

## **Y-12 and environmental regulations – a way of life**

With the onset of new regulations or increased emphasis and revision of existing environmental regulations in the 1970's and 1980's came the necessary organizational changes required to respond to the regulators and to implement the needed changes to conform to the requirements. New organizations were formed, new procedures written and generally Y-12 saw a major shift in workload. Increasing paperwork was to become the norm for years to come, but this emerging concern for the environment was met with the same "Can Do" attitude that Y-12 displays to all challenges.

There were four major programs included in the newly forming umbrella organization and effort known as "environmental management." They were, Air Pollution Control, Water Pollution Control, Solid Waste Management and Remedial Actions. According to the July 1985, Y-12 Plant Long-range Environmental Management Plan, each of these major programs had their own master strategy and set of objectives.

There was a two-fold approach taken, integration of the monitoring and research and development efforts and capital project review to assure compliance of new work. There was a large infrastructure restoration program underway and new weapons programs were coming to Y-12 regularly. Remember, in mid 1985, there were 9,545 people working at Y-12 and winning the Cold War was heavily dependent on Y-12's ability to produce as many nuclear weapons secondaries as requested of us.

The National Environmental Policy Act had been signed into law on January 1, 1970. According to the Citizens Guide to NEPA, using the NEPA process, agencies are required to determine if their proposed actions have significant environmental effects and to consider the environmental and related social and economic effects of their proposed actions. By 1985, this process was well understood and a routine part of planning project work.

To help show the scope of the effort, there were 20 separate air pollution programs or projects described in the 1985 environmental management plan to conform to the Clean Air Act. These ranged from air emission controls in uranium processing areas to steam plant emissions controls. Each of the programs or projects was reviewed for NEPA concerns.

Just the number of stacks that had to be monitored and state permits obtained was several hundred. Of these, 125 were already permitted in 1985 and 225 had permit applications prepared but the permits had not yet been approved. A date of October, 1985, was set as the date for all permit applications to be submitted to the state.

An area where even more controls were required was the 112 exhaust systems serving areas which processed enriched or depleted uranium. A monitoring program was underway in 1985 with plans for continuous air monitoring and alarms on those stacks that were determined to have potential for significant emissions.

Data management systems had to be created to meet the massive effort of documenting the existing situation and to monitor the implementation of controls and improvements. Only through thorough and detailed understanding of the data could assurance be given that Y-12 was in compliance with these environmental regulations.

An Environmental Compliance Department and a Y-12 Environmental Technology Department both contributed greatly to assuring that Y-12 Plant policy, engineering projects and operational procedures were such that all environmental regulations were addressed. Environmental management was a growing and substantial element in overall plant operations.

The Clean Water Act of 1977, although it had been around since 1948 as the Federal Water Pollution Control Act and was significantly expanded in 1972, is when the current name and much of the existing requirements came into being. Until 1977, the Environmental Protection Agency had held total responsibility for enforcing the Clean Water Act at federal facilities, including Y-12.

So the entire plant had one National Pollutant Discharge Elimination System permit with four outfalls. One of those outfalls was located at New Hope Pond on the extreme east end of Y-12 where East Fork Poplar Creek exits the plant site. West of the main plant site on Bear Creek at Highway 95 was another outfall. A third outfall was located at Rogers Quarry on Bethel Valley Road. The fourth outfall was located at Kerr Hollow Quarry, which is now a huge success story for remote underwater remediation (more on that later).

The 1977 amendments to the Federal Water Pollution Control Act/Clean Water Act permitted the states to establish their own state water quality criteria. These criteria took precedence over EPA requirements. In Tennessee all waters that arise in the state are considered "waters of the state" even though they might be on federal property. This meant that ALL outfalls to the streams in Y-12 had to be permitted. Both East Fork Poplar Creek and Bear Creek arise in Y-12.

Beginning in February, 1983, and continuing until September, 1983, the Tennessee Department of Health and Environment performed compliance evaluation inspections and worked with Y-12 on a Memorandum of Understanding regarding issues surrounding the additional permits required. In September, 1983, the Upper East Fork Poplar Creek was identified in a formal Complaint from the state and in December, 1983, the Bear Creek watershed was also included.

This marked the real beginning of continuing efforts to assure a healthy ecosystem in Upper East Fork Poplar Creek. Actions such as expanded monitoring programs in the stream, effluent monitoring of discharges, addition of raw water to increase the flow rate, and a Best Management Practices Plan which included spill prevention, countermeasures and contingency plans, were implemented.

Managing environmental issues would continue to expand as more and more requirements were placed on the protection of the environment and cleaning up previous legacy practices. Such past practices as the S-3 ponds, New Hope Pond, and other early attempts to address environmental issues had to be addressed and in many cases, replaced entirely. Environmental protection had become a way of life at Y-12.