## Pollution Control at Monroe Plating

Growth for Monroe Plating demanded improved environmental controls . . .

ntil recently, Monroe Plating, Inc., Rochester, New York, found compliance with government regulations on wastewater treatment a continual concern. The slowness of Monroe's wastewater treatment system for zinc and chromium was also keeping the plating firm from increasing its operations. Monroe knew that water from the Hemlock Lake, a watershed that feeds city lines, is eventually discharged into Lake Ontario and represents a valuable, potentially recyclable resource.

Now, thanks to a low-cost loan from New York State and the vision of company management, Rochester's largest contract zinc plater has unveiled a \$300,000 wastewater treatment system. The system purifies city water prior to operations. It also discharges water containing 0.5 or fewer ppm of zinc and chromium. This is three times better than the limit set by Monroe County Pure Waters.

Incoming city water is first fed through an ion-exchange system that removes metals and other impurities, including iron and chlorine. "Cleaning" water prior to plating has helped Monroe achieve greater productivity, increased part quality, less maintenance, and waste reduction. Moreover, the goal of recycling 60 to 70 pct of all water used at the plant is well within reach.

Following plating, a membranetype filtration system is used. In this system, water containing heavy metals is sent under high pressure through a series of membrane tubes. Solids are separated and sent through a filter press. The sludge from the filter press is treated and placed in a secured landfill. After trace amounts of zinc, chromates, and other metals are removed from the water, the pH is adjusted and the water is safely discharged.

With the new wastewater treatment system from Wheelabrator Engineered Systems, Memtek Division, operators now have fewer variables to control or eliminate, including temperature variations (the system is temperature controlled) and various imperfections caused by chlorine and

DAN MIKE AND KEN MCAIPIN (1 to r) hold a \$5,000 a month on water, including

DAN, MIKE AND KEN MCALPIN (I to r) hold a goldfish tank containing water that has been through the company's wastewater treatment system.

iron. Also, there is a reduced need for general housekeeping, which had involved weekly hand scrubbing of each enormous tank. Because water purification before plating results in cleaner tanks, eliminating that one cleaning operation has saved Monroe hundreds of hours of labor.

Other benefits of the new wastewater treatment system include savings on water and chemical purchases, less equipment downtime, better control over a repeatable process and less waste. The bottom line? Monroe Plating is poised to accept a significant amount of new business.

Monroe Plating had to budget for water since it was a spiraling cost. The company spent approximately \$5,000 a month on water, including the cost of purchasing and discharging chemicals to treat the water (\$4,000) and the treatment and disposal of heavy-metal sludge (\$1,000).

Now, with the new wastewater treatment system in place, Monroe expects to pay back its \$300,000 investment in less than six years, given their present level of activity, or in half that time if the company adds another shift. Monroe's water treatment system reflects the company's concern for the environment, and, with its wastewater treatment capacity, also positions the company for significant growth.

Water Treatment Helps Win Contracts for Windows and Brakes. Assigning work to outside vendors for specific processes or services is becoming more commonplace. For the zinc rack and barrel metal plating

Thirty Years of Quality Zinc Plating. Back in 1967, Lyndon Johnson was President, St. Louis won the World Series, and two Rochester natives and entrepreneurial tool and die makers, Frank McAlpin and Ralph Derleth, founded Monroe Plating at 255 Hollenbeck Street in Rochester. Both men wanted to be able to accommodate the plating work they were generating through their plant, McAlpin-Derleth, formed three years previously to do high-precision stampings (usually plated) for the business machine market.

Mr. McAlpin became sole owner of the company in 1980. Today, his three sons, Ken, Dan and Mike, run the company, with some experienced guidance from their dad, who retains the title of CEO. Frank McAlpin is especially proud of the company's second- generation management.

"We work hard to keep the roles clear," said oldest brother and company president Ken McAlpin. Dan is

vice president of engineering and operations, while Mike is materials manager. From a small customer base, the company has grown significantly in other markets by acquiring skills, upgrading statistical controls on machinery, and adding space.

Monroe's mission, according to Ken, is to work as closely as possible with customers to produce superior plated products.

"We knew that if we wanted quality zinc plating, we would have to do it ourselves," Ken noted. "And that search for quality has paid off, with additional business from industries where quality control is a governing factor in how the business is run."

As for future generations in this family-owned business, this could take a while. There are several grandchildren of founder Frank McAlpin, but the youngest McAlpins are all still in grade school. But when they are ready, Monroe Plating will still be state of the art.

industry, the trend toward outsourcing is often in response to increasingly stringent controls and expensive environmental compliance procedures.

Outsourcing zinc plating has helped two established upstate New York manufacturers improve quality control, add to the bottom-line and eliminate environmental concerns over wastewater treatment in manufacturing operations.

New York Air Brake Corp., Watertown, New York, has a longevity enviable in its business. Founded in the mid 19th century to produce braking systems for trains, the company is still doing that today.

New York Air Brake is one of the

two primary providers of railroad air brake systems in North America and export markets. Through the efforts of New York Air Brake's 450 employees, the company achieved ISO 9001 status in April 1994, for all areas of the company's operations and engineering.

New York Air Brake had used a cyanide-based plating process; however, growing environmental concerns and customer specifications calling for zinc plating led the company to pursue outsourcing.

"Our products operate under extreme conditions where durability and corrosion resistance are essential, and zinc plating plays an important role

## WASTEWATER treatment system at Monroe Plating

remember a time when nearly every window in every home was covered by a window shade. Window treatments have changed since then, but for the past 78 years, high-quality wood and metal window shades have been manufactured Joanna Window

Decor in Ogdensburg, New York.

At one point the company, now owned by Crown Home Furnishings Company in Charlotte, North Carolina, was the largest roller manufacturer in the country. Today, in spite of trends and recessions, the private business employs 70 people and remains strong.

Mike Link, general manager, explained, "Window rollers started in Europe in medieval times, when they painted scenes on fabric and used it to cover window openings for light control and privacy." According to Mr. Link, the market has a more conservative consumer base. The quality of the window shade products has been grouped into a three-tier system: 1. Stock shade quality, which is sold in department stores and local shade shops; 2. Custom shade quality, which is made to customer specifications at a slightly higher cost;

in achieving these goals," noted Mark Wuerschmidt, manager of facility and environmental engineering.

The qualities that encouraged New York Air Brake to bring their work to Monroe Plating, according to Mr. Wuerschmidt, became evident during a plant tour. He says the working environment, employees' attention to detail, emphasis on quality and competitive pricing made Monroe Plating the company of choice.

A real concern with outsourcing is turnaround time. Mr. Wuerschmidt said the five-working-day turnaround time agreed to with Monroe has been factored into New York Air Brake's production planning. Monroe Plating has been able to meet the brake manufacturer's quality criteria for color, surface finish, adhesion, and plating thickness.

**Joanna Window Decor.** If you were born before 1950, you probably

and 3. Contact shade quality, for costeffective use in subsidized housing, hospitals, and schools.

"We build nearly every part we use by hand, including metal stamping. We even wind our own springs," Mr. Link explained. Until recently, that attention to detail included zinc plating for parts and components. Now Monroe does the plating.

Mr. Link says increasingly stringent environmental controls over zinc plating encouraged Joanna to outsource plating instead of spending approximately \$100,000 to install a waste treatment system and train people to run it so it could continue to do zinc plating in house.

"The people at Monroe Plating took a big burden off our shoulders," said Mr. Link. "After we analyzed the cost of doing plating, we realized that outsourcing was more effective and less costly in the end."

**Trends in Zinc Plating Demands** More QC. As zinc plating specialists, Monroe Plating sees growth markets in industries where corrosion is a serious concern. Zinc plating protects from corrosion, as does the chromate conversion coating that often follows plating. A trend toward a three-year, under-the-hood warranty for engine corrosion is likely to increase the demand for plating in the automotive industry. Moreover, turnings and screw machine parts represent a growth market for barrel plating, which is used to plate small parts.

"We are also looking for plating work being outsourced by major OEMs," said Ken McAlpin, company president. "Many manufacturers are getting out of the zinc plating business because of the environmental restrictions in wastewater treatment. We've been able to take on these operations while providing reduced costs, better quality, and improved service. We also feel like a good neighbor for meeting or exceeding the environmental restraints."

Monroe's motivation is reflected in part by a two-week period of quality problems. "We dumped cleaners, we changed rinse tanks, and we checked everything. It was a mess before we discovered what was wrong," said Ken. "The incoming city water was too high in iron contaminants and none of our parts could pass our own stringent quality control test.

"We knew that in order to grow the company, we had to improve our wastewater treatment system," Ken said. "And with the new system in place, we can now grow as large and as fast as the upstate economy will allow."

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