

DIAGNOSTIC TROUBLESHOOTING THE DOUBLE BUMP TEST

Avoid wasted time and useless excavations

BENEFITS OF THE McWANE DUCTILE DOUBLE TEST (DBT)

- Determine in 2 hours or less whether your pipeline is suffering from a leak or just trapped air.
- Avoid costly and time-consuming undue exploratory excavations.
- Determine the total scope of what you're chasing – volume per minute, preferably at 200-psi.
- No special equipment needed – just a pump, a gauge, and a bucket.



THE PROCEDURE

- 1** Clean and fill a **known-volume-container** to gauge the recovery volume used following each **PRESSURE BUMP** in the DBT. Examples are a 5-gallon bucket (volume = 0.40 gal/in of water depth), a 33-gallon garbage can (1.25 gal/in), a 55-gallon drum (1.70 gal/in) or the rectangular 20-gallon plastic tank atop some hydrostatic test pumps (1.80 gal/in).
- 2** Pressurize the pipeline to the **STARTING PRESSURE** of the DBT, preferably 200-psi, with the pump intake drawing water from the known-volume-container, refilling the container at the same time from another water source as needed. When the desired pressure is attained, start a timer such as on your watch or cell phone.
- 3** Fill the known-volume container during this wait and record the **STARTING WATER DEPTH** in the container. (See the DATA recording chart below).
- 4** At the 30-minute mark, pump the pipeline back to 200-psi from the known volume container and record the **WATER DEPTH in the container AFTER RE-PRESSURIZATION**. **DO NOT ADD WATER TO THE CONTAINER DURING THIS 30-MINUTE WAIT** as the **RECOVERY VOLUME** (inches) is computed as the difference between the **STARTING** and **AFTER** water depths (inches) within the known-volume-container.
- 5** **BUMP** the **PRESSURE** in the pipeline to 250-psi drawing water from the known-volume-container, refilling the container at the same time from another water source as needed.
- 6** **Repeat Steps 3 and 4** at this elevated pressure (250-psi).
- 7** **Repeat Step 5** - this time **BUMPING** the **PRESSURE** in the pipeline to 300-psi. **Repeat Steps 3 and 4** once again at this elevated pressure (300-psi).

THE ANALYSIS

If the **RECOVERY VOLUME** remains the same or decreases across these 3 pressure tests, **you do NOT have a leak**. The pressure loss seen on the gauge is a result of air pockets trapped in the varying geometry of the pipeline. Air is compressible, water is not. Some air pockets might only be removed by in-service high-velocity, dynamic water flow, if ever.

If the **RECOVERY VOLUME** increases across these 3 pressure tests, **there is an active leak** requiring further investigation. The 200-psi **RECOVERY VOLUME** in gallons divided by 30 is the **TOTAL VOLUME** per minute that must be found. It also serves as a helpful target for a Leak Detection Specialist to assist in the resolve.

DOUBLE BUMP TEST - DIAGNOSTIC DATA					
Location/Segment Description:					
STARTING PRESSURE (psi)	STARTING WATER DEPTH (inches)	TRIAL DURATION (min)	WATER DEPTH AFTER RE-PRESSURE (inches)	RECOVERY VOLUME (inches consumed)	RECOVERY VOLUME (gallons)
200		30			
250		30			
300		30			