



San Diego Utilizes UV-Cured Robotic Lateral Sealing System

by James W. Rush

SAN DIEGO IS KNOWN FOR ITS IDYLIC WEATHER, SANDY BEACHES AND PICTURESQUE PACIFIC SUNSETS. BUT SAN DIEGO'S ABOVEGROUND CHARM DOESN'T EXTEND TO ITS UNDERGROUND. THE CITY'S SUB-SURFACE UTILITIES ARE SUBJECTED TO THE SAME RIGORS AS ITS LESS-THAN-FAIR-WEATHER COLLEAGUES.

One particular problem facing the San Diego Metropolitan Wastewater Department (MWWD) is root intrusion. Blockages and spills within the city have been attributable to root intrusion in the mainlines.

"We have areas within the city that are heavily root-infested," said Doug Cook, contract manager for Sverdrup/Kaiser Engineers, MWWD's CM. "In some areas where there are old, mature trees, you will find roots almost 10 ft down and in the middle of the street."

To combat this, MWWD is in the process of rehabilitating its mainlines and resealing the lateral connections. According to Cook, many of the older laterals were installed without factory connections, which leaves the mortar collar susceptible to root intrusion.

As part of the Catalina Boulevard trunk sewer rehabilitation project, Southwest Pipeline & Trenchless Corp., Gardena, Calif., was contracted to reline mains and seal about 25 laterals near Point Loma that were identified as problem areas.

The project consisted of cleaning and relining the main with an HDPE fold-and-formed liner. Following lateral

reinstatement, the connections were resealed using the Top Hat lateral sealing system from AMerik Supplies, Marietta, Ga. MWWD specified lateral liners — as opposed to chemical grouting — to keep out roots.

Cook said MWWD has experience with other robotic lateral sealing methods, but was interested in seeing how the Top Hat system worked. "It was interesting in that it was faster since it used UV light to cure the liner instead of heat. It also extends up into the lateral farther than some systems," he said. "It appears to be a promising technology."

Cook added that cost per lateral sealing was substantially less than previous methods MWWD has tried.

The Top Hat system uses a polyester- or vinylester-impregnated, corrosion-resistant, fiberglass insert to seal the area around the lateral connection in relined pipes. The unit, manufactured by COSMIC Sondermaschinenbau, Kasten, Austria, is mounted on a self-propelled transporter with a built-in camera.

The Top Hat system reaches 8 in. into the lateral and creates a 3-in. "brim" in the main. It is capable of working in 6-

to 20-in. diameter mains and 4- to 6-in. diameter laterals.

Using the Top Hat system, Southwest Pipeline & Trenchless was able to seal five to seven laterals a day. "It's a simple system to use," said Earl Decker, Southwest's general manager. "The crawler uses a positioning system to locate the lateral, the packer is inserted into place and it's UV-cured for seven minutes. After curing, there is a three- to four-minute cooldown period. Then, you TV the lateral and the main to make sure everything is OK, and you're off to the next lateral. The whole process takes about 45 minutes."

Following the success of the Catalina Boulevard project, MWWD has put a 28-mile, 2,600-lateral project out to bid. MWWD has another 60 miles of main relining in the planning stage.

"The first contracts were selected based on where we had the most maintenance calls due to root intrusion," Cook said. "In addition to relining the main and sealing the lateral connection, we will repair the lateral from the cleanout to the main as needed."

James W. Rush is editor of Trenchless Technology.