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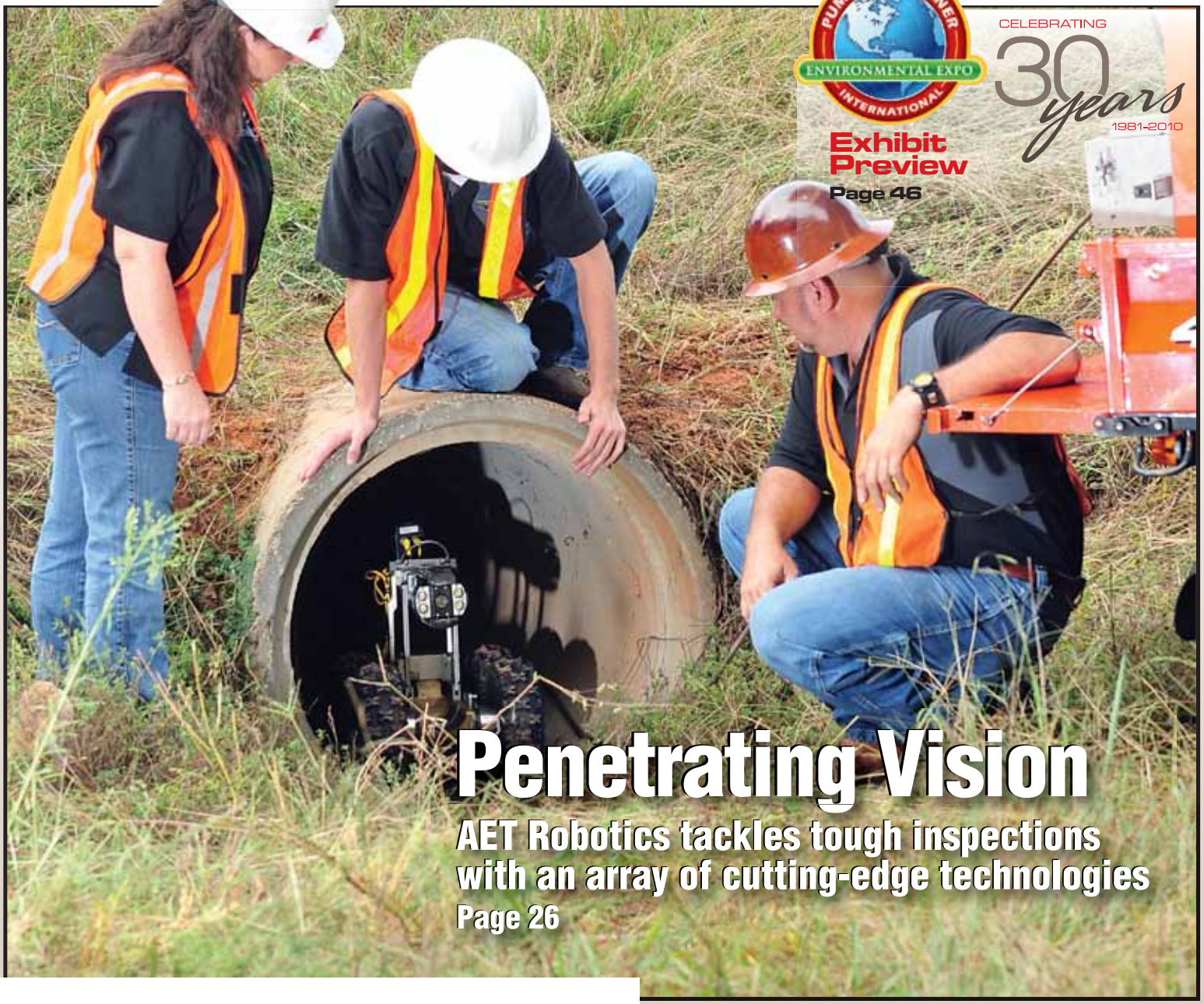

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Just Can't Stop

A Florida contractor uses cured-in-place pipe to rehabilitate machine drainage lines in a potato chip processing plant

By Scottie Dayton

Drain lines in a potato chip processing plant in Orlando, Fla., were running slowly or not at all. The facility, built in 1976, operates nonstop.

Herrell Plumbing in Orlando responded to the numerous service calls, cutting through the 6-inch-thick concrete floors to replace the worst of the cast-iron pipes. Three lines, however, were under a floor holding ovens and fryers weighing many tons.

Moving the equipment to open-cut, then rerouting the lines to accommodate the machines needing drainage, would have been extremely expensive. Chris Peterson of Herrell called Rusty McFall, owner of TNT Sewer LLC, a certified provider of Perma-Liner products in Hernando, Fla.

"I tried televising the lines and couldn't get the camera to go forward," says McFall. "All I could see from the manhole was grease packed in the pipes."

> "The invert was missing from five to seven o'clock and the crown of the pipe was packed with grease. The combination of grease, lime deposits, rust buildup, and corrosion on the sides occluded three-quarters to seven-eighths of the inside diameter."
>
> **Rusty McFall**

For the first time in 33 years, officials closed the plant, enabling McFall and crew to engage in a marathon of jetting, televising, and CIPP lining over an Easter weekend. By Monday morning, the production lines were ready to fry and bake again.

Procedures

The only access to the 4-, 6- and 8-inch pipes was a manhole discharging to a lift station outside the building. The larger pipes, running for more than 100 feet, required a second access point for easier cleaning and lining. Peterson's men cut through the floor and dug a 6-foot-square access pit five feet deep at an appropriate location for both lines. Peterson also hired a contractor to vacuum the jetted debris from the lift station.

Plant policy required a one-hour safety class before McFall and his six men could begin work. Besides covering OSHA compliance, the class familiarized the crew with FDA food-handling standards and the plant. "We had to wear earplugs and hairnets, but were not allowed watches and jewelry," says McFall.

The 8-inch sewer main had no invert and was occluded with grease, lime deposits, rust buildup, and corrosion.

Once qualified, McFall parked his trailer-mounted Model 184 Mongoose jetter outside a service door and dragged in the hoses. A forklift driver brought the Outpost inspection transport system from Envirosight LLC inside the building. The system powered the camera equipment, and WinCan V8 software (Envirosight) enabled McFall to make reports and DVDs of the inspection for the client and Herrell Plumbing.

"I couldn't use a root or chain cutter to clean the larger lines because each had a double 45-degree bend," says McFall. "The machines wouldn't negotiate them, so I used the Warthog nozzle from StoneAge Inc. I probably could not have cleaned the pipes as well as I did without it."

Tough Job

PROJECT:
Line three severely occluded drain pipes over a weekend

CUSTOMER:
Potato chip manufacturing plant, Orlando, Fla.

CONTRACTORS:
Herrell Plumbing, Orlando, Fla.; TNT Sewer LLC, Hernando, Fla.

EQUIPMENT:
Perma-Lateral pipelining system, Perma-Liner Industries Inc., Largo, Fla.

RESULTS:
Pipes lined and plant operational Monday morning

Workers lined in both directions from the access point in the 184-foot-long 4-inch pipe, shooting 101-foot and 83-foot liners.

Wicked combination

Work started at the upstream end of the 25-foot-long 6-inch pipe. Jetting at 18 gpm/4,000 psi, the men cleaned it four times, then sent in the 125 Rovver crawler with pan-and-tilt camera from Envirosight.

"That was my first view of the extent of the problem," says McFall. "The invert was missing from five to seven o'clock, and the crown of the pipe was packed with grease. The combination of grease, lime deposits, rust buildup, and corrosion on the sides occluded three-quarters to seven-eighths of the inside diameter.

"We had a lot of sand and grease-saturated ground under the pipes, and our biggest challenge was not washing out too much bedding. Every time we cleaned, more product came through. With the invert gone, I had a heck of a time televising the lines because the VeriSight digital push camera kept falling into depressions. I finally stuck a piece of PVC pipe cut lengthwise into the line to bridge the holes."

McFall wanted 98 percent of the debris removed. The Warthog nozzle and diligent jetting got all of it. While another crew wetted out 34 feet of Perma-Lateral lining material (Perma-Liner Industries Inc.) on the plastic-covered factory floor for the 6-inch pipe, the cleaning crew began jetting the 116-foot-long 8-inch pipe.

"We cleaned in sections to control the amount of debris coming back," says McFall. "We didn't want the material damming up downstream." His men worked nonstop for 24 hours to clean and inspect the line. "We took breaks, but the work was so intense that we lost track of time without our watches," says McFall.

Rehabilitation

Once the 6-inch pipe was clean, the liner crew positioned the air inversion tank and every associated item at the manhole. They rolled the felt liner impregnated with a two-part hot resin into the inversion tank. After the liner inverted, the men shot in the calibration tube and inflated it to 10 psi to form the material to the host pipe. As the resin cured, the men lowered the pressure to 7 psi and maintained it for three hours.

The 8-inch line was rehabilitated in two shots, 80 feet and 36 feet long. The men used the access pit to line the downstream leg first, then shot the upstream section from the manhole. "The upstream liner overlapped the downstream one by 12 inches, making a smooth transition and eliminating a lip on which solids could catch," says McFall.

The 8-inch liners were inverted at 12 psi, then cured at 8 psi for three hours. They blew around the bends without difficulty. The 184-foot-long 4-inch pipe was lined in 101- and 83-foot shots, following the same procedure. "We increased the pressure to 15 psi to nudge the liner round the bends, then lowered it to 7 psi," says McFall.

After the men removed the calibration tube from a section, McFall inspected the liner. "We also installed a cleanout in both pits, enabling maintenance to flush the system," he says. "The potential for problems is there, as these are flat lines." The crew used a robotic lateral tap cutter from TRY TEK Machine Works Inc. to reinstate three connections in the 8-inch pipe.

Before work finished in the second pit, Peterson's men had backfilled the first one and were pouring concrete. They started backfilling the second one as soon as the boots of the last worker cleared the top.

"When Chris and the client saw the final inspections, they were thrilled that they didn't have to do anything else with these lines," says McFall. By 10 o'clock Monday morning, bags of potato chips rolled again toward the shipping boxes. ■

MORE INFO:

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StoneAge Inc.
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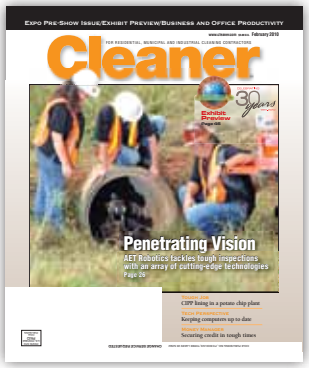

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February 2010

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