Paratherm™
HEAT TRANSFER FLUIDS
A Division of Lubrizol

Removing Water From The System

You found out the hard way that you have water in the system. You tracked down and eliminated the source. If you had significant free-liquid water, you drained as much as possible from the system low points.

So you run with the vent open until the pump stops cavitating and figure you're home free.

Right?

Maybe.

Any steam that does not vent to atmosphere will condense in the expansion tank (ever wonder why pinhole leaks develop in the bottom of an expansion tank?). Because they are covered with fluid, these small droplets will remain undetected on the bottom of the tank until they -

1. get pulled into the main loop as the system cools down

2. turn to steam when they get hit with hot fluid during a fast start-up

Since the change in volume when water turns to steam is about 1000 to 1 (or, think of a 7-ounce glass of water expanding to 55 gallons of steam) it doesn't take much. To ensure complete removal of water from a system:

1. Keep the expansion tank temperature above 212°F to prevent any vapour condensation

2. Add nitrogen to the expansion tank's headspace to sweep the water vapour from the tank as it is generated

The boil out should continue until the temperature at the pump suction is above 212°F. Once the system is stable, check for water at all the low point drains in the expansion tank.