Monitor and control a dam bubbler system
## APPLICATION A101

Floodgates, also known as crest gates, are adjustable gates used to control water flow and water elevation in flood barriers and reservoir, river, stream, or levee systems. These gates must be able to operate year-round, so systems that keep ice from affecting their operation can be required. A bubbler deicing system works by releasing fine air bubbles from perforated air diffusion tubing in target areas to ensure the gates remain free of ice obstructions.

By Royalbroil - Own work. White Rapdis Dam, Menominee River. Michigan.
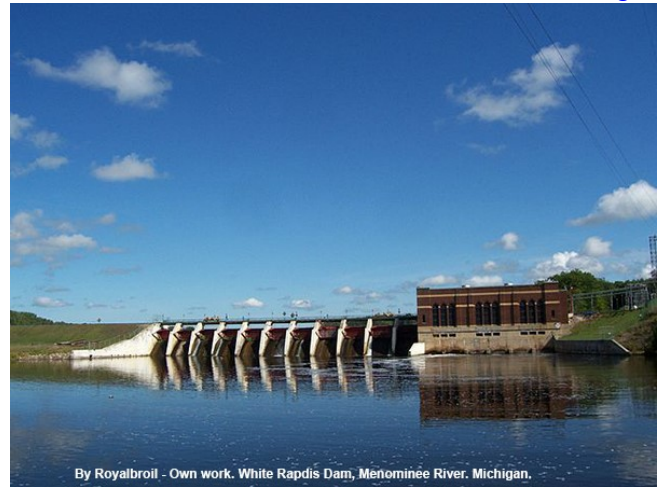
The Engineering Issue

- The engineer has three requirements when the outside temperate is below 25°F. The requirements are:

    ♦ Automatically turn on the bubbler system

    ♦ Decrease the crest gate speed during its weekly test

    ♦ Ensure the test does not start without a visual check for ice
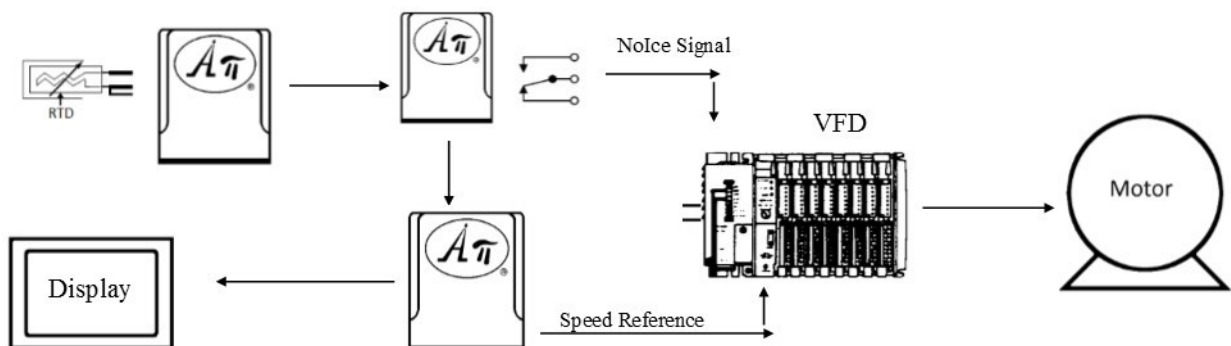
The engineer used three different API units. An API 4001 GL senses the outside temperature via an RTD. This signal goes to a local display, an API 1000 G and an API 4300 G M01. The API 1000 G alarm contacts are set so that the Variable Speed drive will not start without a "No Ice" manual switch being turned on. The API 4300 G M01 output signal is used as the speed reference to the Variable Speed drive. This inverted signal slows down the Variable Speed drive as the outside temperature decreases.

Problem. Solved.