**Shell and Tube Heat Exchanger Experiment**

**Purposes:**

1. Gain experience with using a shell and tube heat exchanger.
2. Perform a detailed analysis of the heat exchanger to calculate the fouling factor.
3. Use the lab data on fouling factor to select an industrial heat exchanger.

Two shell and tube heat exchangers are located in the lab. Each is model 03024 SSCF from Standard Xchange ([http://www.standard-xchange.com](http://www.standard-xchange.com/)) with a single tube pass. One of the heat exchangers (Unit #1) has narrow baffle spacing and one (Unit #2) has wide baffle spacing. Some of the information you need to design the heat exchanger is found on the website, but some had to be requested from the manufacturer. The information obtained from the manufacturer is found in a pdf on the UO lab website. Your assignment is to run each heat exchanger at steady state to generate enough data for analysis. As you calculate the individual resistances, you will be able to calculate a fouling factor. Please see if this fouling factor is independent of flow rate.

Based on your data from these small heat exchangers, please select a heat exchanger from the manufacturer’s list that can be used to heat 200 gpm of water from 25°C to 75°C (assuming 100 or 300 psig steam). Please note that the experiment in the lab will not achieve these steam pressures.