

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF THE NORTH HOPKINS)
WATER DISTRICT, OF HOPKINS COUNTY,)
KENTUCKY, FOR APPROVAL OF CONSTRUCTION,) CASE NO. 9833
FINANCING, AND INCREASED WATER RATES)

O R D E R

IT IS ORDERED that North Hopkins Water District ("North Hopkins") shall file an original and seven copies of the following information with the Commission with a copy to all parties of record no later than March 6, 1987. If the information cannot be provided by this date, North Hopkins should submit a motion for an extension of time stating the reason a delay is necessary and including a date by which it will be furnished. Such motion will be considered by the Commission. North Hopkins shall furnish with each response the name of the witness who will be available at the public hearing for responding to questions concerning each item of information requested.

1. Provide hydraulic analyses, supported by computations and actual field measurements, of typical operational sequences of the existing water distribution system. These hydraulic analyses should demonstrate the operation of all pump stations and the "empty-fill" cycle of all water storage tanks. Computations are to be documented by a labeled schematic map of the system that shows pipeline sizes, lengths, connections, pumps, water storage

tanks, wells, and sea level elevations of key points, as well as allocations of actual customer demands. Flows used in the analyses shall be identified as to whether they are based on average instantaneous flows, peak instantaneous flows, or any combination or variation thereof. The flows used in the analyses shall be documented by actual field measurements and customer use records. Justify fully any assumptions used in the analyses. (Note - these analyses should use the same schematic as the analyses of the proposed water distribution system to facilitate comparison).

2. Provide a summary of any operational deficiencies of the existing water system that are indicated by the hydraulic analyses or that are known from experience.

3. North Hopkins filed computer hydraulic analyses for the proposed water distribution system with its application. Unfortunately these analyses only depict a "tanks full-pumps on-low demand condition." The analyses did not depict the "on-off" operation of the proposed pumps, the "empty-fill" cycles of the proposed tanks, the changes in customer demand, etc. Based on this, provide hydraulic analyses, supported by computations and actual field measurements, of typical operational sequences of the proposed water distribution system. These hydraulic analyses should demonstrate the operation of all pump stations and the "empty-fill" cycle of all water storage tanks. Computations are to be documented by a labeled schematic map of the system that shows pipeline sizes, lengths, connections, pumps, water storage tanks, wells, and sea level elevations of key points, as well as

allocations of actual customer demands. Flows used in the analyses shall be identified as to whether they are based on average instantaneous flows, peak instantaneous flows, or any combination or variation thereof. The flows used in the analyses shall be documented by actual field measurements and customer use records. Justify fully any assumptions used in the analyses. (Note - these analyses should use the same schematic as the analyses of the existing water distribution system to facilitate comparison).

4. In order to obtain realistic results when utilizing computer hydraulic analyses to predict a water distribution system's performance, engineering references stress the importance of calibrating the results predicted to actual hydraulic conditions. This calibration process should include matching field measurements to the results predicted by the computer over a wide range of actual operating conditions. As a minimum this should include average and maximum water consumption periods, as well as "fire flow" or very high demand periods.

Based on the above, explain the procedures used to verify the computer hydraulic analyses filed in this case. This explanation should be documented by field measurements, hydraulic calculations, etc.

5. Provide a pressure recording chart showing the actual 24-hour continuously measured pressure available at the locations listed below on North Hopkins' system. Identify the 24-hour period recorded, the exact location of the pressure recorder and

the sea level elevation of the recorder. Also state the schematic junction number nearest the location of the pressure recorder.

a. Water line on North Hopkins' water system at or near the connection point to the City of Madisonville.

b. Water line in the vicinity of junction 35.

c. Water line in the vicinity of junction 40.

d. Water line in the vicinity of junction 60.

e. Water line in the vicinity of junction 90.

f. Water line in the vicinity of junction 120.

g. Water line in the vicinity of junction 125.

h. Water line in the vicinity of junction 195.

i. Water line in the vicinity of junction 205.

6. Provide a copy of the pump manufacturer's characteristics (head/capacity) curve on which the design of the proposed pump stations was based.

7. Provide the criteria used in determining the location, size, overflow elevation and head range for the proposed water storage tanks.

8. Provide a narrative description of the proposed daily operational sequences of the water system. Documentation should include the methods and mechanisms proposed to provide positive control of all storage tank water levels. The description should also include an hourly summary of how all tanks will "work" (expected inflow or outflow of water) and how all pumps will function. The description should be fully supported by appropriate field measurements and hydraulic calculations.

Done at Frankfort, Kentucky, this 6th day of February, 1987.

PUBLIC SERVICE COMMISSION


For the Commission

ATTEST:

Executive Director