



## CASE STUDY:

# Town of Tryon - Mercury Collection Event

Location:	Tryon (Polk County)
Industry:	Municipality (SIC 9500)
Pollution Prevention Application:	Mercury Collection
Waste Reduction:	175 pounds of mercury-containing items removed from environment
Contact:	Joel Burrell, (828) 859-6654 or joelburrell@hotmail.com

## BACKGROUND

Tryon is a small municipality in a rural mountain county with a total population of about 1,800 individuals in 15.1 square miles. Tryon's mercury issues began in February 1994 when state officials issued the town a new wastewater permit that included a limit on mercury. The town's wastewater plant processes about half a million gallons per day that is discharged into Vaughn Creek. The new permit, issued by the N.C. Division of Water Quality (DWQ), required mercury concentration in the treated wastewater not to exceed 30 parts-per-trillion before entering the creek. Following February 1994, Tryon exceeded this mercury limit numerous times.

As a result of these exceedances, the American Canoe Association (ACA) sued the town of Tryon for mercury infractions, requiring the town to pay fines for exceedances as dictated by state law. Following the lawsuit, Tryon enacted a number of measures to reduce and better control mercury in its wastewater collection and treatment system. As part of a "Special Order by Content" (SOC) issued by DWQ, the town began a program to better identify and control sources of mercury that were entering its sewerage system.

## PAST ATTEMPTS TO SOLVE THE PROBLEM

Beginning in the spring of 1996, Tryon inventoried sources of mercury. Work first began with Carolina Yarn Processors (CYP), the system's largest contributor (now closed). Mercury monitoring limits were added to CYP's discharge permit. Tryon required CYP to implement several best management practices to reduce the potential for mercury in the industrial effluent. These measures included better cleaning of sampling equipment, review and substitution of mercury-containing products used at CYP, cleaning of treatment basins, and a

pollution prevention audit of the CYP plant. CYP implemented the "ultra-clean" wastewater sampling techniques recommended by the auditors. The improved practices enabled CYP to meet the 30 parts-per-trillion permit limit that had to be met before its wastewater entered the town's sewer system.

Tryon also worked with the dentists in town to implement best management practices of their office wastewater discharges. Dental offices are a known but minor source of municipal wastewater mercury that comes from work with mercury amalgam tooth fillings. Both dentists cooperated with the town by replacing internal plumbing where mercury may have accumulated and installing additional mercury removal systems.

Tryon also turned it scrutiny to its own wastewater treatment plant operations. The plant underwent purging and cleaning to remove potential mercury sources. Operational improvements were made to better control and treat wastewater. Wastewater sampling improvements were made to collect and handle sampling without contamination, and DWQ modified Tryon's wastewater permit to better utilize an "ultra-clean" sampling technique.

Through the use of sewer truck line sampling, the town identified an old type of wastewater pipe (orangeburg pipe, installed in the '50s and '60s) that contained measurable amounts of mercury. This pipe is replaced as it is encountered during repair and maintenance projects.

## PROJECT DESCRIPTION

Even with all these efforts through the late 1990s, Tryon still sporadically exceeded its mercury limit. By May 2001, the town had paid \$68,000 in penalties under the ACA agreement. Town officials estimated that more than \$240,000 in resources and staff time had gone toward addressing the mercury issue



NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
DIVISION OF POLLUTION PREVENTION AND ENVIRONMENTAL ASSISTANCE  
1639 MAIL SERVICE CENTER • RALEIGH NC 27699-1639

at this point, without success.

In late 2000, the town joined forces with Waste Reduction Partners, (WRP) a nonprofit technical assistance group in Asheville. In conjunction with WRP staff and the N.C. Division of Pollution Prevention and Environmental Assistance (DPPEA), a public education campaign was launched to better inform Tryon businesses and residents about the wastewater issue.

Joel Burrell of Tryon's wastewater treatment plant, along with a member of DPPEA, canvassed area businesses that might have or use mercury-containing items on-site, including doctor's offices, dentists, assisted living facilities, hardware stores, drug stores and automobile and electrical appliance repair stores. Each business was given information about where mercury might be located in its products and services, and ways to reduce mercury in the environment through safe alternatives and proper disposal of these items. Fourteen Tryon businesses signed the "Silver Star" voluntary pledge to reduce the use of mercury-containing items in their business. For hardware stores, this included discontinuing the sale of mercury-containing thermometers to area residents. (See DPPEA's Web site at <http://www.p2pays.org/mercury/tryon/pledge.pdf> for information on the Silver Star Pledge)

Additionally, the local newspaper, the *Tryon Daily Bulletin*, published a series of six educational articles about mercury in the weeks leading up to the scheduled collection day. These articles, which can be viewed at <http://www.p2pays.org/mercury/govproj.asp>, included information on where mercury is found in the home and safe alternatives to mercury-containing products.

The public outreach effort about mercury culminated in a Mercury Collection Day on May 19, 2001, when residents and businesses brought mercury-containing items to a collection point to be properly managed and recycled at no cost to them. The objective of this initiative was to remove common mercury-containing items such as thermometers and thermostats from the community.

The Pacolet Area Conservancy (PAC), the agency responsible for holding the fines paid by the Tryon in mercury infraction fees under the ACA agreement, agreed to pay for the collection day from these funds. Safety Clean, a certified waste handler, was paid \$1,015 for the collection service, which included one 55-gallon drum to contain the waste, a truck and two chemists for six hours to handle and remove the mercury-containing items collected.

---

## WASTE REDUCED

---

The Tryon Mercury Collection Day attracted 34 people and collected 175 pounds of mercury-containing materials, including 21 mercury thermometers, 33 fluorescent bulbs, 22 dental filters, 75 feet of piping from dental offices, three mercury thermostats, two mercury barometers, and four small containers of liquid mercury.

---

## RESULTS

---

Following the Mercury Collection Day, Tryon was able to meet its stringent mercury standard for 18 consecutive months, allowing the ACA's consent decree to be lifted and fines to end.

Since then, Tryon has not had a single exceedance of its mercury limit, even after implementing the new 1639 test method for mercury in September 2003, which has a much lower detection limit. By December 2003, DWQ was so confident that Tryon had solved its mercury problem that the mercury limit was removed from its wastewater permit. While this does not mean that Tryon can now discharge mercury legally, it does mean that the town no longer has to test for mercury every month.

---

## LESSONS LEARNED

---

Keeping Tryon's wastewater mercury-free took the awareness and participation of the entire community. Giving local citizens and businesses a way to safely dispose of mercury-containing items at no charge helped to ensure that known sources of mercury could be eliminated without affecting the local environment. Visiting area businesses to ask for their help in eliminating sources of mercury was crucial, as it provided an opportunity to educate business owners about the community's mercury problem, sources of mercury in their businesses, and how to safely dispose of mercury-containing items. The presence of a local official when visiting area businesses was instrumental in ensuring their cooperation.

For more information about mercury in the environment, visit DPPEA's mercury Web site at <http://www.p2pays.org/mercury>. For more information about Tryon's successful mercury reduction project, see the government projects section of the previous Web site, call the Tryon Town Hall at (828) 859-6654, or contact DPPEA at (800) 763-0136.



The N. C. Division of Pollution Prevention and Environmental Assistance (DPPEA) provides free, non-regulatory technical assistance and education on methods to eliminate, reduce or recycle wastes before they become pollutants or require disposal. Call DPPEA at (919) 715-6500 or (800) 763-0136 or e-mail [nowaste@p2pays.org](mailto:nowaste@p2pays.org), or visit DPPEA's Web site at [www.p2pays.org](http://www.p2pays.org) for assistance with issues in this fact sheet or any of your waste reduction concerns.