

Y-12's environment, safety and health history part 2

As Y-12 continued to operate past the 1950s into the decades throughout the remainder of the Cold War, production continued at a rapid pace. All the nation's nuclear weapons have components from Y-12. The Cold War years were years of major expansion and ever-increasing change. There was growth in machining expertise and measurement technology that resulted in Y-12 becoming the most precise machine shop in the nation and likely in the world.

All the while there continued to be increased emphasis on safety through the creation of staff organizations to help focus attention on specific actions and programs that would support and provide assistance to the line supervisor. With each lesson learned and each incident where there were near misses and where changes could be made to cause more emphasis on preventing accidents, new initiatives would be implemented.

While safety was very much in the crosshairs of managers and workers alike, the environment was not much in consideration until regulatory agencies began to bring pressure to bear. There was not much thought given to the environmental impact of coal-fired steam plants constructed in 1945, 1946 and, finally, Building 9104-3 constructed in 1955.

The 9104-3 steam plant operated until the last few years, when it was replaced by the present modern steam plant. A note to history, "Big Toot," the steam whistle, was removed from the old steam plant and has been placed on the new one...now if we can just get a policy and procedure to blow it on special occasions.

From an environmental perspective, Y-12's history includes many challenges that have been met during operations that often call for materials that can be hazardous and harmful to the environment if not properly used and controlled. In the past these materials have sometimes become issues only when adequate knowledge becomes available after years of use.

For example, asbestos is one such material. It was used extensively at Y-12 for years before changes in the way it was handled were made. The increased knowledge of the potential hazard of working around it when it could become airborne caused management and workers alike to become aware of the hazard of working with it, and the wearing of proper protective equipment was implemented.

Additionally, Y-12 has very challenging physical features such as the headwaters of two very low flow streams, East Fork Poplar Creek and Bear Creek. The aging storm and sanitary sewer lines contribute to the concern for the environment as well, as leaks tend to seep into the groundwater.

Significant environmental legacies exist at Y-12 including considerable mercury lost to the environment (two million pounds unaccounted for), prevalent uranium contamination and widespread legacy of PCBs. Extensive historical use of land-based disposal has resulted in groundwater contamination. There is also an accumulation of unneeded materials and chemicals that require proper disposal.

Since the enactment of the National Environmental Policy Act in 1970 and subsequent requirements for permits and inclusion of environmental factors in decision making, Y-12 began to experience more and more issues from legacy use of potentially hazardous materials. The 1970s saw the frequent and strong interaction between government agencies, as each group struggled with what requirements to apply

and what requirements to exempt because of national security. Y-12 had been accustomed to meeting the mission of producing nuclear weapons components for all nuclear weapons in the nation's stockpile.

Y-12 went for years without missing a single shipping schedule, all the while doing what was thought at the time to be the best methods to deal with the necessary use of hazardous materials and remain safe while protecting the environment as best they knew how at the time.

Remember that mercury was allowed to escape the site in the East Fork Poplar Creek while the COLEX (Column Exchange) process operated from 1955 to 1963. And it was not until 1983, when information about the mercury spills was declassified, that action was taken to return the contaminated soil to the site.

The first survey to sweep through the site that I recall was one for asbestos. It happened in the early 1980s, and the people who had been working with asbestos for years lamented the loss of such a good insulating material. The reality of the hazard began to sink in, however, especially when similar concerns for beryllium exposure began to be studied.

Increased emphasis was placed on the use of personal protective equipment that would provide protection from these airborne hazards. Areas began to be flagged off and buffer areas established.

Over the ensuing years the environment at the Y-12 site has been improved through many different strategies. Cleaning up contamination and shutting down facilities as well as the reduction of airborne contamination have all contributed to improved environmental conditions.

As Y-12 has been transforming to a smaller, safer, more secure, and less expensive nuclear weapons complex, efforts have continued to maintain constant improvement. The scientific and technical capabilities that were present in the workforce have kept a constant vigilance. Each new project, program, and modification has been examined for health, safety and environmental issues.

Infrastructure reduction removed excess buildings and infrastructure. In addition to reducing costs, this resulted in improved environmental conditions.

In a recent internal news article, Donna Watson said, "Early on, Gordon Fee and Todd Butz of Y-12 and Bill Bibb of DOE Defense Programs laid the foundation for regulatory compliance at the site. Building on that groundwork were a number of engineers still here today — Clarence Hill, Lenny Vaughan, Terry Cothron, and Wayne McMahon, to name a few."

Watson continued, "Under the influence of these professionals, (all currently in Environment, Safety, and Health's Environmental Compliance organization), the environmental programs have matured, and notably at times, exceeded requirements."

It is the leadership efforts of these type individuals as well as the enhanced awareness of the entire workforce that has resulted in awards such as the Voluntary Protection Program being awarded to Y-12 over the years.