

Harold Cofer and the COLEX process, part 5 — Early plant offered “constant” maintenance problems

As is often the case when writing the history of Y-12, one comment in a story will bring me phone calls giving even more insight into the history. I appreciate Robert “Bob” Baker for calling to tell me additional information about the creation of a spare parts catalog at Y-12.

Bob created the first card catalog of spare parts. Before that, Bob said, all that one could do was to go there and just look for what was needed. His card catalog, where he assigned every item a “catalog number,” eventually evolved into what many will recall as the “four-plant” catalog for spare parts.

Harold Cofer continues to describe some of the most significant maintenance problems of the COLEX process. In both Alpha 4 and Alpha 5 there were many pumps and much piping to maintain. Harold recalled the pipefitters being kept busy installing “diapers” on leaking joints. This was done to keep from shutting down the process.

A further innovation on the “diaper” concept was to wrap the leak with plastic and install a drain in the diaper that allowed the leaking liquid to be collected in a bottle. Leaks were a constant problem and any means to reduce them or to contain them was pursued.

Yet these large pumps and their drive motors were the heart of the process. They posed significant maintenance problems as they were unique and required special knowledge to appreciate the operational characteristics required by the COLEX system.

Harold cited a couple of what he termed “significant event” shutdowns in Alpha 4. One of the main mercury supply lines feeding a cascade split, spilling mercury down over the top of the covering of one bank of 7,000 horsepower motors and generators. The ceiling panels over this system were perforated allowing the mercury to rain down on the equipment.

Immediately the process was shut down and Harold and Ralph Moretz quickly tripped the motors and generators, turning them off. Several days were spent cleaning up mercury and restoring the equipment to working order. All the generators had to have the commutators reworked. Jim Summers was the electrical foreman over the generator crew at that time.

The motors were covered well enough that the mercury did not get into to the motor windings. Harold indicated the crews literally worked around the clock until all the equipment was again operational.

A second “significant event” happened when the COLEX operation had been going for several months. A flow problem occurred in one of the absorber room trays. The operator when attempting to respond to the flow problem inadvertently allowed the full current to be applied on the spring loaded shorting switch contacts of the electrical switches beneath the trays. This resulted in the switches disintegrating and immediately shut down four motors and eight generators.

Harold was called in from home and assessed the damage to some 20 switches. As a side note, it was for just such response as this that allowed Harold to be allowed to drive his car into the plant. He tells of driving his personal car up the ramp to Alpha 4 or Alpha 5 and parking the car right at the door of the building. It was not unusual for him to receive calls at home to come immediately to the plant.

After realizing the extent of the repair work that would be needed, Harold proceeded to call in craft support to remove the burned up switches, about 20 of them, and to plan the installation of the new switches. These switches were unusual, in that they could be installed backward if care was not taken to assure the exact arrangement of the open versus closed positioning.

The electricians worked around the clock cleaning up the burned area and removing all the damaged switches. This meant that there were several crews that rotated the work. A method had to be created to assure all the switches were installed properly.

Harold said, "It was hot, dirty, hard work. Many of the electricians were not familiar with the operation of the switches and didn't know which direction to turn the switch during installation. It was decided that we would put all the switches in the proper 'open' position and just tell the electricians to install all of them in the same position."

Harold went on to say, "These switches were heavy, weighing approximately 50 pounds each, and had ½ inch by six inch silver plated copper on each side of the spring loaded copper fingers. To make it even harder, the electricians had to work on their backs, using 'creepers' underneath the huge trays."

When the job was within about four hours of completion, Harold went to the main control room to report on progress. Bill Whitson and John P. Murray, who was the Y-12 Plant Manager at the time, were there waiting on the progress report. Harold's general foreman was there as well.

When Harold walked into the room, both Whitson and Murray walked over and placed their hands on his shoulders saying, "Harold, how much longer will it be before we can start back up?" My coveralls were filthy! His general foreman told him later that he would have given \$100 if he had been in dirty coveralls!