

EDWARDS UNDERGROUND  
WATER DISTRICT

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REPORT 95-08

LEAK DETECTION / LOCATION SURVEY REPORT

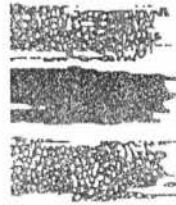
FOR

CITY OF KYLE

HAYS COUNTY, TEXAS

MAY 16, 1995 - JUNE 5, 1995





EDWARDS UNDERGROUND  
WATER DISTRICT

6.25-7.5

July 29, 1995

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Mr. J. F. Montague  
Director of Public Works  
City of Kyle  
101 S. Burleson Street  
Kyle, Texas 78640

Dear Mr. Montague

We are pleased to submit this final report of the leak detection survey performed on City of Kyle water distribution system. This report lists findings by separate categories for your convenience.

The Edwards Underground Water District (District) appreciates the cooperation and assistance you have provided during the survey. Special thanks to Jody Linthicum and Jimmy Haverda for their attention and patience during the survey. The District hopes that the information provided herein will be beneficial to the City in identifying and targeting areas of actual water loss and potential water loss.

This survey has demonstrated the water saving potential of the Leak Detection Program. Maintaining the best possible program is vital in order to continue the successes realized. For this reason, the District is soliciting your comments, both positive and negative, and any suggestions you may have on how to improve our program.


Please respond to this request candidly, as the District cannot improve on deficiencies or support positive measures without the knowledge of such conditions.

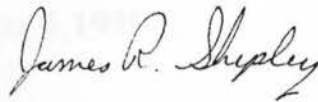


Mr. J. F. Montague  
July 29, 1995 - Page 2

Please convey our commendations and thanks to Jaime Dijarro, Henry Flores, and Mike Melendez for their assistance in this project. The Edwards Underground Water District sincerely appreciates your water conservation efforts. Should you require additional information regarding this report or have any water related questions, please do not hesitate to call.

Sincerely,

  
John E. Gapinski  
Leak Detection Technician I



James R. Shipley  
Leak Detection Technician II

JEP:JRS/ bmc  
Enclosures

002jrs

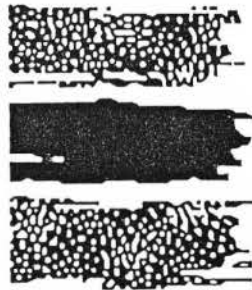
**LEAK DETECTION / LOCATION SURVEY REPORT  
FOR  
THE CITY OF KYLE**

**May 16, 1995 -- June 5, 1995**

By

John E. Gapinski and James R. Shipley  
of the

**EDWARDS UNDERGROUND WATER DISTRICT**  
Division of Planning and Environmental Management  
Leak Detection/Location Program  
July, 1995



**Edwards Underground Water District  
1615 N. St. Marys  
P. O. Box 15830  
San Antonio, Texas 78212-9030  
210-222-2204**

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### ENCLOSURES TO REPORT

- A. Revised Master Water System Distribution Plats

## SUMMARY

On May 9, 1995, the Edwards Underground Water District (EUWD) received a request from the City of Kyle to perform a leak detection/ location survey on its water distribution system. A pre-survey conference was held May 12, 1995, at the City of Kyle to discuss the work to be performed. It was agreed that EUWD would perform sonic leak detection on all available access points and computerized leak location as needed. A final report, including any unusual system condition found and an updated master water plat would be submitted to the City of Kyle by EUWD at the conclusion of the survey.

John E. Gapinski of EUWD began the survey on May 16, 1995, and the survey was concluded on June 5, 1995. Over the course of the survey, a total of 1,464 access points were surveyed including 1,023 customer service connections, 106 fire hydrants, 328 valves, and 7 other access points covering 29.70 miles of distribution main.

Thirteen utility side leaks and 3 customer side leaks were detected for a total of 16 leaks. The utility side leaks included 2 service leaks, 8 meter box leaks, and 3 main leaks. An estimated 260,734 gallons of water per day has been saved by the repair of the 13 utility side leaks. The leaks discovered during the survey range from 254,592 gallons per day to small meter box leaks.

## DISCUSSION

### A. Total Access Points Surveyed: 1,464

The following is an outline of the various access points used during the survey:

1. Customer service connections: 1,023
2. Main valves: 328
3. Fire hydrants: 106
4. Others: 7

### B. Total Miles of Distribution Main Surveyed: 29.70

### C. Total Leaks Detected: 16

Service line and main leaks were located by acoustic leak detection, computer correlation, or by visual inspection. Meter box leaks and customer side leaks were located through house to house surveying.

#### 1. Meter Box: 8

402 North Street  
201 Groos Street  
S. Nance Street at W. Moore Street  
42 Center Street  
506 Lockhart Street  
1729 Center Street  
129 Martinez Loop  
130 Martinez Loop

#### 2. Services: 2

308 Sledge Street  
408 First Street

#### 3. Mains: 3

Creek crossing on F.M. 150  
502 Lockhart Street  
Sledge at First Street

**4. Customer Side: 3**

243 Quail Ridge  
207 Cisneros Street  
116 Belair

**D. Total Estimated Water Saved by Repair of Detected Utility Side Leaks in Gallons Per Day As Of June 5,1995: 260,734**

Leakage estimates for service lines and mains are based on hole size and system pressure in pressure per square inch. This information was furnished by City of Kyle personnel when EUWD was not on site at the time of repair.

Meter Box: 94  
Service: 720  
Mains: 259,920

Customer leaks were generally small. No attempt was made to estimate this leakage. Customers were notified by doortag or in person when possible or will be notified by City of Kyle personnel.

**H. Master Water System Distribution Plats Included With This Report**

The water distribution system was hand drawn by EUWD, using the City of Kyle's 1" = 400' Site Referral Map (utilities) and As Built utility plats as a guide. The water distribution system was divide into ten 24" by 36" plats with a scale of 1" = 200'. A map key is provided for your convenience. All main line locations, sizes, and types of material were furnished by City of Kyle personnel.

All mains were surveyed from all available access points.

All valves located were surveyed. When direct contact could not be made, a probe rod was used.

Fire hydrants labeled as fire hydrants without lead valves are hydrants where the lead valve could not be located or does not exist.

All mains, fire hydrants, and valves added to the plats are for access point accounting. The location and placement of these items on the plats are intended to indicate what was actually found during the field survey. Placement of main valves on the plat is the surveyor's best guess of what they control. Every effort was made to ensure the accuracy of these plats, but EUWD does not guarantee their accuracy.



## RECOMMENDATIONS AND COMMENTS

- I. Install meters and check valves on prelubrication lines at all wells for water use accounting. Establish accounting system for water used for fire fighting, sewer cleaning, main flushing, etc.
- II. During the course of the survey, EUWD noted numerous meters in need of replacement. We recommend the initiation of a systemwide customer meter maintenance program. System meters should be upgraded through an ongoing meter change out program. This program should involve replacing a specified number of meters each period with new or rebuilt meters, until all system meters have been replaced.

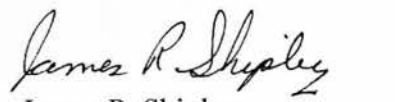
All meter installations should be reviewed to determine whether the meter is properly sized and the correct type for the current use and flow demand.

Water meters are designed to deliver a maximum flow for a short period and a lower flow for long periods without sustaining damage or above normal wear. If a meter is operating outside its intended range, it cannot register all flow, even though it may be calibrated. We recommend that all well meters and a percentage of commercial meters be tested in place yearly for accuracy.

- III. Review the existing water distribution system and planned water system improvements to ensure sufficient access points are in place to facilitate future leak detection/ location surveys.
- IV. Consider ductile iron pipe for the primary main line material used for new installation and main replacement. As the production cost of water increases, the need for routine systemwide leak detection surveys will also increase. Leak sounds generated in metallic pipe are louder and have a tendency to travel further than those developed in non-metallic pipe. Ductile iron pipe has a proven history of long service life and its sound carrying characteristics for leak detection are far superior to any other type of pipe material.

Your efforts and timely repair of the leaks discovered in this survey have saved a significant amount of precious water. Our thanks to all the staff for your efforts in helping to conserve the Edwards Aquifer.

  
John E. Gapinski  
Leak Detection Technician I

  
James R. Shipley  
Leak Detection Technician II