Pigs Unlimited International, LLC

Pigging Water Lines

Pipeline cleaning considerations for potable-water systems

Why water lines require cleaning

Steel, cast-iron and ductile-iron water mains can develop tuberculation—deposits associated with corrosion and mineral accumulation along the pipe wall. These deposits may contribute to discolored ("red") water, unpleasant odors, restricted flow and increased pumping costs.

Pigging can remove deposits and improve hydraulic performance. The original guidance identifies Hazen–Williams C-values above 120 as a potential outcome; actual results depend on pipe condition and the effectiveness of cleaning. Cleaning may offer an alternative to replacing otherwise serviceable piping.

Selecting a cleaning approach

The appropriate cleaning method depends on the internal condition of the pipeline and the severity of the deposits. Light buildup may require only a light-density foam swab. More substantial deposits may require progressive pigging, beginning with pigs sized to the effective internal diameter and gradually increasing pig diameter, density or configuration toward the full line size.

Recommended planning and cleaning sequence

1. Prepare and notify Coordinate any service interruption with affected customers. Identify and inspect lateral connections and in-line valves.

2. Isolate and assess Isolate the section to be cleaned using the appropriate valves. Establish the available pressure, flow direction and flow rate in accordance with the operator's procedures.

3. Prove the line Begin with a light-density swab to assess passage through the line and establish baseline travel time and differential pressure.

4. Clean progressively Have experienced pigging personnel select the sequence, quantities, sizes and styles of pigs based on the line's condition. Periodically run a line-size swab to assess cleaning progress.

5. Inspect and flush Inspect retrieved swabs for damage and evidence of remaining deposits. Once cleaning is complete, thoroughly flush the pipeline, including laterals and service connections, under the water utility's approved procedures.

Important considerations

Avoid excessive cleaning that could expose pipe surfaces to additional corrosion. For potable-water service, follow all applicable utility requirements for water quality, disinfection, flushing, sampling and return to service. These recommendations are general guidance, not a substitute for a site-specific cleaning plan.

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