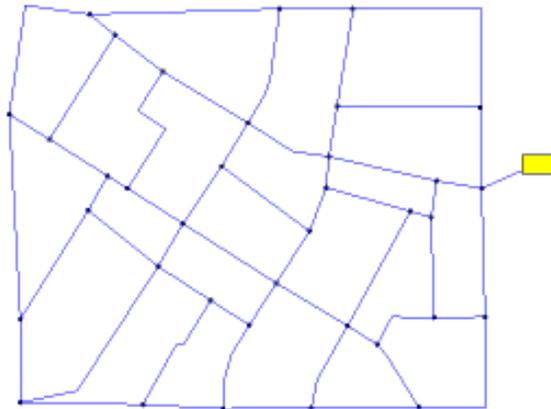


SYSTEM ID: Fosspoly1 Network

NARRATIVE DESCRIPTION

The Fosspoly1 network is a real network in Italy that was first presented by Bragalli et al (2011). The average annual demand is 0.77 MGD.

NETWORK SCHEMATIC:



HISTORY OF THE NETWORK FILE

The network was first optimized by Bragallia et al (2011) using mixed integer non-linear programming. It has since been optimized by Creaco and Fanchini (2014) using a multi-objective hybrid approach and Bi et al (2015) by incorporating domain knowledge into a genetic algorithm model.

AVAILABLE INFORMATION

Physical attributes	Yes
Schematic diagram	Yes
Network geometry data	Yes
GIS data file	No
Background map	No
Elevation data	Yes
Pipe data	Yes
<i>Pipe material</i>	Yes
<i>Pipe age</i>	No
<i>Pipe pressure class</i>	No
<i>Nominal or actual diameters</i>	Actual
Pump data	N.A.
<i>Useful horsepower</i>	
<i>Pump operating curves</i>	
Tank data	N.A.
<i>Elevation data</i>	
<i>Stage storage curves</i>	
<i>Water quality information</i>	
Valve data	N.A.
<i>PRV/FCV data</i>	
<i>Isolation valve data</i>	
<i>Hydrant data</i>	
Demand data	Yes
<i>Total system demand</i>	Yes
<i>Nodal demand data</i>	Yes
<i>Temporal data demands</i>	No
<i>System leakage</i>	No
Hydraulic data	Yes
<i>Hydraulically calibrated model</i>	
<i>Field hydraulic calibration data</i>	
Water quality data	No
<i>Disinfection method</i>	No
<i>Chlorine residual data</i>	No
<i>Booster station data</i>	No
<i>Fluoride/Chloride field data</i>	No
<i>Water quality calibrated model</i>	No
Operational data	No
<i>SCADA datasets</i>	No
<i>Operational rules</i>	No

PIPE/LOOP HISTROGRAM:

REFERENCES:

Bi, W., Dandy, G. C. and Maier, H. R. (2015) Improved genetic algorithm optimization of water distribution system design by incorporating domain knowledge, Environmental Modelling & Software, Vol. 69, 370-381.

Bragalli, C., D'Ambrosio, C., Lee, J., Lodi, A. and Toth P. (2012) On the optimal design of water distribution networks: a practical MINLP approach, Optimization and Engineering, 13 (2), 219- 246.

Creaco, E. and Franchini, M. (2014) Low level hybrid procedure for the multi-objective design of water distribution networks, Procedia Engineering 70, 369 – 378

DETAILED DATA SUMMARIES

PHYSICAL ASSETS:

Asset Type:	# of Assets
Master Meters	0
Tanks	0
Pumps	0
Pump Stations	0
Water Treatment Plants	0

NETWORK CHARACTERISTICS:

# Total Pipes:	58
# Branch Pipes:	0
Ratio (Branch Pipes / Total Pipes):	0.00
# Nodes	36
# Reservoirs	1
# Tanks	0
# Regulating Valves	Unknown
# Isolation Values	Unknown
# Hydrants	Unknown
Elevation Data	YES

PIPE DATA:

Diameter (mm)	Length (m)
16.0	To be determined
20.4	To be determined
26.0	To be determined
32.6	To be determined
40.8	To be determined
51.4	To be determined
61.4	To be determined
73.6	To be determined
90.0	To be determined
102.2	To be determined
114.6	To be determined
130.8	To be determined
147.2	To be determined
163.6	To be determined
184.0	To be determined
204.6	To be determined
229.2	To be determined
257.8	To be determined
290.6	To be determined
327.4	To be determined
368.2	To be determined
409.2	To be determined

PUMP DATA:

Pump Horsepower	NO
Pump Curves:	NO

DEMAND STATISTICS:

Demographic Type	Population	Households
Directly Serviceable:	Unknown	Unknown
Indirectly Serviceable:	Unknown	Unknown
Total Serviceable:	Unknown	Unknown

Production Statistics	
Total Annual Volume Produced (MG):	0.77
Total Annual Volume Purchased (MG):	0.77
Total Annual Volume Provided (MG):	0.77
Estimated Annual Water Loss:	Unknown

Water Costs	
Customer Type	Unknown
Customers within the municipality	Unknown
Customers outside the municipality	Unknown

CUSTOMERS AND USAGE:

Customer Type	Customer Count	Average Daily Demand (MGD)
Wholesale:		
Residential:		
Commercial:		
Institutional:		
Industrial:		
Other:		
Total Customers:		
Flushing, Maintenance & Fire Protection:		
Total Water Usage:		0.77

DATA FILE ATTRIBUTES:

ATTRIBUTE		UNITS
Pipe Length & Diameter	X	metres, mm
Pipe Age		
Node Elevation	X	metres
Node Demand	X	L/s
Valves		
Hydrants		
Tank Levels		
Tank Volume		
PRVs		
WTP		
WTP Capacity		
Pump Data		