Bonneville Generator Coolers

The Bonneville dam has a total of 18 main generating units in two power houses. In both powerhouses, cooling for the generating units is provided by water-air, single pass, open loop systems. All of the coolers are original plant equipment, installed from 1937 to 1982. The surface air coolers are showing signs of decay and have exceeded, or nearly exceeded, their 35 year design service life and pose a risk to generator reliability.

Every year, two main units in each powerhouse come down for major maintenance. Due to the corrosive nature of the river water, each cooler is disassembled in order to inspect and attempt to clean clogged tubes. The coolers have cast heads that have eroded from continuous water flow and are becoming harder to seal. The cooling tubes are becoming more leak-prone and corroded valves further complicate maintenance of the coolers. If the coolers and valves are not replaced, it is likely that their condition will continue to deteriorate. Efficiency may be reduced to a point where the coolers are not sufficient to cool the generators. Additionally, if one or more tubes were to start leaking, that leak could go unnoticed until it causes major damage. Upgrade of the surface air coolers will reduce the likelihood of failure and subsequent unit outages.