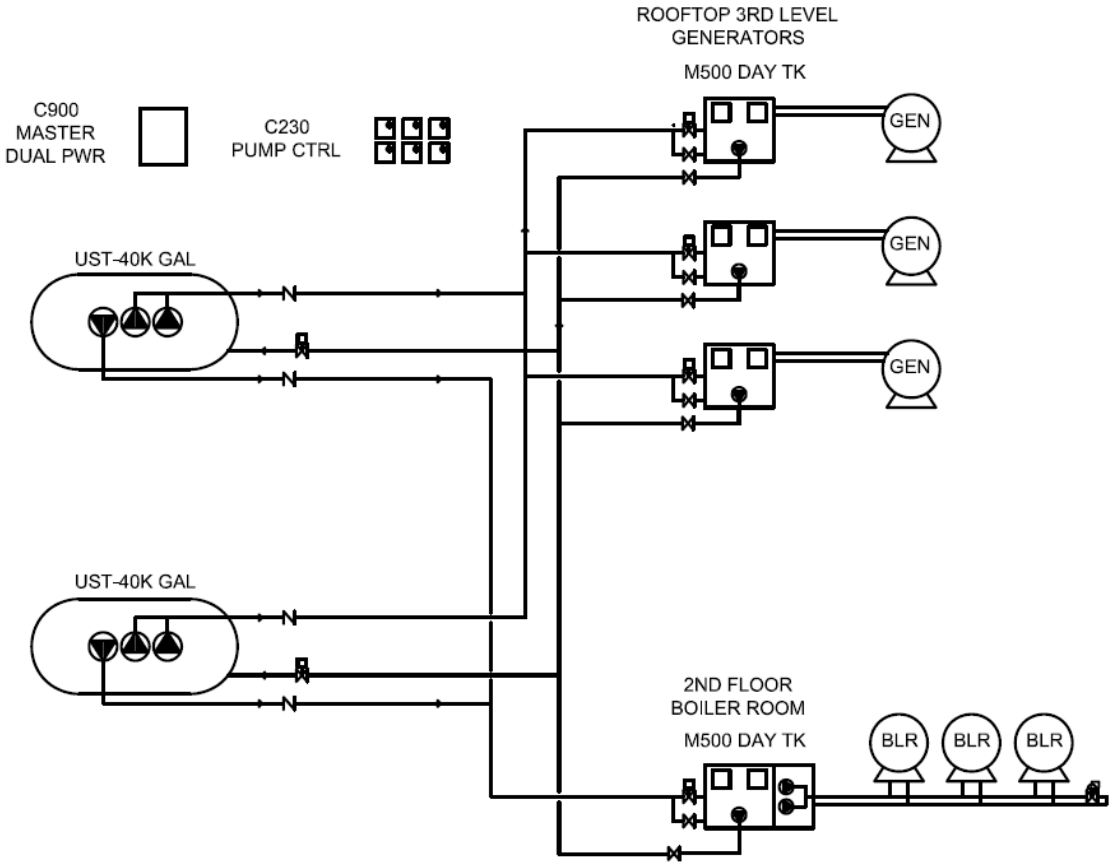
General Description:

The UCSF Medical Center in the Mission Bay area of San Francisco required a new Central Energy Plant integral to the new 800,000 SF Hospital. The central plant included 3 generators of 2 MW capacity located on the building roof, and a set of boilers located on the upper floor. Fuel is stored in 2 underground storage tanks of 40,000 gallon capacity.



Challenges:

OSHPD Seismic Compliance: California has a requirement for hospital design and construction that requires products associated with emergency systems to be seismic tested and certified. Earthsafe controllers have been tested per the OSHPD requirements

CAL-EPA Environmental Compliance: California environmental regulations must also be considered in the system design. The Earthsafe C900 Master Controller interfaces with an INCON tank management panel to perform the required testing protocols without compromising the critical nature of the fuel system. This involves the operation of submersible pumps and valves for underground pipe PLLD pressure testing, and for vacuum generation as required for the positive interstitial monitoring of underground tanks, piping, and sumps.

Integration: The secondary challenge was the testing and integration of all status points into the facility wide BMS system using Ethernet connectivity and BACnet. The Earthsafe standard integration protocol includes sets of standard monitoring points for each system element, allowing for quick building and testing of points lists.

Operating Sequence Summary:

The system consists of 3 generator day tanks, serviced by 2 underground bulk storage tanks, and 2 sets of submersible fuel pumps. Each of the day tanks has a C800 controller with level switches. The day tanks have return flow pumps for overfill protection and periodic testing of the day tank refill function.

The boiler fuel system consists of a pair of submersible pumps, and day tank. The C800 controller on the day tank provides refill control and interfaces with the C900 Master Panel for pump operation.

Special Operating Features:

1. INCON Level – Leak Integration: The C900 Master Controller integrates tank level and leak detection information from the INCON tank monitor. The level and leak information is displayed on the C900 touch screen, and is also communicated to the facility BMS system.