

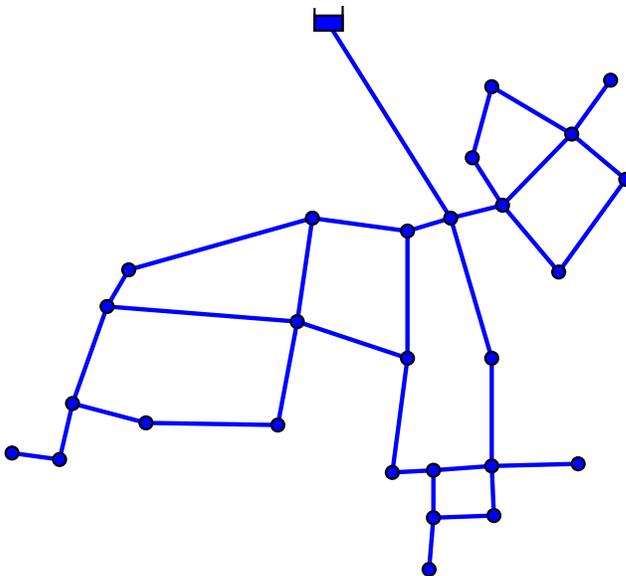
# ***SYSTEM ID: Jilin Network***

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## **NARRATIVE DESCRIPTION**

The Jilin network is a hypothetical network that was first introduced by Bi and Dandy (2014). It is an optimization problem involving the selection of pipe sizes and chlorine dosing. The demand pattern involves a 24 hour extended period simulation. The available pipe sizes and costs were taken from Kadu et al (2008). The average annual demand is 6.66 MGD.

## **NETWORK SCHEMATIC:**



## **HISTORY OF THE NETWORK FILE**

The network was first optimized by Bi and Dandy (2014).

## 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>	No
<i>Pipe age</i>	No
<i>Pipe pressure class</i>	No
<i>Nominal or actual diameters</i>	Nominal
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>	Yes
<i>System leakage</i>	No
Hydraulic data	Yes
<i>Hydraulically calibrated model</i>	
<i>Field hydraulic calibration data</i>	
Water quality data	Yes
<i>Disinfection method</i>	Yes
<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

**REFERENCES:**

Bi, W. and Dandy, G.C. (2014) Optimization of Water Distribution Systems Using Online Retrained Metamodels, J. of Water Resources Plan. and Man., 140 (11)

Kadu, M. S., Gupta, R. and Bhave P.R. (2008) Optimal Design of Water Networks using a Modified Genetic Algorithm with Reduction in Search Space, J. of Water Resources Plan. and Man., 134 (2)

## **DETAILED DATA SUMMARIES**

### **PHYSICAL ASSETS:**

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

### **NETWORK CHARACTERISTICS:**

# Total Pipes:	34
# Branch Pipes:	5
Ratio (Branch Pipes / Total Pipes):	0.15
# Nodes	27
# Reservoirs	1
# Tanks	0
# Regulating Valves	Unknown
# Isolation Valves	Unknown
# Hydrants	Unknown
Elevation Data	YES

### **PIPE DATA:**

<b>Diameter (mm)</b>	<b>Length (m)</b>
150	To be determined
200	To be determined
250	To be determined
300	To be determined
350	To be determined
400	To be determined
450	To be determined
500	To be determined
600	To be determined
700	To be determined
750	To be determined
800	To be determined
900	To be determined
1000	To be determined

**PUMP DATA:**

Pump Horsepower	NO
Pump Curves:	NO

**DEMAND STATISTICS:**

<b>Demographic Type</b>	<b>Population</b>	<b>Households</b>
Directly Serviceable:	Unknown	Unknown
Indirectly Serviceable:	Unknown	Unknown
Total Serviceable:	Unknown	Unknown

<b>Production Statistics</b>	
Total Annual Volume Produced (MG):	6.66
Total Annual Volume Purchased (MG):	6.66
Total Annual Volume Provided (MG):	6.66
Estimated Annual Water Loss:	Unknown

<b>Water Costs</b>	
Customer Type	Cost per 1000 gallons
Customers within the municipality	Unknown
Customers outside the municipality	Unknown

**CUSTOMERS AND USAGE:**

<b>Customer Type</b>	<b>Customer Count</b>	<b>Average Daily Demand (MGD)</b>
Wholesale:		
Residential:		
Commercial:		
Institutional:		
Industrial:		
Other:		
Total Customers:		
Flushing, Maintenance & Fire Protection:		
Total Water Usage:		6.66

**DATA FILE ATTRIBUTES:**

<b>ATTRIBUTE</b>		<b>UNITS</b>
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		