

Seattle "Pigs" Eccentrics on Municipal Sludge Lines, Increases Pipeline Efficiency

A significant issue faced King County DNR East Operation's Resident Engineer Louis Broadhead. Municipal sludge lines tend to become increasingly clogged, reducing the pipelines capacity and flow rates, sometimes substantially. Those familiar with wastewater applica-

ging of a line from the outside in," said Broadhead. Those who actually pig the lines say it's not uncommon to see flows doubled or tripled and pump pressures fall by 25 percent or more after successful pigging.

While there is no one cure-all for cleaning pipes and increasing capacity, rubber foam pigs have shown themselves to be a versatile and effective tool -- far more cost effective than sectional replacement or the addition of supplemental equipment to deliver greater flows. The procedure consists of introducing a bullet shaped foam "pig" into contaminated pipe and forcing it under pressure through the line. The build-up is progres-

sively removed with the addition of larger and larger cross-sectional area "pigs." The objective: To increase pipe efficiency - hopefully returning it to its original condition. Any increase yields increased flow and lower pumping costs. The result is often substantial savings in energy and operational costs from the more efficient system. The problem facing King County was how to pig the eccentric plug valves in line.

Broadhead felt he knew how to resolve the efficiency problem but complications with valves installed years before quickly arose. He found what most people using this method have known for years: the pig

would get stuck in the reduced port of conventional rectangular ported eccentric plug valves. "Besides weighing about twice as much as other valves, anyone could clearly see the rectangular plug on the original valves installed would



Milliken's eccentric plug valve features a ductile iron plug on all valves up to 72 inches. The design provided for a flow area which is unobstructed by the plug.

tions know that one of the most economical means of restoring capacity and flow rates is to "pig" the lines.

"Sludge lines need to be pigged occasionally to clean them and prevent destructive sclerosis, the eventual complete plug-

imped solids and be prone to plugging."

He decided to replace the original valves with eccentrics from Milliken Valve Company. Milliken's eccentric plug valve features a ductile iron plug on all its valves-up to 72 inches. The design provides for a flow area which is unobstructed by the plug. Plug obstruction on eccentric valves from other manufacturers frequently can represent an addi-

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tional 30 percent or greater reduction in the straight through flow area. "We've installed a number of Milliken eccentrics to replace rectangular port valves that we not only couldn't pig, but were frequently becoming plugged during normal operation which was quite a problem," said Broadhead.

This fact is well known to those that manufacture and pig lines for a living. Spencer Cubage, president of Pipeline Pigging Products Inc. says, "Pigging increases flows and improves efficiencies ... Plug obstruction with some eccen-

tric plug valves is a significant roadblock." Milliken's unobstructed flow way eliminates the biggest obstacle piggers face which is a reduced rectangular port.,

David Henry, president of Girard Polly Pig, Inc., advises municipalities and engineers alike, "If you design in a valve that obstructs the flow way, you're designing in a problem if you intend to pig the line at some future point."

Milliken Valve's eccentric plug valve is not only piggable, but the unobstructed flow area provides the additional benefit of providing some of the lowest head losses and highest flow coefficients in the industry.

Spencer Cubage of Pipeline Pigging agrees that pigging is often the most economical means of maintaining capacity and increasing efficiencies and should be a substantial consideration during the design phase of a project.

"Municipalities should be concerned with what valves represent obstacles to pigging. I can do without problems in the field that complicate the work"

King County's DN-R is confident that the rate payers are best served when the municipality uses products and equipment that perform to expectations and provide the most cost effective operation.

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