

Harold Cofer and the COLEX process, part 2 — Ongoing changes abound for the COLEX program

By the time Harold Cofer was promoted to Electrical Foreman, on January 1, 1953, the ADP (Alloy Development Program) for separating Lithium 6 was moving along three tracks, the OREX (Organic Exchange), ELEX (Electrical Exchange) and COLEX (Column Exchange). Harold did not become involved with the OREX process as that was primarily being done at the Oak Ridge National Laboratory.

However, he did become involved in supporting the ELEX process first and then the COLEX where he served as electrical maintenance foreman until the process was shut down. Harold was also a key figure in the acceptance and start up of operations for both processes. His first assignment was to spend considerable time in Building 9201-2 (Alpha 2) where the ELEX laboratory and pilot processes were located. The COLEX laboratory process, which would later replace the ELEX process, was already being developed in Building 9202.

Since the ELEX process was further along with a pilot plant in place in Building 9201-2, it was selected as the first choice. Harold and Roy Helton were selected to work directly with the Vitro Corporation engineers who were doing the design work on the ELEX system. When the design was complete and the equipment designed, it was installed in Building 9204-4 (Beta 4).

Harold said, "The entire upper level was covered by the Absorber trays. A mezzanine level contained about 1,200 General Electric rectifier units. This is what was used to provide electrical power for the absorber trays." Harold was moved over to the start-up group when the process equipment was ready for operation.

Even as the ELEX process was being installed, the COLEX process research was moving ahead rapidly. The first half of the ELEX process became operational on August 13, 1953. Note the timing so close to the Russian's explosion of their atomic weapon, a thermonuclear-like device, on August 12, 1953. Can't you imagine what it was like to be working at Y-12 and know that what you were doing was so critical to the nation's efforts to create a thermonuclear weapon!

Harold describes a rotating shift work arrangement whereby each shift operation had five foremen. The maintenance work in support of the ELEX process was primarily electrical in nature. Pulling the "bonnets," as the trays where the process actually occurred were known, was a routine activity. The trays were taken to the Tray Repair Shop in the basement, cleaned, refurbished and returned to the cascade floor.

Removing the trays was a hot dirty job and Harold said that nobody liked it. Workers were rotated so that no one had to spend their full time in the cascade. Smoking was not allowed in the work areas. Workers had to place their cigarettes in a special container in the shop areas. So when anyone wanted to smoke they had to first go to the shop, wash their hands, get the cigarettes and go to the lunch room to smoke.

When the COLEX process in Building 9201-5 was being installed, Harold was asked by Charlie Kasperek to again take on the role of following the construction for the company and to decide when the equipment was sufficiently in place and checked out enough for the company to place it in operation. Harold was temporarily assigned to George Jasney's Construction Engineering group to perform this job.

Harold describes his duties as, "Whenever Rust Engineering was ready to turn a phase of the building over to us, we would meet with them, review the drawings, walk through the area and decide if we could handle the remainder of the work with Y-12 workers."

Remember, Y-12 was under tremendous pressure to produce the separation of lithium 6 in large quantities and were having to use construction to build the process systems. It seems only natural that stress would have been evident between the operating and construction contractors. And Harold would have been thrown right in the middle to decide just how soon the operating folks could get their hands on the process equipment and facilities.

That was still the nature of the business in the 1980s when Y-12 was using construction to build facilities to support the Cold War effort. I can personally attest to the stress of such interactions regarding capital funded projects in Building 9212. I was in the same situation in the 1980s as Harold was during the 1950's.

Harold went on to say, "Jasney would tell me to let him know whenever it appeared that we could finish the remaining work with Y-12 forces. We did this on many of the smaller jobs. I worked very closely with John Staton, a very good electrical engineer."

An incident happened during the first week of operation of Building 9201-5 that Harold recalled for me. It seems that John Staton had spent many hours preparing a very comprehensive booklet about the electrical power system at Y-12. He had surmised that with all the redundancy of electrical power feeds in Y-12 and inside Building 9201-5 that the potential for a total power outage in Y-12 to be 1,000 to 1.

You guessed it. A construction electrician had been rewiring one of the high voltage transformer differential relay circuits for Building 9201-5 when one of the control wires accidentally touched a ground connection. This wiped out all electrical equipment all the way up the line back to Elza 1 substation, causing a total plant electrical power outage.

Staton took a lot of flack over his 1,000 to 1 odds statement. Harold was reminded that when he and his working buddy Willie S. Arnold had also allowed a ground wire to touch a differential relay control wire and it also tripped the entire plant out. Harold said, he and Willie never said much about this...but they learned a good lesson about differential relay control wires and ground connections.

Again, in a similar situation, I recall when in the past 10-15 years one of the high voltage transformers at Elza 1 switchyard blew up because of a down-the-line fault. So, even with all the redundancy electrical power outages still occur at Y-12 periodically.

Harold's experiences in both Building 9201-5 and Building 9201-4 COLEX processes will continue next week.