



**Air Release and Vacuum Break Valves  
Gwinnett County (GA) Department of Water Resources <sup>(1)</sup>**

SEWAGE SYSTEM - Northeast of City Atlanta – largest land area and population within Georgia

2900 miles of gravity, 260 miles of Sewage Force Mains  
90 million gallons pumped per day average

- SCADA telemetry monitoring energy consumption and flow
- Electricity monitored – crews dispatched when there is change to rectify issue

HISTORY - 1997: 50 pump stations

- Conventional ARV's required routine maintenance to replace stainless steel spherical floats, guide rods, and compound lever mechanism (cotter, retaining pins, etc.)
- Very little telemetry at that time
- ARV repair kits \$100 - \$300 each
- 1500 sq.ft. area for spare parts / valve inventory, including shop for maintenance mechanics

Note: When conventional ARV's fail (deform, bend and break), most fail closed, decreasing pipeline flow efficiency – more mechanical stress on system as negative pressure, pressure spikes, and trapped air degrade overall pipeline performance.

1997 – Installation of Vent-O-Mat® valves begins

TODAY – 2012: 226 pump stations

- 640+ Vent-O-Mat air valves are installed on this system. 98% are Vent-O-Mat®, 2" to 8"
- No VOM mechanical repairs, only cleaning of valve as grease is their largest operations issue
- Large pumping trucks routinely dispatched to clean grease from wet wells and transport to county recycling plant where it is used as a fuel for electric generators

Economics:

\$180-200K per month is spent on electricity

\$150/hr. avg. cost for crew to investigate operation of air valves

\$400-500/hr. for force main repairs in middle of major streets (includes traffic control, etc.)

POTABLE WATER SYSTEM: 1997 to 2012

2,000 miles water pipeline with water mains up to 72"

50 pump stations

80+ Vent-O-Mat® air valves, 98% Vent-O-Mat®, 1" to 12"

No VOM mechanical repairs

Note<sup>(1)</sup> : Information obtained from interviews with operations personnel at Gwinnett County. Not for publication.

