

E-Waste: The Dirty Secret of Recycling Electronics

Lax rules and weak enforcement allow scrap companies to profit by sending junked computers, printers, and TVs overseas

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Business is booming at Supreme Asset Management & Recovery, one of the nation's largest recyclers of electronic waste. Inside a cavernous warehouse in the industrial section of Lakewood, N.J., workers in T-shirts grapple with newly arrived truckloads of old computer monitors, keyboards, printers, and TVs: tons of e-waste that contains dangerous lead, mercury, and cadmium. Such major manufacturers as Panasonic and JVC and municipalities like Baltimore County, Md., and Westchester County, N.Y., have paid Supreme to dispose of their digital detritus, relying on the company's assurances that the work is done safely.

But as the e-waste industry proliferates—some 1,200 mostly tiny companies generated revenue of more than \$3 billion last year—it has also become enmeshed in questionable practices that undercut its environmentally friendly image. Next year the volume of e-waste will probably surge. In February, U.S. consumers must switch from analog to digital television service, a move that is expected to result in the mass junking of analog TVs.

Supreme, founded and still run by a man who pleaded guilty in 2001 for his role in a computer-theft ring, maintains that it lawfully disposes of e-waste after neutralizing all hazardous contaminants. But a recent probe by the U.S. Government Accountability Office found that "a large electronics recycler in New Jersey"—which *BusinessWeek* ([MHP](#)) has identified as Supreme—was one of 43 U.S. companies that sought to sell e-waste for export to Asia, in apparent violation of the law. In China and elsewhere, electronic gear commonly is stripped for reusable microchips, copper, and silver; dangerous metals are dumped nearby, often close to farms or sources of drinking water.

Supreme doesn't dispute that it is the New Jersey recycler mentioned in an August GAO report about the investigation. But it denies any wrongdoing.

BusinessWeek independently found postings on China-based Alibaba.com and other international trading Web sites in which people identified as sales representatives for Supreme and affiliated companies offered to sell scores of shipping containers filled with monitors of the sort that the Environmental Protection Agency has barred from export without special permission—which Supreme doesn't have, according to government records. "These monitors are all located in my N.J. warehouse and are ready to ship!!" one post said. A 40-foot-long container filled with monitors and TVs sells for as much as \$5,000 in Hong Kong, according to e-waste recyclers.

Since the early 1990s, an international agreement known as the Basel Convention has restricted trade in hazardous waste, but the U.S. has failed to ratify the pact. As one limited response to the Basel initiative, the EPA adopted civil rules that went into effect in January 2007 forbidding U.S. companies from exporting monitors and televisions with cathode-ray tubes unless they have approval from the EPA and the receiving country. CRTs electronically project images on screens that are typically made of leaded glass. The gear contains mercury, cadmium, and other toxins

that when released carelessly can cause neurological damage in children, among other harmful effects. The blood of children in rural Guiyu, China, a notorious e-waste scavenging site, contained lead at twice the acceptable level set by the U.S. Centers for Disease Control & Prevention, according to a 2007 study conducted by Shantou University.

"No Accountability"

Seven former Supreme employees told *BusinessWeek* in interviews that they knew about the company selling large monitor shipments overseas. Despite the sales offerings on the Internet and the accounts of its former employees, Supreme says flatly that it "is not an exporter" of e-waste. The phrasing of its statement leaves open the possibility that others export the materials. But Supreme adds that to its knowledge, all of its buyers behave lawfully. "We're doing everything we can to play by the law, to save the environment, and to run a successful business," says Brianne Douglas, vice-president for marketing. She adds in an e-mail: "Unlike some competitors, we don't simply buy and drive goods to the dock to be shipped overseas.... Items that are not reusable are broken down to a commodity level and everything—100%—is recycled."

Without commenting on Supreme's practices, some of its rivals confirm the GAO's findings that the e-waste business is rife with corner-cutting. "Ninety percent of electronics recyclers are cheaters," contends Robert Houghton, president of Redemtech, an e-waste processor in Columbus, Ohio. "This industry has a tradition of no accountability."

Thomas L. Varkonyi, proprietor of Metal Recycling in El Paso, says that Houghton's assessment applies all around the country. Varkonyi's scrap shop does a brisk business in e-waste trucked to him by recyclers. He, in turn, ships monitors and motherboards a couple of miles south to Juárez, Mexico. There, Mexican workers—"cheaper labor," he says—pry the e-waste apart, plucking out valuable metals and components that can be sold to international buyers.

Regulation of the unwanted toxins is far more lenient in Mexico. "If you wanted to break those rules, it would be easy because you can pay off anyone [in Mexico]," says Varkonyi. Nonetheless, he says he brings salvageable material and contaminated scrap back to his El Paso facility. As a result, he says, he doesn't need permission from the EPA or Mexican government. The EPA disagrees; activities such as Varkonyi's do require approval, the agency says. Varkonyi, 63, describes himself as a middleman for recyclers who, he says, want to tell their corporate and municipal clients that they don't export PCs or other potentially hazardous gear: "I buy stuff from other recyclers who then claim that they do not export anything." Varkonyi won't name his customers.

Sixteen years ago, Supreme Asset Management's corporate predecessor was started by Albert Boufarah, a man who went on to compile a colorful résumé in the computer-parts business. In the 1990s, Boufarah, a former organizer of computer trade shows, became involved with a loose-knit group of people who stole electronic equipment worth millions of dollars, according to federal law enforcement officials. Boufarah's role was to sell laptops and other stolen gear, says James M. Maxwell, the special agent with the FBI who arrested him in 1999. Boufarah cooperated with prosecutors and pleaded guilty to conspiring to possess stolen property. He received two years of probation. More than a dozen people were convicted.

Boufarah, 41, remains president and owner of Supreme. The company didn't make him available for an interview. In a statement, Supreme said that Boufarah was "unknowingly engaged with an

individual who was dealing in stolen property. We resolved this problem quickly and appropriately, ensuring that the original victims received some reimbursement for their goods."

Supreme has grown from a handful of employees in the late 1990s to more than 100 today. Its facility in New Jersey encompasses 100,000 square feet. Rows of old monitors bound in plastic shrink wrap stand seven feet high. In the executive offices, a marble lobby floor and wood-paneled conference room exude an air of corporate success. Affiliated companies in Virginia, Maryland, and Massachusetts accommodate clients in those states, including Massachusetts Institute of Technology. Supreme says it processes more than 100 million pounds of e-waste a year. The trade magazine *Recycling Today* ranked it No. 2 in the industry in size. But the privately held company wouldn't disclose its financial results.

Like most of its rivals, Supreme charges clients several hundred dollars for carting away a shipping container of e-waste. The company promises to break apart the old equipment and dispose of the dangerous ingredients through a variety of methods, from unscrewing computer units by hand and prying loose circuit boards to cleaning leaded monitor glass in an expensive machine. Supreme says it sells the remaining glass, plastic, aluminum, copper, and steel for reuse.

Profitable Exports

It costs several hundred dollars, including freight and labor, to disassemble and recycle properly a container filled with toxin-laden monitors or TVs, industry executives say. Done domestically, that activity typically isn't profitable. But some companies engage in it as a loss leader, hoping to win lucrative contracts for recycling less toxic circuit boards and cell phones. Exporting e-waste offers a different route to making money. In Hong Kong, the e-waste import center of Asia, a container of unprocessed monitors and TVs that sells for \$5,000 can net profits of \$4,000, according to people familiar with the trade.

Although it claims otherwise, Supreme appears to be active in the export market. In one message in September on Alibaba.com, Matthew Evans, identified on the site as a Supreme sales manager, said: "We have in stock and ready to ship 20 containers of tested, working [monitors], 1997+ and 10 containers of tested, nonworking." In an April posting, Scott Applegate, listed as international sales manager for Reusable Assets, a company that former employees say is affiliated with Supreme and operates from the same New Jersey address, offered to sell 10,000 nonworking 15-inch computer monitors. "We have more than 100,000 sq. ft. of warehouse space in Lakewood, N.J., loaded with merchandise ready to sell and ship at all times," his message read. Evans and Applegate are listed in Supreme's phone directory, but couldn't be reached for comment.

As part of their investigation, GAO employees posed as foreign buyers of U.S. e-waste, including CRT monitors, which under most circumstances would be illegal to export. Of the several offers from the New Jersey company that *BusinessWeek* has identified as Supreme, one sought a buyer for 60 large containers of used TVs—perhaps 48,000 units in all—the GAO said in its August report.

Many of the 43 U.S. companies that expressed willingness to export items to the GAO undercover buyers "publicly tout their exemplary environmental practices," the report noted. On its Web site, Supreme says that "100 percent of the electronic waste we receive is reused or responsibly recycled."

The GAO stressed that the EPA's rules and enforcement efforts are inadequate because they focus only on CRTs, ignoring the export of other potentially hazardous electronic parts. The EPA has done relatively little enforcement, the GAO added.

Dangerous Batteries

The EPA counters that it has focused on educating e-waste recyclers about the CRT rule and now is stepping up enforcement. In August the agency fined Chino (Calif.)-based Jet Ocean Technologies \$32,500 for shipping a container of scrap monitors to Hong Kong. "We want to encourage safer recycling," says EPA spokeswoman Rosemarie Kelley.

E-waste dumping is a growing problem not only in the developing world but also in the U.S. In October 2007 a Supreme affiliate disposed of 37 tons of refuse that contained lithium batteries at the King & Queen Sanitary Landfill in Little Plymouth, Va., according to a written description of the subsequent cleanup by Golder Associates, a consulting firm in Richmond. Lithium batteries, which are used to power laptops and other portable devices, are not supposed to be dumped like regular garbage, in part because they can ignite when exposed to water as they corrode. A related danger is that landfills produce large amounts of flammable methane gas. Supreme dispatched workers to the Little Plymouth landfill to collect the batteries, which filled up three 55-gallon drums, according to Golder. Supreme denied that it ever disposes of lithium batteries at landfills but said it helped clean up the batteries dumped in Little Plymouth.

Supreme's customers say they believe the company handles their e-waste properly. MIT, Baltimore County, and JVC all explain that they have visited Supreme's premises and observed nothing inappropriate. "Everything gets broken down at their facility," says Ed Nevins, director of environmental affairs at JVC. Panasonic said that it worked with Supreme on a single e-waste collection drive last year.

Norman Magnuson, director of operations for MIT's facilities, says that Supreme routinely provides a "certificate of proper destruction," indicating that the university's e-waste doesn't get sent overseas. "They assure us," he adds, "that everything is recycled in a safe way."