



TYPICAL FEEDWATER HEATER COLD STARTUP

The procedure described here is for the cold startup of a typical feedwater heater.

The owner should either follow the manufacturer's instruction manual, or call the manufacturer directly for specific instructions.

At cold startup the extraction steam supply valve should initially be closed. The shell side and tube side drain valves are closed. The shell side startup and operating vent are closed.

If the heater has been charged with nitrogen gas, the nitrogen supply valve is shut off.

Feedwater is gradually introduced so that the channel can warm up. If the channel has not been kept completely full of water, then the channel vent valves should be opened long enough to purge out the air.

Operating vent line drain should be opened long enough to allow any collected moisture to escape. The shell side startup vent valves are opened—there may be several of these. Then the operating vent valves are opened. If there is a bypass loop around the vent orifice, the valves in this loop should be closed.

If the heater is vertical channel down and there are continuous drains at the bottom of the desuperheating zone, these are opened.

Isolation valves to the liquid level indicator and other instrumentation connections are opened.

Make sure that the emergency drain valve, if present, is closed and the normal drain shutoff valve is open.

The steam supply valves (extraction steam and/or flash tank startup steam) are then gradually opened. If multiple heaters are involved, then the heater with the lowest shell side pressure should receive steam first.

The liquid level should be observed closely during startup. For heaters operating at relatively low pressures, it is possible that there may be some difficulty in maintaining the desired liquid level at low loads. In such a case, it will be helpful to temporarily open the emergency drain nozzle, if present.

Shell side startup vent valve(s) should be closed when the heater reaches normal operating conditions.

If a horizontal heater with a subcooling zone is being started up for the first time, consideration should be given to running a liquid level test (Ref. A2.2 of Standards for Closed Feedwater Heaters). Doing so will assure that



there is no danger of flashing in the subcooler inlet due to any discrepancy between indicated and actual liquid level.

If the heater has been de-pressurized before placing in service, then the bolted joint should be checked for tightness. (Ref. A2.1 of Standards for Closed Feedwater Heaters.)

For startup limitations see A2.9 of the HEI Standards for Closed Feedwater Heaters.

DISCLAIMER

THIS INFORMATIONAL DOCUMENT IS PROVIDED BY THE HEAT EXCHANGE INSTITUTE (HEI) FOR INFORMATIONAL PURPOSES ONLY. IT IS PROVIDED AS ONLY ONE SOURCE OF INFORMATION AND DOES NOT CONSTITUTE AN INDUSTRY STANDARD. DETERMINATION OF WHETHER AND/OR HOW TO USE ALL OR ANY PORTION OF THIS DOCUMENT IS TO BE MADE IN YOUR SOLE AND ABSOLUTE DISCRETION. NO PART OF THIS DOCUMENT CONSTITUTES LEGAL ADVICE. THIS DOCUMENT DOES NOT RELIEVE USERS OF THEIR OBLIGATIONS TO COMPLY WITH APPLICABLE LAWS AND REGULATIONS. PRIOR TO USING THIS DOCUMENT, YOU SHOULD REVIEW IT, ALONG WITH APPLICABLE LAWS AND REGULATIONS, WITH YOUR OWN LEGAL COUNSEL. USE OF THIS DOCUMENT IS VOLUNTARY.

HEI DOES NOT MAKE ANY REPRESENTATIONS OR WARRANTIES WITH RESPECT TO THIS DOCUMENT OR ITS CONTENTS. HEI HEREBY DISCLAIMS ALL WARRANTIES OF ANY NATURE, EXPRESS, IMPLIED OR OTHERWISE, OR ARISING FROM TRADE OR CUSTOM, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, NONINFRINGEMENT, QUALITY, TITLE, FITNESS FOR A PARTICULAR PURPOSE, COMPLETENESS OR ACCURACY. TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAWS, HEI AND ITS MEMBERS, OFFICERS, DIRECTORS, EMPLOYEES AND VOLUNTEERS SHALL NOT BE LIABLE FOR ANY LOSSES, EXPENSES OR DAMAGES OF ANY NATURE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, PUNITIVE, DIRECT, INDIRECT OR CONSEQUENTIAL DAMAGES OR LOST INCOME OR PROFITS, RESULTING FROM OR ARISING OUT OF A COMPANY'S, INDIVIDUAL'S OR OTHER USER'S USE OF THIS DOCUMENT, WHETHER ARISING IN TORT, CONTACT, STATUTE, OR OTHERWISE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

BY USING THIS DOCUMENT, YOU WILL BE DEEMED TO HAVE UNDERSTOOD AND ACCEPTED THE CONDITIONS OF THIS DISCLAIMER.