



# WHITewater HEATING



## SUMMARY

### GOAL:

- Consistent temperature control
- Hot water on demand

### ACCOMPLISHMENTS:

- Precise temperature control
- Eliminated need for external recirculation pump
- Reduced maintenance
- Achieved stable operation

## CONDITIONS

Fluid:	Whitewater
Flow Rates:	Variable
Inlet Temperature:	80°F [27°C]
Discharge Temperature:	110°F [43°C] startup, 190°F [88°C] boilout
Fluid Supply Pressure:	Static head on whitewater chest
Steam Supply Pressure:	45 psig [3.1 barg]

## SOLUTION

Hydro-Thermal® decided to duplicate the heating system installed in 1975 on the number 5 machine. Both systems now utilize a 6" [150mm] Hydroheater® installed outside the whitewater chest to heat and recirculate whitewater in the chest. The motive force provided by the high velocity steam jet in the Hydroheater eliminates the need for an external recirculating pump. The Hydroheater varies its own steam flow depending on the individual requirements of each of the three heating applications: startup, system temperature maintenance and boilout.

The Hydroheater on the number 6 machine performs three key functions. First, it provides the highest possible heat transfer efficiency of steam energy into the whitewater. Second, it eliminates the need for a recirculation pump and associated energy and maintenance requirements. Third, it eliminates the problems of inefficiency and maintenance associated with in-tank sparging systems. Since 1975, the Hydroheater installed on the number 5 machine has operated with minimal maintenance.



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