

Water Stories

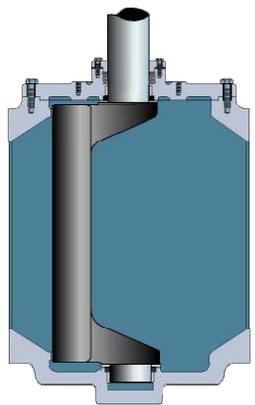
Duke Waters works on a plugged plug.

Samantha and I were rounding the curve on I-285 doing about 75 when I heard the faint beep of the cell phone. It was about 9 pm and we were on our way to a romantic dinner at Tony's. I half expected a call this evening since my old pal Jim Wickman was having trouble all day starting up a WWTP project in Binghamton. Sure enough, it was Jim. I downshifted the XK8 neatly over to the side of the road to take the call. While Sam was gazing at the stars overhead, I gave Jim the old "Hey, we've got to stop meeting like this." Being the semi-retired, free-lance engineer that I am, Jim often catches me at the most inopportune times. But we have collaborated on water projects up and down the coast, so I really look forward to his calls.

Jim said, "Duke, You got to get up here tonight. The owners will be visiting on Thursday and we've got big problems." I said, "Jim you did it again. I'm out with Sam heading for Tony's but I guess we can have a late night up by you. We're a couple miles from Fulton County Airport and the Citation will have us up there to Binghamton by the witching hour. Catch me in the morning at the Brookside."



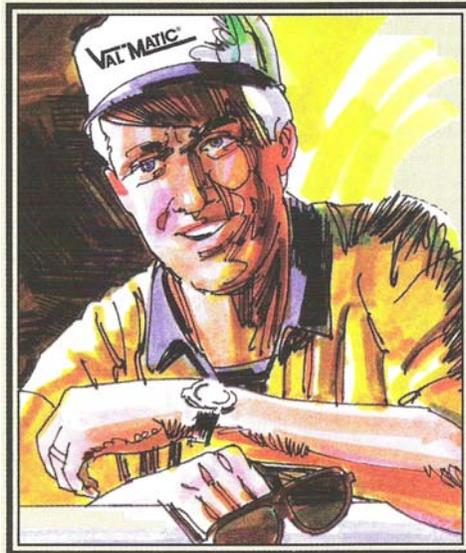
While reaching for my second cup of java at breakfast I saw Jim heading for the table. I asked, "good to see you. Join us for some steak and eggs?" but Jim said that we've got



to get to the plant.

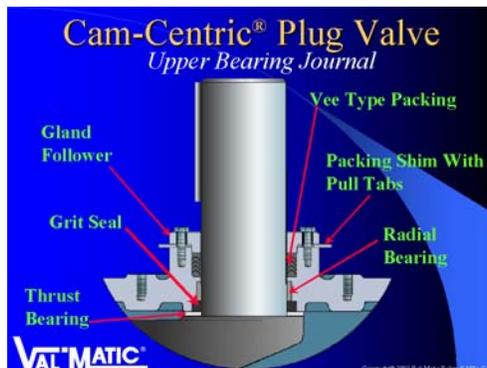
On the way, he described his problem with a motorized plug valve on the clarifier sludge line that he retrofitted with a motor actuator. Jim explained that the plant superintendent is complaining that every other day or

so the valve motor stalls out and he's got to pop the valve cover and clean out the valve, which is a royal mess. I asked Jim what kind of valve it is and he said that it was a Val-Matic Cam-Centric Plug Valves with rectangular port mounted in a horizontal header. I said "that's good. I've seen problems with other makes of plug valves where grit can get packed in the shaft bearings but the Val-Matic valve has grit seals so the shaft can't seize up. I also have seen valves



where the packing was over adjusted but the Val-Matic valve has a sure-fire fixed gland assembly with V-type packing that is fool proof." Sam added that "the solids content and viscosity of the sludge from a clarifier should be no problem for the welded nickel seat with eccentric action."

We continued with our game of 20 questions, "Jim, are you aware that plug valves should be installed in a specific orientation with the 'Seat End' upstream for sludge service to avoid packing debris in the valve." Jim said, "Of course." Sam then asked "are you aware that on horizontal sludge lines, the plug shaft should be horizontal with the plug rotating up into the top of the valve when open." She knew she struck a nerve here when Jim asked "what for?" Sam said, "Jim, grit tends to settle in the bottom of the pipe and if the plug opens to the bottom of the pipe, debris can get wedged behind the plug and jam the valve." Jim grinned and said, "Just kidding. Of course I know that." I groaned and said, "OK, show me the valve!"



We went down four or five flights of stairs, down to where the sun don't shine, and found the 12 in. eccentric plug valve. As Jim said it was installed properly with the shaft horizontal. Knowing that eccentric plug valve shafts always rotate clockwise to close I could also see that the plug would rotate to the top of the valve when open. "So far so good," I muttered. I told Jim to radio up to see if we can operate the valve locally with the motor. The valve was open so I hit the closed button and the valve moved closed easy enough but it ground to a halt before the indicator showed closed and the open light went out. Jim said, "See, it happened again, the valve is jammed and the motor torqued out. We'll have to clean the line."

I said, "Baloney!" and asked for a 11/16 inch wrench and went to work on the valve. A minute later I cycled the valve open and then closed again. This time the valve went full closed with just the closed light shining. Jim asked, "What did you do?" I explained that all I did was back off the adjustable closed stop bolt on the gear actuator so that the motor unit could rotate the plug further closed. Jim thought that since the valve is eccentric, it is designed to be torqued into the seat like a gate valve. I explained, "Jim, the valve is designed for additional overtravel in case of plug wear and that the motor should be set to trip on the limit switch, not the torque switch. You had the valve set to torque out against the closed stop of the actuator." Jim said "Oh."



I said, "that will cost you \$2500 in consulting fees." Jim said, "Duke, that's outrageous. You adjusted the valve in 10 minutes." I escorted Sam back up the stairs and said, "Jim, I'm only charging you \$500 for turning that bolt, but \$2000 for knowing which bolt to turn."

Sam and I were back in the air in less than an hour knowing that Jim should be able to solve plug valve problems in the future.



Val-Matic, 905 Riverside Dr.,
Elmhurst, IL 60126
www.valmatic.com