

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF MAGOFFIN COUNTY)
WATER DISTRICT, OF MAGOFFIN COUNTY,) CASE NO. 9919
KENTUCKY, FOR APPROVAL OF CONSTRUCTION)
AND FINANCING)

O R D E R

IT IS ORDERED that Magoffin County Water District ("Magoffin") 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 June 19, 1987. If the information cannot be provided by this date, Magoffin 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. Magoffin 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. Magoffin filed computer hydraulic analyses for the proposed water distribution system with its application. Unfortunately these analyses did not depict the "on-off" operation of the proposed pumps, the "empty-fill" cycles of the proposed 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 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 Magoffin'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. The connection point to the City of Salyersville's water system in the vicinity of junction 28.

b. The connection point to Magoffin's existing water system in the vicinity of junction 4.

c. The connection point to the City of Salyersville's water system in the vicinity of junction 2.

6. Provide a copy of the pump manufacturer's characteristic (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. In addition, state what other sites were considered and why they were not selected.

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.

9. The computer hydraulic analyses filed in this case for the proposed water distribution system indicate that the potential exists for the system to experience high pressure (more than 150 psig) at Nodes 19 and 20. Pressures at this level are in violation of PSC regulation 807 KAR 5:066, Section 6 (1). Provide details of any preventive measures or additional construction

Magoffin intends to perform to protect against this type of occurrence. Details should be documented by hydraulic analyses and field measurements. In addition state whether any complaints of low pressure have been received at these locations.

10. The computer hydraulic analyses filed in this case for the proposed water distribution system indicate that the potential exists for the system to experience low pressure (less than 30 psig) at Node 25. Pressures at this level are in violation of PSC regulation 807 KAR 5:066, Section 6 (1). Provide details on any preventive measures or additional construction Magoffin intends to perform to protect against this type of occurrence. Details should be documented by hydraulic analyses and field measurements.

11. The general specifications and special provisions of the specifications for the proposed pump stations require differing pump characteristics for the proposed pumps. Provide clarification concerning this matter.

12. The engineering information submitted with the application indicates that Magoffin is proposing to install approximately 6 fire hydrants as part of this project. KRS 227, 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") all have requirements for providing fire protection. All of these references require fire hydrant installation on a minimum of 6-inch diameter water lines. The ISO requires 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 Magoffin's system to comply with the requirements of KRS 227, 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.).

Done at Frankfort, Kentucky, this 26th day of May, 1987.

PUBLIC SERVICE COMMISSION


For the Commission

ATTEST:

Executive Director