

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 CERTIFI-) CASE NO.
CATE OF PUBLIC CONVENIENCE AND NECESSITY,) 9596
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)

O R D E R

On May 28, 1986, Southern Madison Water District ("Southern Madison"), by counsel, filed its Motion to Reopen and submit for hearing Case No. 9377, wherein it had sought Commission approval for certain construction and extensions of its existing water distribution system, proposed financing and proposed rates. Southern Madison also requested a hearing date.

The Commission entered an Order April 7, 1986, to dismiss Case No. 9377 without prejudice because Southern Madison had not submitted, and could not submit, sufficient documentation to support its case within the statutory 10-month time frame. The Commission did allow Southern Madison to refile when it met the necessary FmHA filing requirements to advertise for bids on proposed construction projects.

After reviewing the record in this case and being advised, the Commission is of the opinion and finds that:

(1) Southern Madison's Motion regarding reopening should be allowed, except that instead of reopening Case No. 9377, a new case should be established and the entire record of Case No. 9377 should be incorporated therein by reference.

(2) Southern Madison's Motion regarding setting a hearing should be allowed.

(3) The Commission's Engineering Staff completed its initial analysis of the application following the entry of the Order on dismissal. The Report, included in Appendix A, should be made part of the record so that it is available to Southern Madison for analysis and comment, if it wishes to do so.

IT IS THEREFORE ORDERED that:

(1) A new case should be established and the entire record of Case No. 9377 should be incorporated therein by reference.

(2) The Commission's Engineering staff initial analysis of Southern Madison be and it hereby is placed in the evidence of record. Southern Madison shall file any comments to the staff report, with a copy to all parties of record, concerning the report by July 2, 1986.

(3) A hearing be and it hereby is scheduled on July 18, 1986, at 10:00 a.m., Eastern Daylight Time, in the Commission's offices, Frankfort, Kentucky. The purpose of the hearing is to hear testimony and other evidence.

(4) Southern Madison shall give notice of the hearing in accordance with the provisions set out in 807 KAR 5:011, Section 8(5).

Done at Frankfort, Kentucky, this 6th day of June, 1986.

PUBLIC SERVICE COMMISSION


Chairman


Vice Chairman


Commissioner

ATTEST:

Secretary

APPENDIX A

APPENDIX TO AN ORDER OF THE PUBLIC SERVICE
COMMISSION IN CASE NO. 9596 DATED 6/6/86

R E P O R T

TO: Claude G. Rhorer, Jr., Director
Division Utility Engineering and Services *EBS for CGR, Jr.*

THRU: Eddie B. Smith, Manager
Water and Sewer Section *EBS*

FROM: Robert N. Arnett, ^{*RNA*} Public Service Engineer
Water and Sewer Section

DATE: April 28, 1986

RE: C. N. 9596
Review of Engineering Hydraulics submitted by
Southern Madison Water District

BRIEF

The purpose of this report is to discuss the engineering data and hydraulic calculations presented by the Southern Madison Water District ("Southern Madison") to justify its proposed construction project. On June 28, 1985, Southern Madison filed its application for approval of a proposed construction project, approval of a financing plan for the proposed construction and to request an increase in rates to its customers.

The proposed project consists of the construction of a 100,000-gallon standpipe, a 150-gallon per minute duplex booster pump station and approximately 22.5 miles of 6- and 4-inch diameter waterlines. These proposed improvements are to provide water service to approximately 187 additional customers.

In an attempt to determine if the proposed improvements would "be used and useful in rendering service

to the public" additional engineering data was requested on August 20, 1985, and November 15, 1985. Southern Madison's responses were filed on October 7, 1985 and January 15, 1986 respectively.

BACKGROUND INFORMATION

Southern Madison began operation in the late 1960's. Southern Madison presently serves about 1,397 customers in southern Madison county. The water distribution system includes about 57.5 miles of waterlines. Southern Madison, which currently has no pump stations or water storage facilities, purchases its water from Berea College through nine master meters.

DATA INTERPRETATION

Computer hydraulic analyses were filed with the application in order to document the anticipated operation of Southern Madison's proposed water distribution system.

Computer hydraulic analyses can be a very reliable method for depicting the operation of a water distribution system. However, in order to have confidence in the results of a computer hydraulic analysis, the computer model must first be calibrated to match field conditions. The usual procedure is to start with known and/or estimated input data for the existing system such as pipe size, tank information, pipe roughness, pump information, customer demands, etc. Pressure recordings are made over a certain time period (usually 24 hours) and the model reworked until pressures calculated by the computer match the pressures measured in

the field for both average and peak flow conditions. Usually a properly calibrated model will depict pressures that are within 5 psig of measured pressures.

When the initial review of the hydraulic information was completed, the engineering staff had some questions concerning model calibration, customer demands and demand patterns, expected pump and tank operation, predicted pressures both lower and higher than allowed by PSC regulations, and existing 2-inch waterlines longer than allowed by PSC regulations.

As a result of these questions, the staff prepared two Information Requests to allow Southern Madison to address the staff's concerns. As previously mentioned, these Information Requests were entered on August 20, 1985, and November 15, 1985.

Southern Madison's responses, which were prepared by Charles E. Black, Consulting Engineers, of Richmond, Kentucky ("Engineer") were filed on October 7, 1985, and January 15, 1986. The information filed included additional computer hydraulic analyses, pressure recording charts, various engineering calculations and narrative descriptions of the system and its operation.

The Engineer's responses addressed most of the engineering staff's concerns. However, in my opinion the customer demands utilized in the computer hydraulic analyses for both average and peak conditions are too low, the computer model could have been calibrated more closely, a

better tank location could have been selected and the potential low and high pressure locations need to be addressed. While I do not necessarily totally agree with the input for the computer hydraulic analyses or the computer predictions and the location of the proposed tank, I will agree that it may be possible for the proposed system to operate satisfactorily with the exception of the low and high pressure areas. The high pressures could easily be addressed by placing pressure reducing valves in individual customer meters which are located in potential high pressure areas. It is assumed that Southern Madison would agree to this type of arrangement.

Based on the above, my major area of concern is the low pressure areas. One area of low pressure is an existing condition on an existing waterline. The other low pressure area is on a proposed waterline. These low pressure areas were questioned in the previously mentioned November 15, 1985, Information Request. Southern Madison was also questioned as to what preventive measures or additional construction it intended to perform to protect against this type of occurrence. Southern Madison's Engineer responded that Southern Madison did not propose any preventive measures or additional construction.

The anticipated low pressure condition on the existing system could probably be improved by constructing a hydro-pneumatic tank installation.

The low pressure on the proposed line extension could be addressed in several ways (e.g. 1. Relocate the proposed water storage tank, 2. Construct a hydro-pneumatic tank installation to serve this area, 3. Operate the proposed pump continuously, or 4. Delete the line extension). Either of the first two options should be acceptable. Option 3 is inefficient and generally unacceptable to the staff. Operating the pump continuously would defeat any everyday usefulness of the proposed tank. This type of operation could create the potential for the proposed tank to overflow unless the tank is valved off. Option 4 would require denying water service to approximately 4 customers.

At this stage in the case, bids are anticipated to be received in the very near future and Option 1 would involve redesign of the project and would delay advertisement. The most viable option appears to be either Option 2 or some other method to increase pressures to the low pressure areas.

CONCLUSIONS AND RECOMMENDATIONS

Based on my review and interpretation of the engineering and hydraulic information, the following conclusions are reached:

1. Southern Madison needs water storage facilities.
2. Southern Madison has failed to propose facilities that will comply with PSC regulations.

This report makes the following recommendation:
Southern Madison's request for a certificate of public
convenience and necessity should be denied unless the low and
high pressure areas are adequately addressed.