

### Fine Mesh Screens

The Brunswick NPDES permit requires the operation of fine mesh-screened circulating water pumps when three or less pumps are in operation on a generating unit. From July 17, 1989 to July 23, 1989, Unit 1 operated with one coarse (3/8") mesh and two fine mesh screened pumps in service. Problems experienced during this time were due to clogging of the fine mesh screens and subsequent tripping of the pumps. The events are described below.

At 2246 on July 17, 1989, the 1B circulating water intake pump (CWIP) was placed in service after a period a preventative maintenance, and the 1A CWIP with coarse mesh (3/8") screens was shut down. Less than one minute later, the 1B CWIP tripped on high differential pressure. At 2250, the 1B CWIP was restarted and tripped within 30 seconds, followed by a trip of the 1D CWIP which left the unit with no circulating water flow. At 2252, the 1A CWIP with coarse (3/8") mesh screens was placed in service. The 1C CWIP was started at 2252 and tripped at 2253. The 1B pump was placed back in service at 2253 and stayed on line.

Reactor power had dropped from 100% to 47% during this time period. After the second CWIP was placed in service, power was slowly increased. At 0037 on July 18, 1989, the 1C pump was placed in service and power was increased to rated power.

The cause of the high differential pressure experienced was believed to be due to detritus (rotting vegetation matter) and Gracilaria (red algae) clogging the screen. This material, which is abundant in the canal at this time of year, could have been stirred up due to backflow when the pumps tripped or were shut down. The material then could have been sucked onto the screens still in operation. It is not believed that marine animals were involved in this incident.

Cleaning operations consisted of scraping the heavy marine growth from the racks in front of the rotating screens and air-lifting debris which had collected in front of the pumps.

During the cleaning, the 1A pump with coarse mesh screens was operated to ensure cooling water flow to the condensers to prevent possible clogging of the fine mesh screens by the removed material. The 1A CWIP was removed from service at 0115 on July 23, 1989, and the third fine mesh screened pump was returned to service. At this time, the unit resumed operation with three fine mesh screens.

Plant personnel are investigating pump back pressure and any operational procedures which may have contributed to the problem. Also, plant procedures are being modified to include fast screen rotation when pumps are switched, which may help prevent clogging.