

## Fairbanks Morse Pump Shaft

This shaft was removed from a **Fairbanks Morse 24XHC** single-stage Vertical Turbine Pump.

The pump was manufactured in 1963 and operated daily to transfer potable water from an underground storage tank. Since the pump had been highly reliable and the column shaft is not easily accessible, it had never been inspected. In June 2014, after 51 years of operation, a sudden loss of flow prompted an evaluation that revealed the shaft breakage.

The significantly reduced cross-sections and the break are at average or common water levels in the storage tank. The shaft is carbon steel, and we surmise that as the water level varied; submerged portions of the shaft were frequently exposed to air where the oxygen content, in connection with the wet shaft, resulted in extensive corrosion. The corrosion continued over the 51 year period until the shaft became so thin that it finally suffered a torsional failure during a routine startup.

City of Troy Wash Water Pumps:



Column ID / Broken lineshaft:



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Despite the pump being over 50 years old and the broken shaft, the shaft sleeves and the cutless rubber shaft bushings were in remarkably good condition.

Lower lineshaft / Bearing bracket:



Column / Bearing bracket / Bushing:



Bearing bracket / Bushing:



Cutless rubber bushing:

