COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF BUTLER COUNTY WATER SYSTEM, INC., BUTLER COUNTY, KENTUCKY, FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY AUTHORIZING SAID SYSTEM TO CONSTRUCT MAJOR IMPROVEMENTS AND ADDITIONS TO ITS EXISTING MUNICIPAL WATER DISTRIBUTION SYSTEM PURSUANT TO THE PROVISIONS OF KRS 278.020 OF THE KENTUCKY REVISED STATUTES	)	CASE NO. 9895

O R D E R

IT IS ORDERED that Butler County Water System, Inc., ("Butler County") 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 May 1, 1987. If the information cannot be provided by this date, Butler County 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. Butler County 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. The hydraulic information filed in this case gives a brief explanation of how the demands utilized in the computer hydraulic analyses were determined. According to this information the average demand is a 24-hour average based on total annual

water usage. The peak demand was then set at 2.5 times the average demand, or 0.33 gpm per customer. Since this peak demand calculation produces a number that is considerably lower than the vast majority of standard engineering references, the District is requested to document its derivation.

The selection of design flowrates must logically involve decisions on both recurrence interval and duration of design flow events. In the explanation of the derivation of the peak demand state the recurrence interval selected (e.g. once in 1 year, once in 5 years, once in 10 years, etc.) and the duration of the flow event itself (e.g. flow level lasts for 1 minute, 10 minutes, 30 minutes, etc.). The decision as to what constitutes a reasonable peak event duration for design purposes involves two types of considerations: customer satisfaction and public health hazards. Provide detailed information on how the District's peak demand factor is related to both customer satisfaction and public health hazards.

Provide data on field measurements and observations made of customers' peak water usage. This data should indicate the time period of the observations, the number of customers in the groups observed, the magnitude of the flowrates for the events measured, the duration of the measured events, and the resulting diurnal pattern of flowrates for the various groups of customers observed.

Present a statistical analysis of the observed flowrates to include the number of days observed, the number of customers, the maximum measured flow per customer, the mean daily maximum flowrate per customer, the standard deviation, the most probable

maximum flowrate per customer, and the ninety-five percent confidence level maximum flowrate. The statistical analysis should discuss the relationship of the maximum flowrate per customer to the recurrence interval, the duration of event, and the number of customers involved.

2. Provide a pressure recording chart showing the actual 24-hour continuously measured pressure available at the locations listed below on Butler County's 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 in the vicinity of the connection point for Lines C and D (junction 44).

b. On the suction and discharge sides of the Aberdeen pump station (pump station in Line 3).

c. On the suction side of the Leonard Oak pump station (pump station in Line 53).

d. On the suction and discharge sides of the Hwy. 231 pump station (pump station in Line 605).

3. In the "Report On Hydraulic Computations" filed with the application it states that the operating characteristics of the existing pumps were verified in the field. It also states that flowrates through the pumps were determined from nearby master meters and suction and discharge pressures from inside the pump stations were utilized to confirm calibration with the computer models. Based on the above, file the corresponding field test results, etc., for the pump stations tested (Note - if the field

test results include the pressure recordings listed in Item 2b, 2c and 2d of this Order, new pressure recordings do not have to be filed).

4. Provide the criteria used in determining the location, size, overflow elevation and head range for the proposed water storage tank. Also state how much of the water in the proposed water storage tank will be useful storage.

5. The hydraulic information filed in this case indicates that a pressure reducing valve on the suction side of the Hwy. 231 pump station maintains a constant suction pressure to the pumps. Reducing pressure only to increase it again with a pump station is generally not considered good engineering practice. This installation was questioned in Butler County's last construction case before the Commission. At that time, Butler County stated that this installation was going to be studied and that various alternatives were going to be considered to improve this situation. Based on the above, provide a detailed explanation of why this type of installation was originally made. In addition, state what the results of the study indicated (e.g. Alternatives, costs, timetable for implementation, etc.).

6. The engineering information submitted with the application indicates that Butler County is proposing to install approximately 15 fire hydrants as part of this project. The "Recommended Standards For Water Works" by the Great Lakes - Upper Mississippi River Board of State Sanitary Engineers ("Ten States Standards") and the Insurance Services Office ("ISO") both have requirements for providing fire protection. Both organizations

recommend a minimum of 6-inch diameter water lines and the capability to deliver at least 250 gallons per minute at a residual pressure of 20 pounds per square inch for a minimum of 2 hours from any fire hydrant. Based on the above, provide information as to the purpose of the proposed fire hydrants. If the purpose of the proposed fire hydrants is to provide fire protection, provide hydraulic analyses demonstrating the capability of Butler County's system to comply with the requirements of the ISO and the Ten States Standards. If the fire hydrants are proposed for reasons other than fire protection state why other equipment was not considered (e.g. blow-off valves, drain valves, etc.).

7. Computer hydraulic analyses which simulate actual fire hydrant flow tests in both the North and South service areas were filed in this case. These analyses indicate that Butler County cannot support fire flows from its water system. The analyses indicate that taking larger than normal quantities of water from the fire hydrants drains the nearby existing water lines. This type of operation could set up the potential for siphoning contaminated water into Butler County's system. Since the fire hydrants do not appear to meet ISO and Ten States Standards for fire protection, provide a detailed explanation of what the purpose of the existing fire hydrants is and what preventive measures are being taken by Butler County to protect against siphoning contaminated water into the system during fire hydrant operation.

8. The proposed pump station is to be a slab on grade, concrete block/brick-veneer building with a built-up roof. Provide documentation that supports this type construction. Also state whether a shingle type roof was considered for this building. In addition, state whether a "can" type below ground pump station was considered. If neither was considered, state why not.

9. In Table No. 3, Attachment No. 7 of the "Report on Hydraulic Computations the Gauge Elevation is listed at 630. It appears that this should be 530. Provide clarification concerning this matter.

10. In the computer hydraulic analyses for the proposed North system the connection to the Morgantown system is input as a 4-inch water line instead of a 8-inch water line. While this 20-foot section of pipe would have little effect on the results explain the rationale for depicting this line as a 4-inch water line (e.g. A 4-inch water line was input to simulate the master meter station).

11. In the computer hydraulic analyses for the existing North system which simulates fire hydrant operation, the water surface elevation of the Hwy. 79-S water storage tank was input as 793 feet. In the narrative description of the test the water surface elevation was listed as 696 feet. Provide clarification concerning this matter.

12. The specifications for the proposed pump require a 2-stage pump capable of delivering water at a flow rate of 150 gallons per minute ("GPM") at 220 feet total dynamic head ("TDH")

with a 20 horsepower motor operating at 1750 revolutions per minute. The specifications also require the pump to be capable of delivering 320 gpm at 335 feet TDH in the future by installing new motors and trimming the impellers. Based on the conditions given it appears that new impellers would have to be installed instead of trimming the existing impellers. Provide clarification concerning this matter.

Done at Frankfort, Kentucky, this 16th day of April, 1987.

PUBLIC SERVICE COMMISSION

Richard D. Heman Jr.
For the Commission

ATTEST:

Executive Director