

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF THE ELKHORN WATER)
DISTRICT (1) FOR A CERTIFICATE OF)
CONVENIENCE AND NECESSITY TO CONSTRUCT)
A WATER STORAGE TANK AND ADDITIONAL) CASE NO. 9896
LINES; (2) FOR APPROVAL OF FINANCING)
PLAN FOR SAID PROJECT; AND (3) FOR)
APPROVAL OF WATER RATES AND CHARGES)

O R D E R

IT IS ORDERED that Elkhorn Water District ("Elkhorn") shall file an original and one copy of the following information with the Commission with a copy to all parties of record no later than August 10, 1987. If the information cannot be provided by this date, Elkhorn should submit a motion for an extension of time stating the reason a delay is necessary and include a date by which it will be furnished. Such motion will be considered by the Commission. Elkhorn 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 a summary of any operational deficiencies of the existing water system that are indicated by hydraulic analyses or that are known from experience.

2. The maps filed with the application do not show a layout of Elkhorn's total distribution system as needed for a review by

the Commission of both the existing system and the additions proposed. Elkhorn should provide a map of suitable scale (one mile equals at least one inch) that clearly shows both the layout of the existing water mains with pipe sizes and the layout of the proposed additions with pipe sizes. In addition, the map should be marked to show the boundaries of the District.

3. Elkhorn filed a computer hydraulic analysis for the existing water distribution system with its application. This analysis showed pressure above the 150 psi maximum allowed by Commission regulation, as well as impossible negative pressure conditions at several junctions. In addition, the analysis did not depict "empty-fill" cycles of existing tanks, and operation of existing pumps. In light of the above, 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, and sea level elevations of key points, as well as allocations of actual customer demands. Flows used in the analyses shall be identified as those 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 usage records. Any assumptions used in the analyses are to be fully justified.

4. The results of hydraulic analyses based on the proposed facilities being fully operational with existing facilities is essential to a demonstration that the new facilities can be adequately supported by the existing facilities. The information filed should depict pump operations, the "empty-fill" cycles of the water storage tanks, 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 piepline sizes, lengths, connections, pumps, water storage tanks, and sea level elevations of key points, as well as allocations of actual customer demands. Flows used in the analyses shall be identified as those 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).

5. 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 measure-

ments 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 very high demand periods.

6. Provide a pressure recording chart showing the actual 24-hour continuously measured pressure available near the tanks, master meter, and at least four other representative locations on Elkhorn's system. Identify the 24-hour period recorded, the exact location of the pressure recorder and the sea level elevation of the recorder.

7. Provide a list of information on Elkhorn's present and proposed storage tanks. Give the location, capacity, and overflow elevation of each tank. Explain how water is or will be supplied to each tank.

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 storage tank water level. The description should also include an hourly summary of how the tank will "empty and fill" (expected gallons per minute inflow or outflow of water) and how all pumps will function. The description should be fully supported by appropriate field measurements and hydraulic calculations.

9. Provide a list of each of Elkhorn's existing pump stations. Give the location, number of pumps and their rated capacities, and the purpose of each pump station. Explain how the operation of each pump station is controlled. Provide a copy of

the pump manufacturer's characteristics (head/capacity) curve for each of Elkhorn's existing pumps. Identify each curve as to the particular pump and pump station to which it applies. Also state if pump is in use and if pump will remain in use, will be abandoned or will be replaced.

10. The application shows that 248 customers are served by the existing system. What is the average and the maximum daily demand imposed on the system by these 248 customers?

11. Provide detailed information on the number of customers that will be served by the proposed system. What will be the average and maximum demand imposed on the system by these customers?

12. Provide invoices supporting the proposed total rate case expense of \$6,000 to be amortized over 3 years at \$2,000 per year.

Done at Frankfort, Kentucky, this 15th day of July, 1987.

PUBLIC SERVICE COMMISSION


For the Commission

ATTEST:

Executive Director