Yankee Thrift as Pollution Prevention at Hyde Manufacturing

by Douglas DeVries

The greatest pollution prevention device in the world is an active human mind. Active minds working together have made this firm what it is today, a 118-year-old learning organization. Mr. I.P. Hyde started making knives for the shoe industry about a mile from where our plant is located in Southbridge, Massachusetts. He made knives for three days a week and peddled them two days a week. Mr. Hyde, a good Yankee businessman, believed in using up, using over, and making do. His one-man shop could not afford to waste any resources.

Hyde Manufacturing Company now has sales in excess of $30 million a year. Our 305-member team carries out as many as 30 different processes in producing the finest putty knives, surface preparation tools, and machine blades in the world. Every day we face issues that Mr. Hyde couldn’t have dreamed of. We develop more new products each month than he did in a lifetime. We constantly have to plan for future federal, state, and emerging international environmental requirements to make sure that we don’t invest in processes or products that changing laws will render obsolete.

At the same time, we have stakeholders, including the community where many of our employees live, who are affected by the way we operate our business. One of the factors, for example, that led us to adopt our ambitious goals for reducing waste was the need to reduce the load on the local publicly owned wastewater treatment plant.

How a company responds to the complex challenges of today’s marketplace depends on the vision of its top management. At Hyde, we have returned to the fundamentals of using up, using over, making do, and not expecting or accepting waste from any of our manufacturing processes.

Hyde’s environmental goal is zero discharge of hazardous material to all media—air, land, water—and production of the smallest amount of waste possible for this type of operation. We will not introduce any new chemical hazard into our plants. These were goals we established four years ago after attending a meeting sponsored by the Massachusetts Department of Environmental Management’s Office of Technical Assistance. During this meeting, we met employees of the Robbins Company in Attleboro, Massachusetts. They told their story of zero discharge and what it had done for their company. Our decision to embark on a source reduction strategy was based on two factors: end-of-pipe control was too risky and costly and the fact that Robbins had achieved the same goal through source reduction. We became a member of the Blackstone Project (see box on page 33) and began our journey of applying the principles of Total Quality Management to our environmental efforts.

Since we started our program in 1989, we’ve used a variety of pollution prevention techniques to help us reach our goal. By eliminating a cleaning operation, we reduced the use of 1,1,1-trichloroethane from 15,000 pounds per year to zero. We eliminated kerosene from another cleaning operation by substituting a water-based cleaner that uses mechanical assistance. Through in-process recycling of a substitute coolant, we were able to reduce waste coolant discharge by 80 percent. Through conservation measures, we reduced overall water use by 80 percent. In addition to these process-focused measures for pollution prevention, we are expanding our environmental management program to incorporate recyclability into the design of our products.

Here are some typical statistics that
highlight the achievements of this program so far:

- The use of ozone-depleting chemicals, long a mainstay of the metal working industry for cleaning, ended in late 1991. All related equipment and chemicals were removed in early 1992, well ahead of government-required deadlines.
- Water purchases have been reduced from 27 million to 5 million gallons per year, with a savings of $29,000 and a reduction in sewer charges of $43,000.
- New filtration and fluid handling methods have reduced discharge of grinding coolants from 40,000 gallons per year to zero gallons during the last four years.
- Waste paper recycling has reduced the material sent to the town landfill by about 135 tons per year.
- The use of clay absorbents was stopped; they were replaced by corn cob grits, a biodegradable renewable resource with a high btu value which, when disposed of, can go to a resource recovery facility.
- We installed air-cooled air compressors to reduce water consumption and supply supplemental plant heat in the winter.
- Dunnage for outgoing shipments has been changed from new newspaper to paper peanuts. These peanuts are 100 percent post-consumer recycled paper. Pallets for outbound shipments are molded waste wood.

Hyde is taking care of the environment and taking care of business. It is good business to be environmentally sound; it is the only way to be in business. The foundations laid down by Mr. Hyde allowed us to succeed for the last 118 years, and now we are rebuilding those foundations to ensure the next 118 years of company growth. What is our pollution-prevention bottom line? Environmental program expenses for the last three years have exceeded $100,000; savings or cost avoidance from environmental programs has exceeded $200,000.

Twelve years ago, the Borden Packaging and Industrial Products plant at Fremont, California, embarked on a waste reduction program that has been successful beyond expectation. The Fremont plant currently manufactures aqueous formaldehyde solutions in various grades. We also produce formaldehyde-based phenol (PF) resins, marketed primarily for use in fiberglass insulation, as well as urea (UF) resins and wax emulsions, which are used primarily by the particleboard industry.

Formaldehyde is produced from methanol in a continuous process that operates 24 hours per day, seven days per week. UF and PF resins are manufactured in batch reactors with batch sizes ranging from 50 to 160,000 pounds, depending on type and sales volume. In 1992, combined, total production at the Fremont facility was 200 millions pounds.

We launched our pollution prevention program in 1981 after an unacceptable level of waste—more than 200,000 gallons of resinous sludge—had accumulated in a wastewater evaporation pond over a three-year period. As a result of ongoing efforts, the plant now recycles all of its PF resin washwater. Moreover, it generates only a minimal amount of sludge, reducing solid PF resin waste by over 90 percent and virtually eliminating solid UF resin waste.

Our formaldehyde unit has been recycling all of its wastewater,

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