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Leading trail

John Ferriola leads Nucor, premier steel producer and North America's largest recycler, further along its path.

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Good neighbors

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At first glance, scrapyards are at the heart of what most people think of as ground zero for the industrial United States. There are piles of metal, trucks and cranes, workers cutting up metal, and dust and smoke. But scrapyards are much cleaner today than they were several generations ago, when most Americans regarded them as simply “junkyards.”

Scrapyards—like every other industrial facility in the United States—must adhere to increasingly stringent federal, state and municipal environmental regulations. Since the early 1970s, when President Richard Nixon signed landmark air and water quality legislation and established the U.S. Environmental Protection Agency, scrapyards have had to comply with stormwater and groundwater regulations

One Midwest scrap operator who operates a south Chicago facility adjacent to a small lake and watershed said that his company “ensure(s) that runoff from our yard does not go into that lake.” The south Chicago scrapyard maintains retention ponds for potential stormwater and outsources its environmental compliance to a consultant, a common approach among smaller scrapyards. “We’re not big enough to have someone on staff,” the operator said, “so we have a person come in quarterly who keeps track of

Operating a sustainable scrapyard is a vital part of today’s business, and like every other industrial facility in the United States it must adhere to increasingly stringent federal, state and municipal environmental regulations.

By BILL BECK

the federal and state regulations that affect our yard.” The consultant also maintains environmental quality record-keeping so the company can keep its Organization for Standardization (ISO) documentation current for quality audits.

Scrapyards typically cover several acres or more, and that surface acreage in and of itself can cause problems with stormwater runoff. One inch of rain over one acre of ground is equivalent to 27,000 gallons of water. A rainfall total of one inch—not uncommon in a 24-hour period over much of North America—can produce more than 250,000 gallons of water on a 10-acre scrapyard. That water has to go somewhere—and the EPA and most state pollution control agencies expect it to be clean if it flows into an adjacent watershed.

“A scrapyard is a large, multi-acre outdoor facility with large amounts of processed and unprocessed scrap on the ground,” said David Wagger, director of environmental management at the Institute of Scrap Recycling Industries. Under federal and state environmental regulations, scrapyards are tasked with trying to prevent stormwater from contacting benchmark metals—detailed in the regulations—that in-

clude iron, aluminum, copper, lead and zinc. The regulations also include total suspended solids (TSS), usually grit and dirt, as well as certain organic compounds.

EPA regulations, as well as state regulations, specify how scrapyards must perform benchmark monitoring to ensure that metals and TSS do not contaminate stormwater. Many states have changed their stormwater permits recently to reflect federal EPA standards, with some going beyond those standards.

“Benchmarks are getting lower and lower over time, and harder to come into compliance with,” Wagger said. “In some cases, we are seeing levels even lower than drinking water standards.”

Industrial stormwater has even caught the eye of municipalities, Wagger said, noting that “many cities are now imposing stormwater fees. And that does create additional challenges for our members with compliance requirements.”

Scrapyards are required to monitor stormwater for benchmark parameters. The scrapyard compares its results to state benchmark standards, and if those standards are exceeded over a specified period then the scrapyard must look at ways to improve its performance.

Scrapyards can follow several procedures to comply with benchmark standards on stormwater runoff. Operators can sweep the facility with mechanical brushes and industrial vacuums, which has always been an effective method to lower stormwater loading on paved areas. The problem becomes more complex if the scrapyard is primarily natural soil.

Scrapyard operators pay closest attention to operational areas, Wagger said. Stormwater loading of metallic particles and TSS usually



WaterTectonics offers yards new technologies.

does not occur in grassy areas, parking lots and building sites. Often, building downspouts can simply be directed away from scrap metal piles. However, buildings can pose a benchmark problem themselves. Galvanized industrial roofs can contain large amounts of zinc, which can run off as stormwater. One suggestion is to use rain-resistant paint to contain the zinc roofing material.

Simply organizing the scrapyards can pay dividends in benchmark monitoring. Lead-acid batteries, for example, should be stored under cover or in a small shed, while piles of material on the ground should be separated with barriers or containment berms. "It's all in the category of good housekeeping," Wagger said.

If the scrapyards has room, the creation of a retention pond is very effective in settling out benchmark metals and total suspended solids. "A one- or two-inch rainfall could easily be retained in the pond," Wagger said. "The pond can also provide some amount of clarification of the stormwater."

Scrapyards also are able to take advantage of relatively new technologies to meet benchmark standards for stormwater. Everett, Wash.-based WaterTectonics has worked with about two dozen scrap companies over the past 10 years on stormwater compliance issues.

'WE USUALLY HANDLE A FEW SCRAPYARD PROJECTS A YEAR. WE DO LARGER PROJECTS, AND RELATIVELY FEWER OF THEM AT A TIME.'

—T.J. Mothersbaugh, WaterTectonics

One of the challenges with stormwater is that it contains an inordinate amount of metals, grit and dirt in very fine particles, company business development manager T.J. Mothersbaugh said. "We're looking at a way to coagulate those particles, to make larger particles from the small particles."

WaterTectonics, which was started by Mothersbaugh's father, offers its customers electrocoagulation technologies that use electric and metal plates installed at shredders and metal handling yards. The system collects stormwater in vaults or above-ground tanks. The stormwater is passed through electrocoagulation treatment cells and then diverted into a series of set-

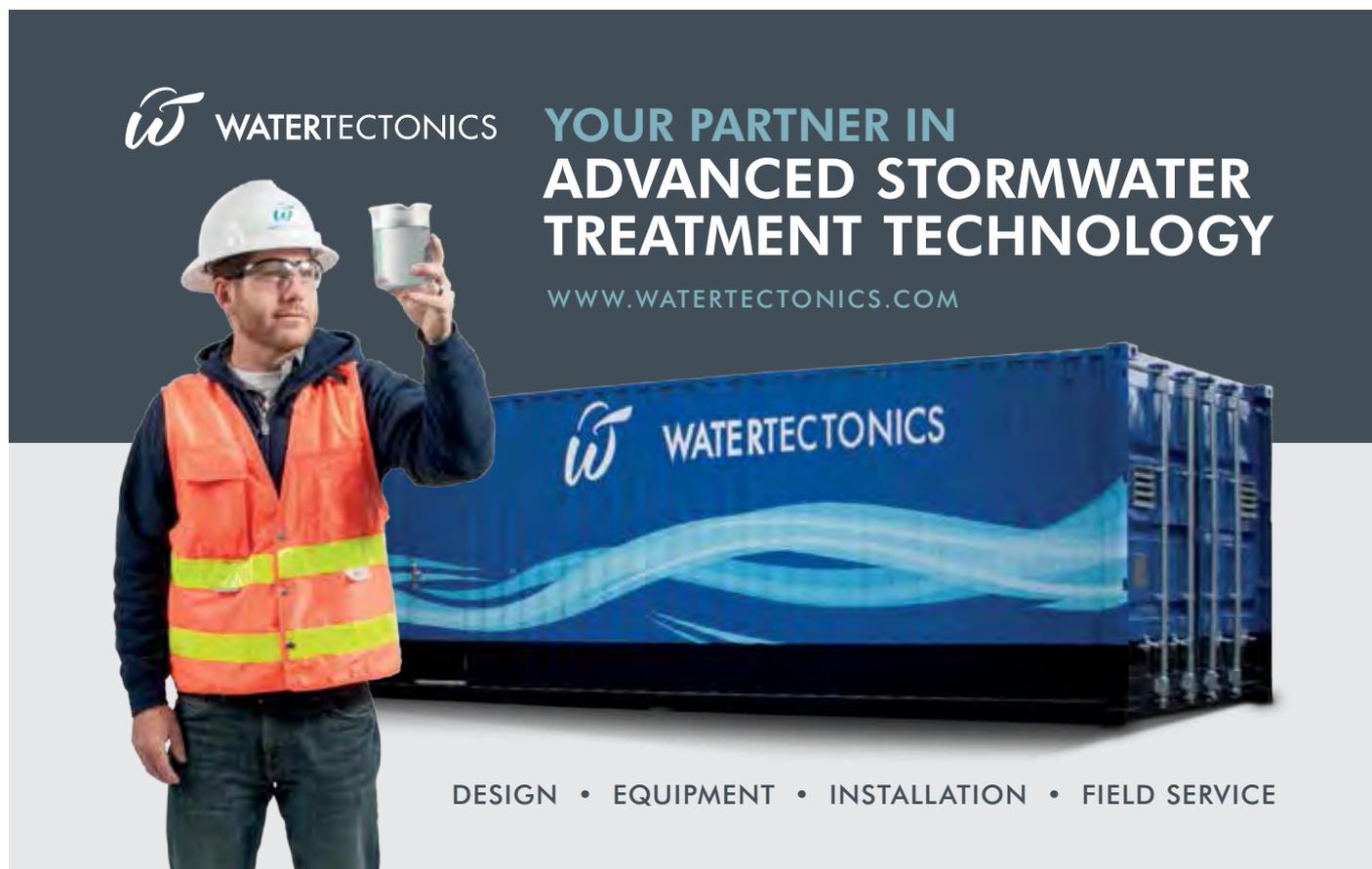
ting tanks. Metals and suspended solids settle out of the water column and the treated water is passed through a sand filter before testing. If the water is in compliance, it gets released; if not, it is diverted back to the front end of the system for reprocessing.

Before WaterTectonics sets up a system, its technicians spend time on the site analyzing the chemistry of the water, pH, particle size and the existence of trace metals. "We usually handle a few scrapyards projects a year," Mothersbaugh said. "We do larger projects, and relatively fewer of them at a time."

Stormwater runoff is the major environmental issue for the nation's scrapyards, although air quality issues do arise—particularly with airborne dust during dry periods.

Because many scrapyards are in populated areas, with some in city neighborhoods, noise can frequently be an issue. "We try to be good neighbors," said one Chicago scrapyards operator whose facility is adjacent to a Southside neighborhood. "Sometimes noise can be a problem. We try to keep the bulk of the processing away from the neighborhood. Everybody wants to be a good neighbor."

Air, water and noise compliance issues likely will continue to govern how scrapyards are run.



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