COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF THE SOUTHERN MADISON WATER DISTRICT, A WATER DISTRICT ORGANIZED PURSUANT TO CHAPTER 74 OF THE KENTUCKY REVISED STATUTES, OF MADISON COUNTY, KENTUCKY, FOR: (I) APPROVAL OF THE ADJUSTMENT OF WATER RATES PROPOSED TO BE CHARGED BY THE DISTRICT TO CUSTOMERS OF THE DISTRICT; (II) A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY, AUTHORIZING AND PERMITTING SAID WATER DISTRICT TO CONSTRUCT AN EXTENSION TO ITS WATERWORKS DISTRIBUTION SYSTEM; AND (III) APPROVAL OF THE PROPOSED PLAN OF FINANCING OF SAID IMPROVEMENTS AND EXTENSION OF SAID WATERWORKS DISTRIBUTION SYSTEM	)	CASE NO. 9377

O R D E R

IT IS ORDERED that Southern Madison Water District ("Southern Madison") shall file an original and seven copies of the following information with the Commission with a copy to all parties of record by December 6, 1985. If the information requested or a motion for an extension of time is not filed by the stated date, the Commission may dismiss the case without prejudice. Southern Madison 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. 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.

2. The computer hydraulic analyses filed in this case are based on "average," "peak" and "slack" demand periods. The "average" demand is supposedly a 24-hour average usage; the "peak" demand is supposedly 1.5 times the "average" demand; and the "slack" demand is supposedly .5 times the "average" demand. In addition, the analyses utilize a customer demand pattern of "average" demand occurring between 6:00 a.m. and 10:30 p.m. on weekdays, "slack" demand occurring between 10:30 p.m. and 6:00 a.m. and "peak" demands occuring on weekends.

Most engineering references state that instantaneous customer demands can peak at 3 to 15 times the 24-hour

average demand. In addition, most engineering references also state that a water distribution system should be designed to meet the maximum hourly demand of its customers.

Based on the above information provide a detailed explanation of why Southern Madison's peak demands do not conform to generally recognized customer usage patterns. The explanation should be documented by actual field measurements. Also state exactly what measurements were made of Southern Madison's maximum hourly usage. If the maximum hourly usage was not measured directly, state why it was not.

3. Provide information as to why the pressures predicted at Nodes 27, 30, 51, 53, 65, 67, 68, 75, 84, 95, 98, 104, 108 and 111 by the computer hydraulic analyses do not closely match the pressure charts for these locations for the various conditions which were "modeled."

4. The hydraulic analyses of the existing system depict pressures lower than 30 psig at Nodes 52, 90, 98, 108 and 110. In order to document whether low pressures actually exist at these locations, provide pressure recording charts showing the actual 24-hour continuously measured pressure available at each of these nodes. Identify the 24-hour periods recorded, the exact locations of the pressure recorders and the sea level elevation of the recorders.

5. 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 Nodes 9, 10, 52, 76, 90, 98 and 110 after the proposed construction is complete. Pressures of this magnitude are in violation of PSC regulation 807 KAR 5:066, Section 6(1). Provide details of any preventive measures or additional construction Southern Madison intends to perform to protect against this type of occurrence. Details should be documented by hydraulic analyses and field measurements.

6. The computer hydraulic analyses filed in this case for the proposed water distribution system also indicate that the potential exists for the system to experience high pressure (more than 150 psig) at Nodes 1, 12, 14, 19 and 20. Pressures of this magnitude are in violation of 807 KAR 5:066, Section 6(1). Provide details of any preventive measures or additional construction Southern Madison intends to perform to protect against this type of occurrence. Details should be documented by hydraulic analyses and field measurements.

7. The pump operating points as utilized in the computer hydraulic analyses do not appear to match the pump operating points as outlined in the specifications. In addition, the computer hydraulic analyses depict the proposed pump "operating out of range." Provide a copy of the pump manufacturer's characteristic (head/capacity) curve on which the design of the proposed pump was based. Also provide the design criteria and related calculations used in sizing the proposed pump station.

8. The hydraulic information filed in this case indicates that there are quite a few existing 2-inch waterlines of lengths in excess of 250 feet. Two-inch waterlines which are longer than 250 feet for non-circulating waterlines and longer than 500 feet for circulating waterlines are in violation of PSC regulation 807 KAR 5:066, Section 11(2)(a). Provide a list of all existing 2-inch waterlines. This list shall include the location, length and possibility of future extension of each line. This list should also include the lowest pressure experienced and whether any complaints of low pressure have been received. In addition, provide this same information for any proposed 2-inch waterlines.

9. In order to demonstrate whether low pressures actually exist on any of the 2-inch waterlines, provide pressure recording charts at Nodes 11 and 79 showing the actual 24-hour continuously measured pressure available at each of these nodes. Identify the 24-hour periods recorded, the exact locations of the pressure recorders and the sea level elevation of the recorders.

10. In response to Item 29 of the PSC's August 20, 1985, Information Request it was stated that an extension of the Division of Water approval had been obtained. Provide a copy of this document.

11. In response to Item No. 40 of the Commission's Information Order of August 20, 1985, Southern Madison reported that it sold 13,752,400 gallons during the test year

ending March 31, 1985, to a test-year average number 17 commercial customers. In its annual report for calendar-year 1984, Southern Madison reported only 7,724,488 gallons sold to 63 commercial customers. Please explain the wide variance between both the number of gallons sold and the number of commercial customers for these two periods. Provide corrected figures if necessary.

12. Provide the number of gallons of water purchased during the test year by Southern Madison.

13. In response to Item No. 48 of the Commission's Information Order of August 20, 1985, Southern Madison provided breakdowns of charges to various accounts. With regard to the account labeled "Operating Supplies," provide copies of itemized invoices paid by the following check numbers: 4438, 4444, 4467, 4473, 4507, 4518, 4548, 4565, 4567, 4589, 4625, 4638, 4673, 4691, 4720, 4721, 4732, 4774, 4816, 4879, and 4886.

Also, with regard to the account labeled "Subcontractor Maintenance and Repair," provide copies of itemized invoices for all work performed by Floyd Harding.

14. With regard to proposed adjustments to salaries expense, please explain Southern Madison's request to include for rate-making purposes the following: (1) a 50 percent increase for each of the three commissioners, (2) a 13 percent increase for the superintendent after a 10 percent increase effective June 1, 1984, (3) a 10 percent increase for the

secretary/bookkeeper after a 10 percent increase effective June 1, 1984, and (4) a 10 percent increase for the meter reader after a 3 percent increase effective June 1, 1984. Southern Madison should bear in mind that the CPI-U (Consumer Price Index-Urban Consumers) averaged an increase of 4.18 percent for 1984 and through September of 1985 has increased by only 3.18 on a yearly basis.

Done at Frankfort, Kentucky, this 15th day of November, 1985.

PUBLIC SERVICE COMMISSION

Richard D. Heman Jr.
For the Commission

ATTEST:

Secretary