

The ESP Subcommittee is requesting additional information relative to the “remaining water” in the lower furnace following an ESP.

Some ESP Incident Questionnaires indicate that some of the floor tube thermocouples of the recovery unit are showing a temperature increase sometime after the ESP rapid drain has been completed. This may be an indication that the tubes are going dry following an ESP. Calculations indicate that at higher operating pressures, a significant portion of the water below the eight-foot level flashes as the remaining pressure is relieved. In addition, for larger units, the ratio of water in tubes to lower furnace volume makes it more difficult to maintain water in the floor tubes. The calculations do not account for residual heat in the bed, condensate refluxing, pressure drop restrictions, and smelt freezing on tubes.

Actual field measurements will enable further correlation of a model. We are requesting measurements of the water level following an ESP. These can be obtained by making provision to attach a clear standpipe, such as a clear vinyl hose, to a connection on the lower section of the downcomer system to facilitate measuring the level of the remaining water in the lower furnace. After an ESP, after it is safe to return to the recovery unit, and after the unit has cooled down, the standpipe or tubing would be attached to the downcomer connection and the water level measured. The measurement should be referenced to a known point on the unit.

The sketch on the next page shows a method to add a connection to the downcomer by modifying an existing drain. This can be pre-installed, or added after the ESP, with water in the downcomer. Other existing connections may be easier.

Please send your results with your incident summary report.

The data should include:

- Water-holding volume below eight-foot level, including tubes, downcomers, headers, and supply pipes.
- Side elevation drawing of lower furnace circuits and reference points
- Pressure of furnace and time since ESP when eight-foot level is reached
- Water level at time recorded since ESP.

