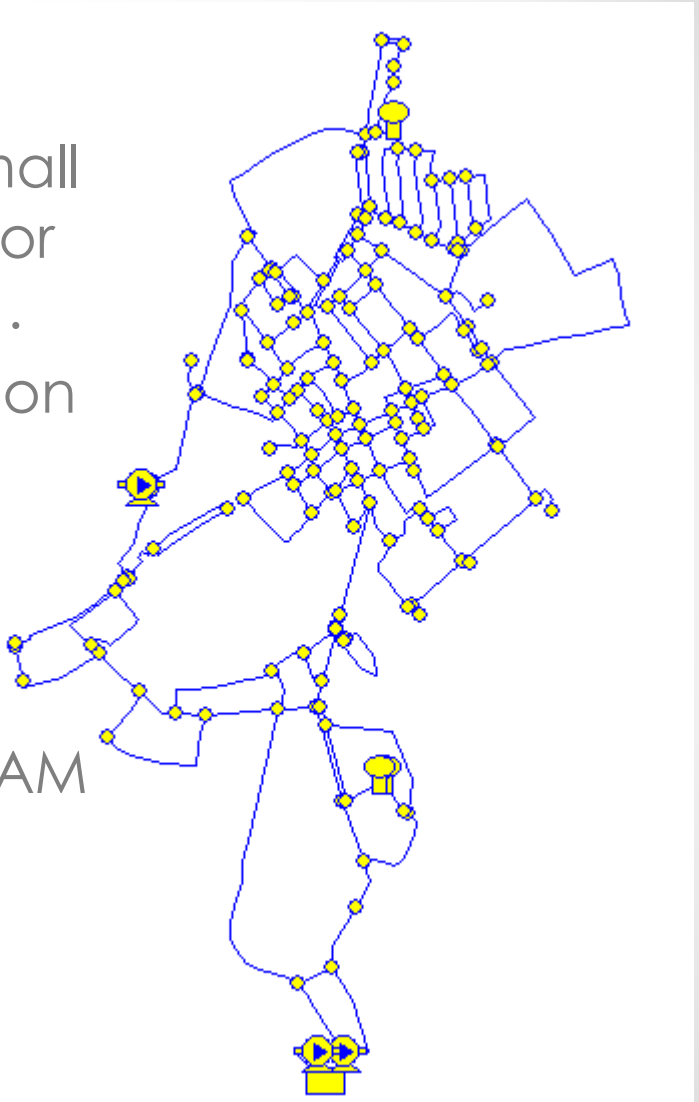
KYPIPE-WQSensor

Pipe2012 Tool for

Optimal Placement of Water Quality Sensors
for Small and Medium Water utilities

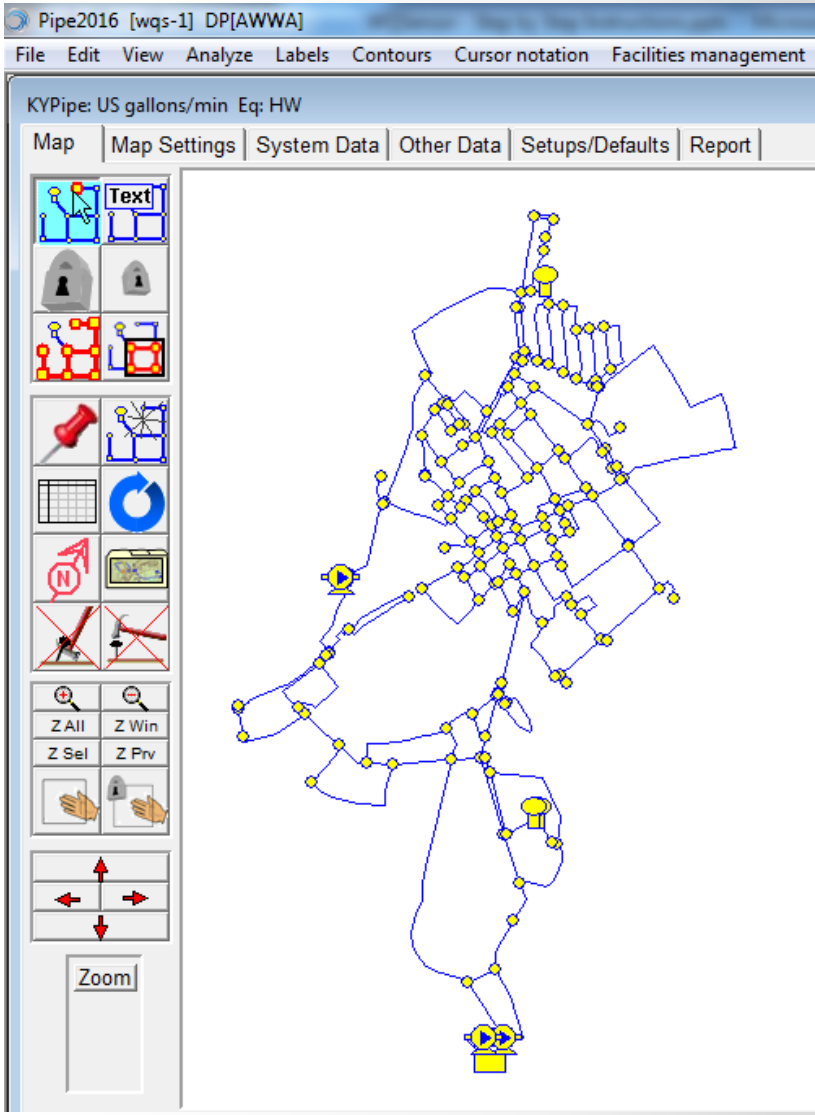
Optimal Water Quality Sensor Placement Tool

- Use of optimal water quality sensor placement tool is demonstrated on a small water distribution network model setup for extended period simulation (WQS-1.P2K).
- Network comprises one main pump station and a booster pump station and three elevated storage tanks.
- Mass injection rate of contaminant = 1000mg/min
- Duration of injection: 1 hour starting at 4AM
- Number of water quality sensors: 2



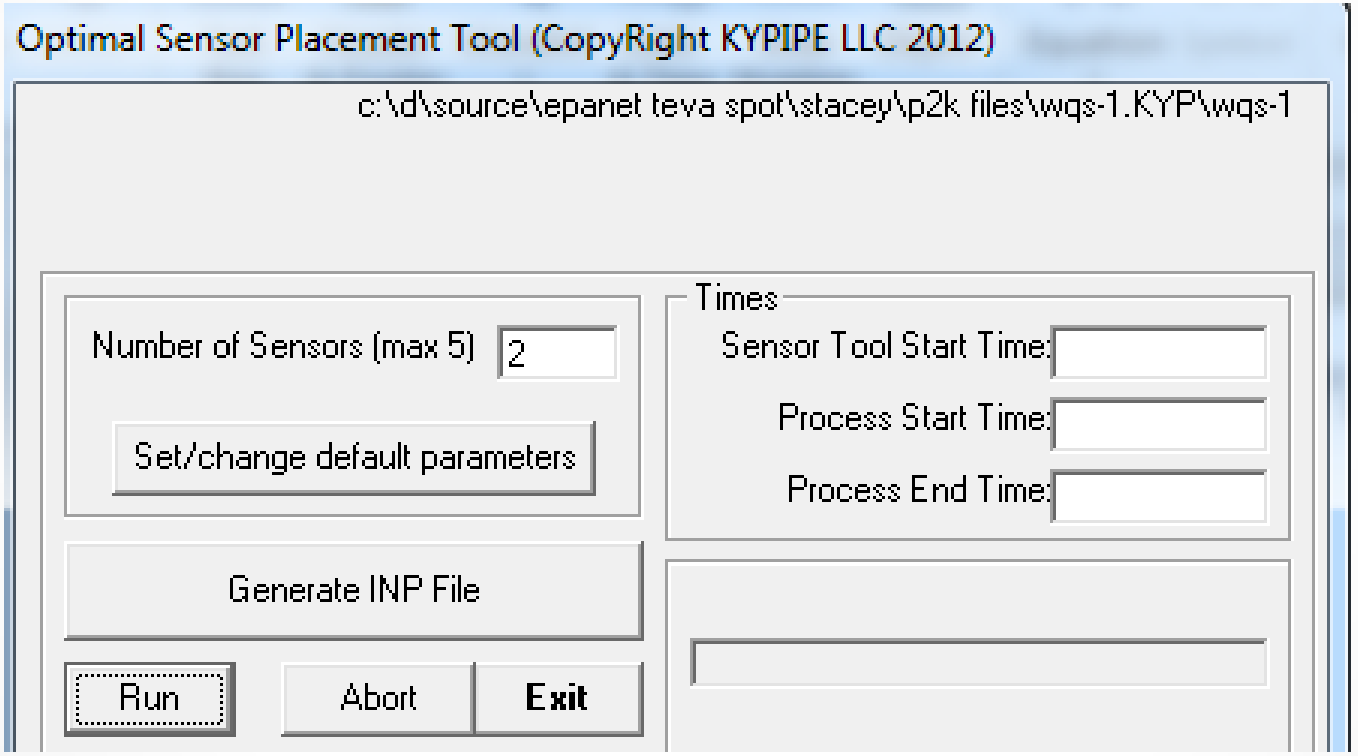
Optimal Water Quality Sensor Placement Tool

- Start Pipe2012 and open WQS-1.P2K model. This hydraulic network model was setup for extended period simulation (EPS)and was ensured to run without errors or serious warning messages.



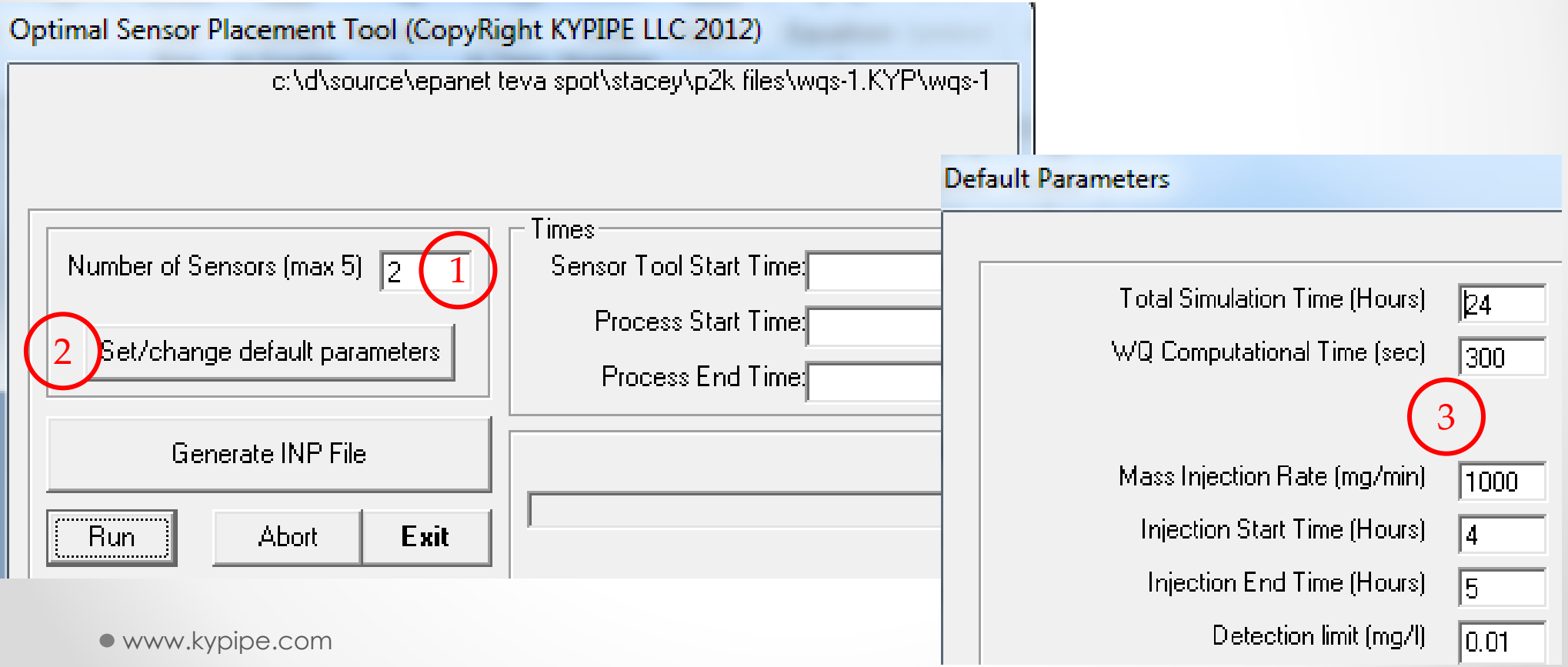
Optimal Water Quality Sensor Placement Tool

- Press Shift-F7 key to launch optimal water quality sensor placement tool



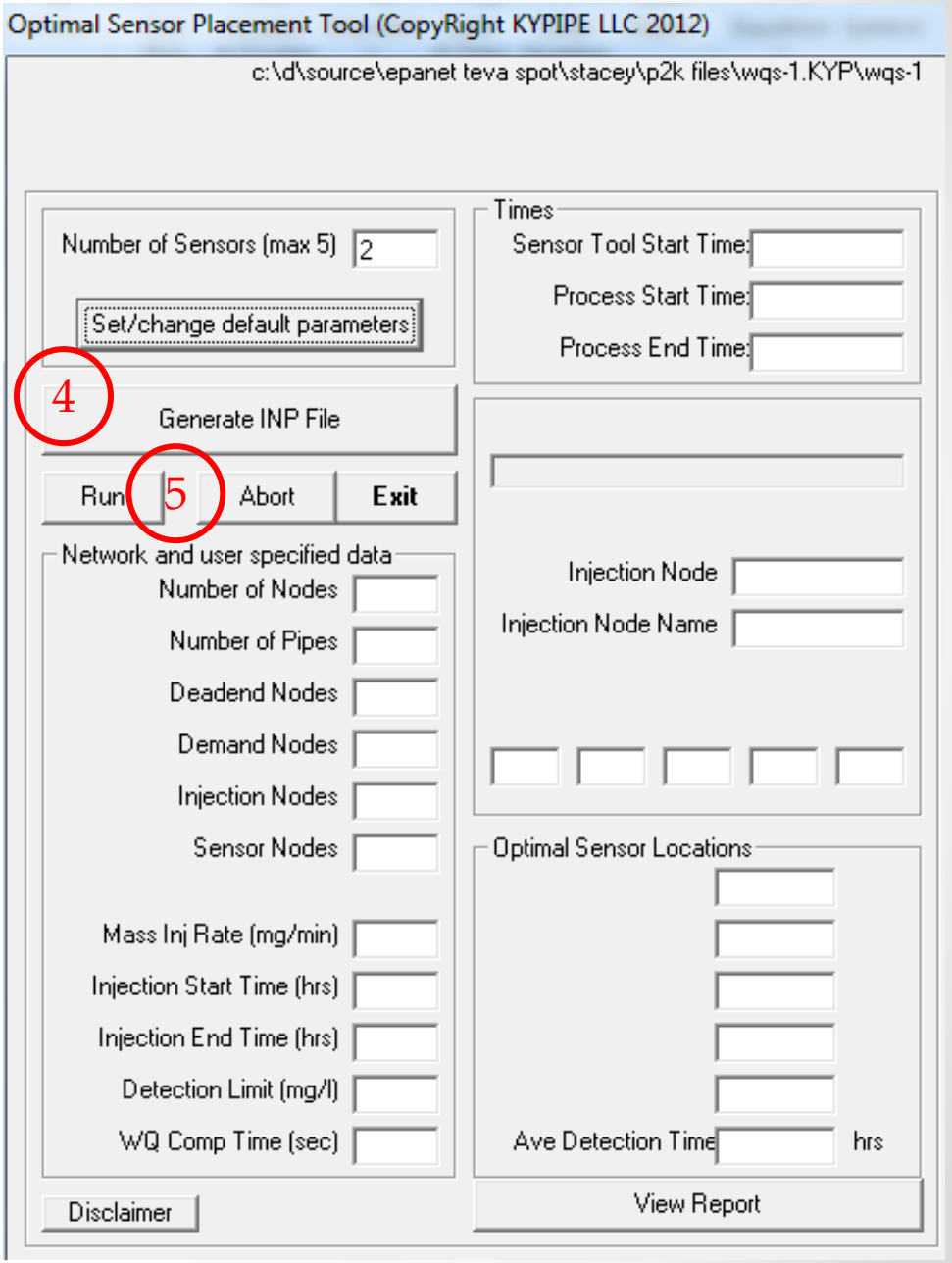
Optimal Water Quality Sensor Placement Tool

- Enter 2 under "Number of Sensors" box
- Click on "Set/change default parameters" button and enter data or make changes as needed in the default parameter window.

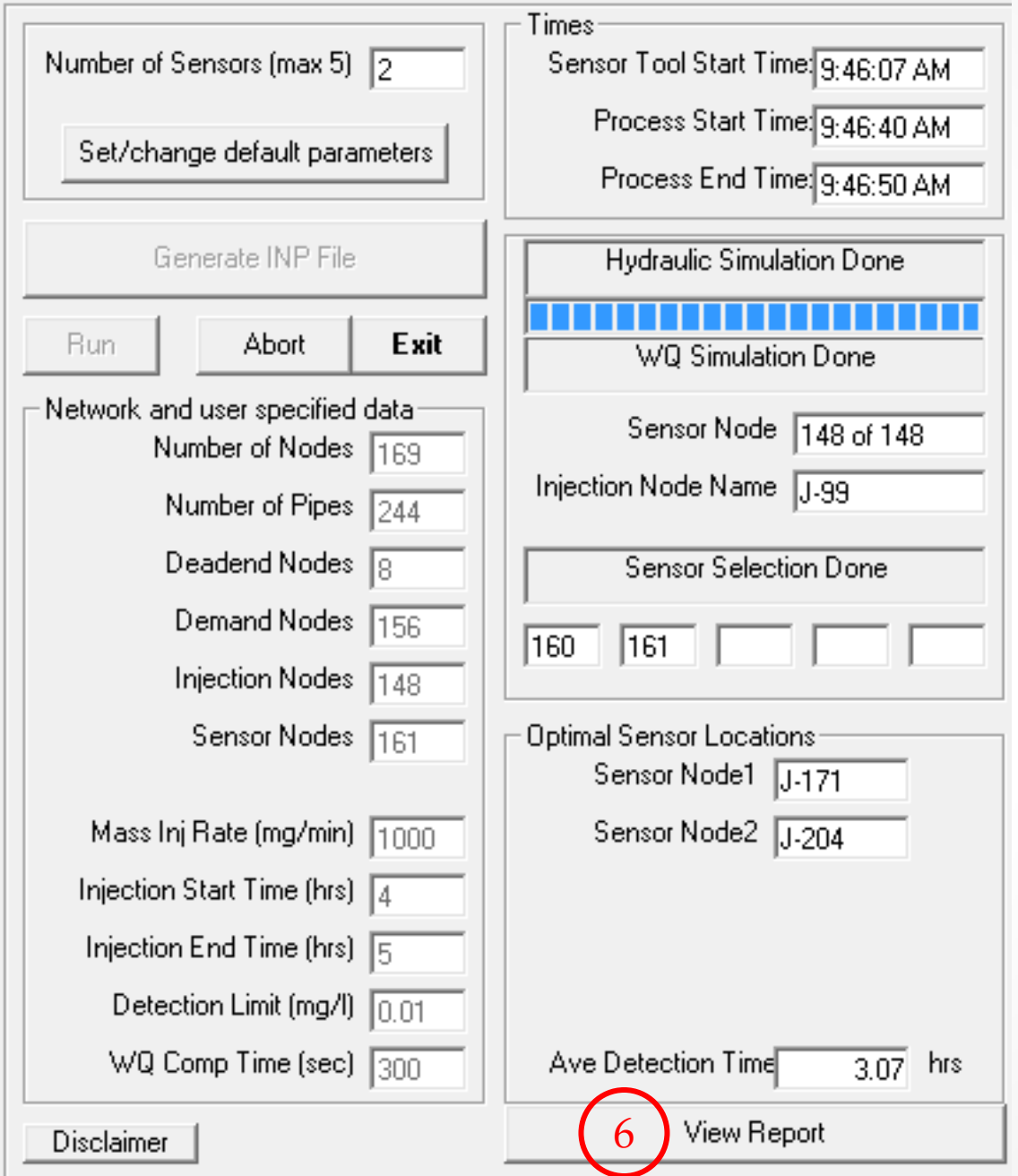


Optimal Water Quality Sensor Placement Tool

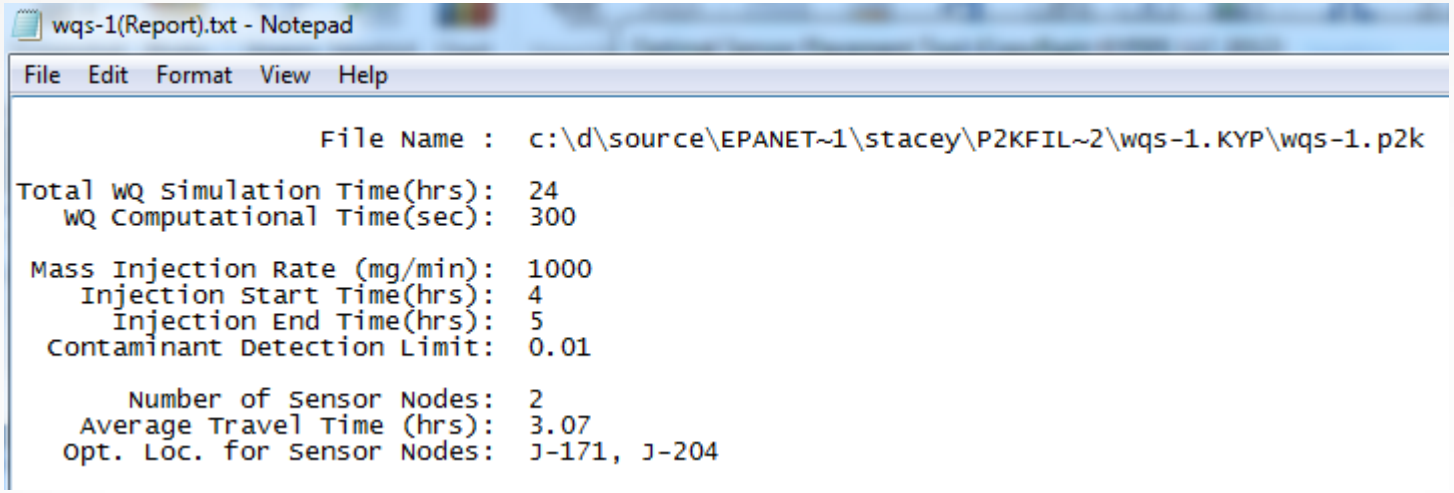
- Go back to the main menu and click on "Generate INP file" button. Then click on "Run" button.



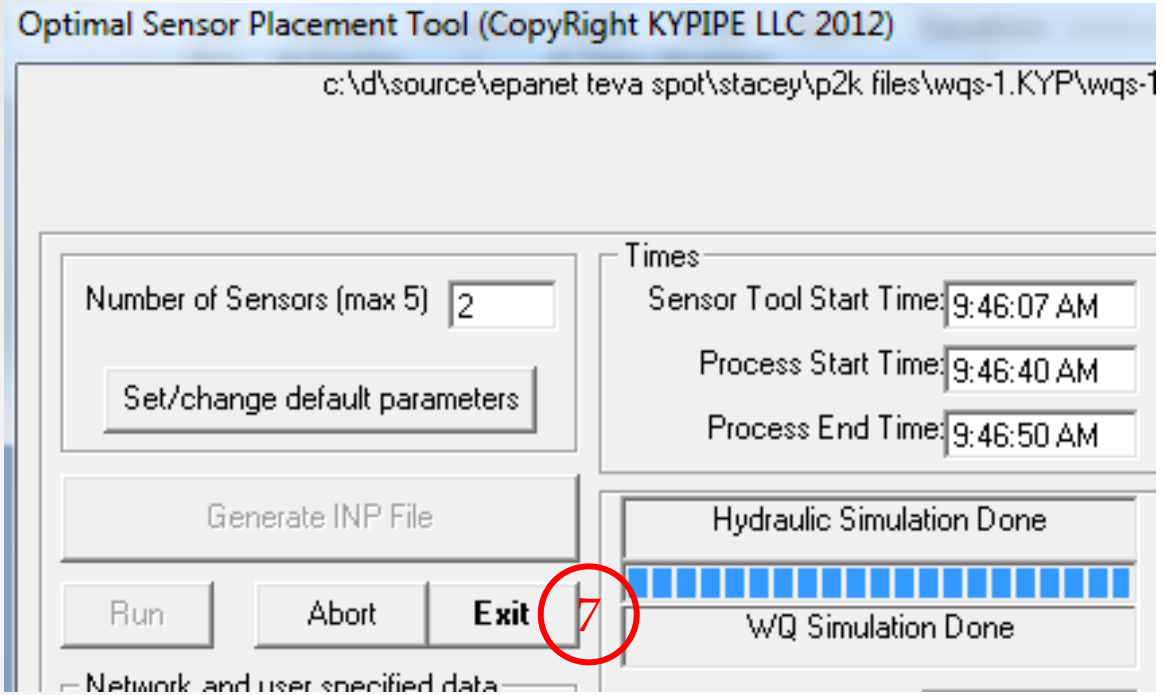
Optimal Water Quality Sensor Placement Tool

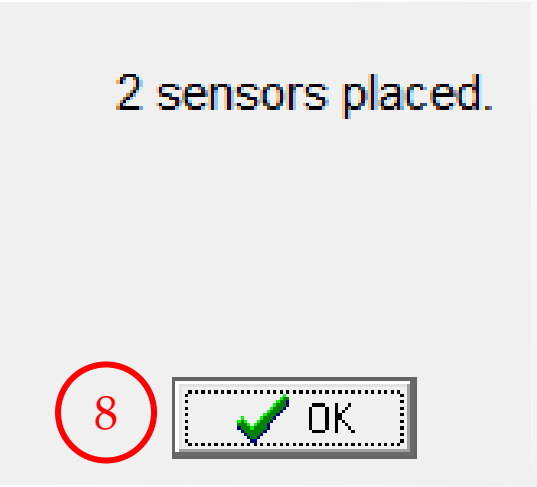


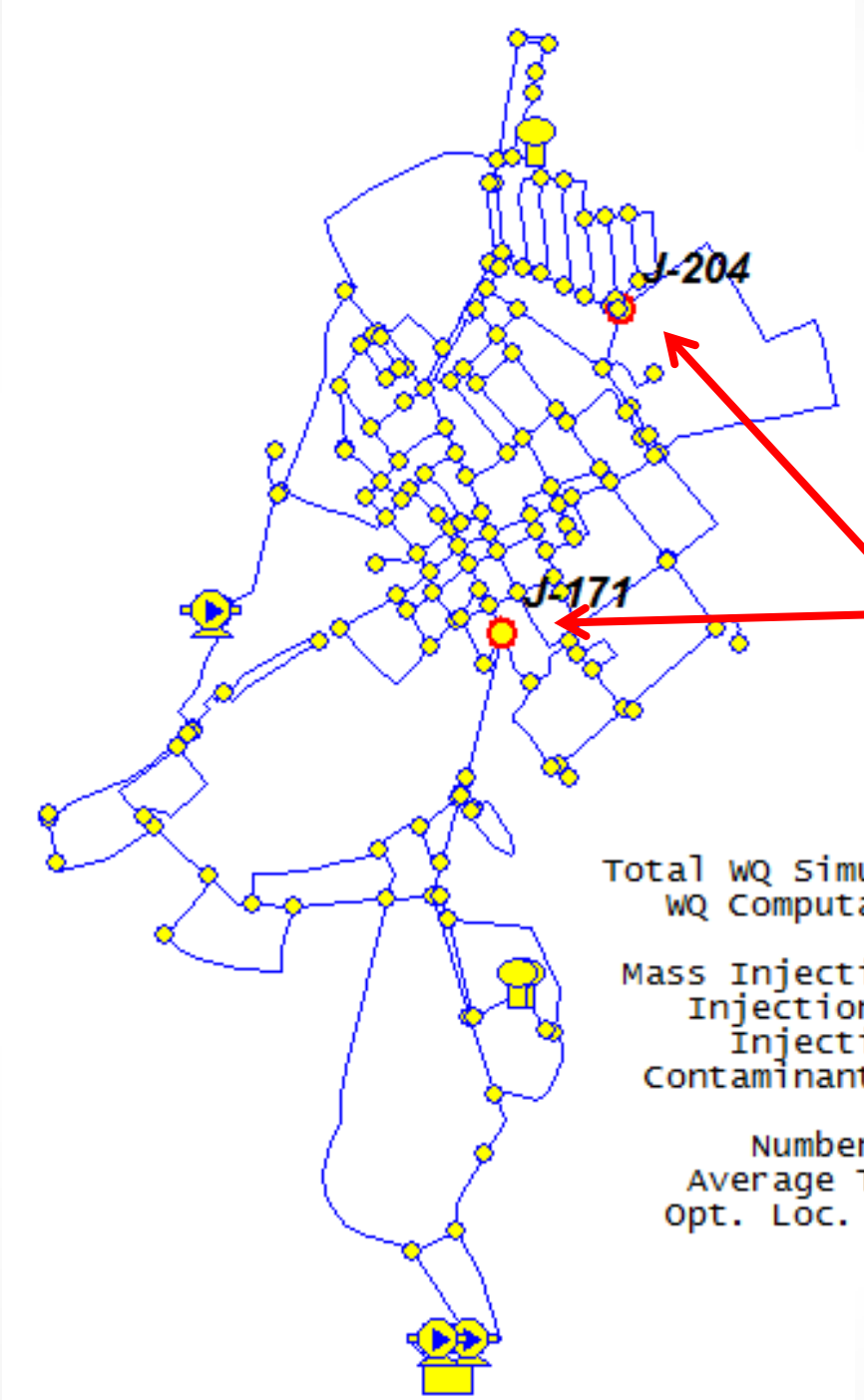
Optimal Water Quality Sensor Placement Tool



Optimal Water Quality Sensor Placement Tool







Optimal Sensor Locations highlighted on the network

Total WQ Simulation Time(hrs):	24
WQ Computational Time(sec):	300
Mass Injection Rate (mg/min):	1000
Injection Start Time(hrs):	4
Injection End Time(hrs):	5
Contaminant Detection Limit:	0.01
Number of Sensor Nodes:	2
Average Travel Time (hrs):	3.07
Opt. Loc. for Sensor Nodes:	J-171, J-204