

EDWARDS UNDERGROUND  
WATER DISTRICT

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Report 94-02

**LEAK DETECTION / LOCATION SURVEY REPORT  
FOR  
SPRINGS HILL WATER SUPPLY CORPORATION  
GUADALUPE COUNTY, TEXAS**

**January 31, 1994 - March 28, 1994**

EDWARDS UNDERGROUND  
WATER DISTRICT

6.25-7.5

May 9, 1994

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Mr. Ronald Naumann  
General Manager  
Springs Hill Water Supply Corporation  
P. O. Box 29  
5510 South 123 Bypass  
Seguin, Texas 78156-0029

Dear Mr. Naumann:

We are pleased to submit this final report of the leak detection survey performed on the Springs Hill Water Supply Corporation water system. A summary of findings is reported in separate categories for your convenience.

The Edwards Underground Water District (District) appreciates the cooperation and assistance you have provided during the leak detection survey. Special thanks to Mr. Tex Saengerhausen and Mr. Keith Steffen for their attention and patience during the survey. The District hopes that the information provided herein will be beneficial to the corporation in identifying and targeting areas of water loss and potential loss.

The Edwards Underground Water District would appreciate the opportunity to recheck the remaining 9 leak sites after repairs are completed.

This survey has demonstrated the water saving potential of the Leak Detection/Location Program. Maintaining the best possible program is vital in order to continue the successes that have been 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. John L. Brenneman  
May 9, 1994 - Page 2

Enclosed is a water audit form. The District requests that this form be completed and returned to the District sixty days after all detected leaks have been repaired. This information will assist the District in our continued assessment of the Leak Detection Program.

Should you require additional information regarding this report or have any water related questions, please do not hesitate to call.

Sincerely,



Charles E. Ahrens  
Water Resources Planner III



James R. Shipley  
Leak Detection Technician II

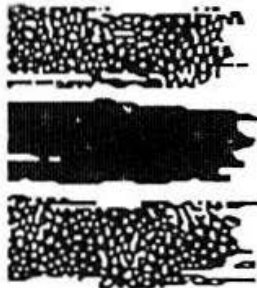
CEA:JRS/bmc  
Enclosures

001ajrs

**Leak Detection/Location Survey Report  
For  
Springs Hill Water Supply Corporation  
January 31, 1994 - March 28, 1994**

By

James R. Shipley  
of the  
**Edwards Underground Water District**  
Division of Planning and Environmental Management  
Leak Detection/Location Program  
May, 1994



Edwards Underground Water District  
1615 N. St. Marys  
P. O. Box 15830  
San Antonio, Texas 78212-9030  
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## ENCLOSURES TO REPORT

- A. Revised Master Water System Distribution Plats

## SUMMARY

On August 12, 1993, the Edwards Underground Water District (EUWD) received a completed application form from Springs Hill Water Supply Corporation requesting a leak detection/location survey on its water distribution system. A pre-survey conference was held January 28, 1994 at Springs Hill office to discuss the work to be performed. It was agreed that EUWD would perform sonic leak detection on all available access points, computerized leak location as needed, record any unusual system conditions found, and submit to Springs Hill a revised master water plat with the final report.

Mr. John Gapinski of EUWD began the survey on January 31, 1994, and the survey was concluded on March 28, 1994. Over the course of the survey, EUWD surveyed a total of 1,278 access points including 938 customer service connections, 60 fire hydrants, 232 main line valves, and 48 other access points covering 72.05 miles of distribution mains.

EUWD technicians detected a total of 42 leaks. This total included 3 meter box leaks, 7 service line leaks, 3 main leaks, 4 valve leaks, and 25 customer side leaks. EUWD estimates 36,914 gallons of water per day has been saved by the repair of 8 detected leaks as of March 28, 1994. The leaks discovered during the survey range from 15,840 gallons per day to numerous small customer side leaks.

As part of the survey, EUWD located 29 main line valves, 202 customer service connections, 23 fire hydrants, and .96 miles of distribution main not shown on the master water plats. EUWD staff was unable to locate 60 main line valves, 16 fire hydrants, and 77 customer service connections. An additional 13 valve stacks need cleaning and/or repair. EUWD noted 7 valve boxes missing lids and one fire hydrant missing a cap.

JRS/bmc  
001jrs

## DISCUSSION

A. Total Access Points Surveyed..... 1,278

The following number of access points were used during the survey:

1. Customer Service Connections: 938
2. Main Valves: 232
3. Fire Hydrants: 60
4. Others: 48

B. Total Miles of Distribution and Transmission Main..... 72.05  
Surveyed

C. Total Number of Suspected Leak Sounds Rechecked..... 45

D. Total Estimated Water Saved by Repair of Detected  
Leaks in Gallons per day as of March 28, 1994..... 36,914 GPD

Leakage estimates for all leaks are based on hole size and system pressure in P.S.I. This information was furnished by Springs Hill personnel when EUWD was not on site at the time of repairs.

EUWD would appreciate a list of leakage estimates for all detected leaks repaired after March 28, 1994 for our records.

E. Total Leaks Detected..... 42

1. Meter Box Leaks..... 3

- I. G-11, Villa Vista Lot 25
- II. D-5, 109 Sauder Dr.
- III. E-10, 112 Laguna Vista

Leakage estimates of repaired leaks: 0  
Leaks to be repaired: 3

2. Main Leaks..... 3

- I. E-10, 112 Laguna Vi ta, Repaired 3/8/94
- II. E-10, Hwy 46 south of County Rd. 104, Repaired 3/8/94
- III. E-6, Private Road Off County Rd. 117, Repaired 2/15/94

Leakage estimates of repaired leaks: 16,488 G.P.D.  
Leaks to be repaired: -0-

3. Flush Valve Leaks..... 4

- I. E-5, 1451 Krause Ln..... 4
- II. E-10-1, behind Lot 87 Ridgcrest Dr., Repaired 3/11/94
- III. E-10, east end of Woodstone
- IV. H-8, 1130 Laubach

Leakage estimates of repaired leaks: 26 G.P.D.  
Leaks to be repaired: 3

4. Service Line Leaks..... 7

- I. D-6, 2655 Hwy 46 @ Krause, Repaired 2/15/94
- II. E-6, 397T Krause, Repaired 2/15/94
- III. E-5, 1451 Krause
- IV. E-6, 1311 Ewald, Repaired 3/10/94
- V. E-10-1, Behind Lot 85 Ridgecrest, Repaired 3/10/94
- VI. H-8, 1130 Laubach
- VII. Lot 15 FM 20

Leakage estimates of repaired leaks: 20,400 G.P.D.  
Leaks to be repaired: 3

5. Customer Side Leaks..... 3

Customer side leaks were generally small. Customers were notified when possible or will be notified by Springs Hill personnel.

A list of these leaks is included in Appendix A.

F. General

1. Unresolved Sounds

- I. D-9 Elm Grove Rd. @ Fifth St. sound on fire hydrant valve only.
- II. G-11 Hwy 46 @ Texas Highway Department. Two closed system division valves have strong sound of water leaking through.

2. Other

- I. I-9 Oak Springs Subdivision. Three fire hydrants were found to be valved off at the main. All three valves were opened and fire hydrants flushed.

G. Survey Findings Vs. Master Water Plats

1. Valves shown on the plats that could not be located: 60

- I. Main Valves: 49
- II. Flush Valves: 8
- III. Air relief valves: 3

A list of these valves is included in Appendix B.

2. Fire Hydrants that could not be located: 16

A list of these fire hydrants is included in Appendix C.

3. Services that could not be located: 77

A list of these services is included in Appendix D.



Suspected locations were surveyed by EUWD with a ferromagnetic detector to locate buried services and valves. When successful, the locations were excavated or marked. It is conceivable that additional valves remain unlocated within the system. These items are highlighted on the plats in blue.

4. Valves, services, fire hydrants and main footage, located, but not shown on plats.

- I. Main Valves: 20
- II. Flush Valves: 9
- III. Services 202
- IV. Fire Hydrants: 23
- V. Main Footage: 5,050

Valves, services, fire hydrants, and main located were hand drawn and highlighted in blue on the updated master water plats.

A list of these valves is included in Appendix E, services in Appendix F, fire hydrants in Appendix G, and main footage in Appendix H.

#### H. Miscellaneous Maintenance Needed

1. Valves or valve stacks needing cleaning, repair, or missing lids..... 23
  - I. Valve stack raise to grade: 11
  - II. Missing lids: 7
  - III. Valve stack cleaning needed: 5
2. Meter box missing..... 1
3. Fire hydrant missing cap..... 1

A list of these items is included in Appendix I.

#### I. General notes for updated master water plats included with this report:

1. All mains were surveyed from all available access points.
2. All valves located were surveyed. When direct contact could not be made, a probe rod was used.
3. Fire hydrants labeled on the plats as fire hydrants without lead valves are hydrants where the lead valve could not be located or does not exist.
4. Any item circled and highlighted in blue on the plats indicate that it was added, could not be located, or needs repair.
5. Leak locations have been highlighted on the plats in yellow.

6. Abbreviations Used on Revised Master Plats:

UTL - Unable to Locate  
UTS - Unable to Survey  
NC - Needs Cleaning  
RTG - Raise to Grade  
CCNH - Curb Cock Not Holding  
FHWV - Fire Hydrant with Valve  
FH - Fire Hydrant Without Valve  
ARV - Air Relief Valve  
PCV - Pressure Control Valve  
SV - Service Valve  
PIV - Post Indicator Valve  
BFP - Back Flow Preventer  
NR - Needs Repair

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

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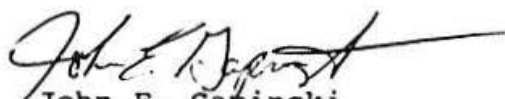
## RECOMMENDATIONS AND COMMENTS


- I. Accelerate rate of repair on all known system leaks and maintain an ongoing program to locate and repair leaks that become visible "or surface". Studies have generally shown that the life of a leak depends on the type of subsoil. In areas with sandy soil or limestone strata, for example, water from a leak may not surface near its source and may not surface at all. Clay soils are more likely to force leaking water to the surface but even this is not always the case. Leaks are often found to enter storm and sanitary sewers, as well as percolate down through soil.
- II. Revise master water distribution plats from "As built" plans, EUWD plat, and utilizing the knowledge and expertise of long-term field employees. Master plats should show locations of all main valves, fire hydrants, blow offs, drain or flush valves, air relief valves, and pressure regulating valves. Revised plats should be made available to field maintenance personnel for use in the operation and maintenance of the water distribution system. Consider adding service addresses or account numbers to service locations on the plats to assist field customer service employees.
- III. Utilizing the revised master distribution plats, all distribution system main line valves should be located, adjusted, marked, cleaned, tested, and repaired or replaced as needed. The use of valve marker posts are recommended on main line valves that are subject to being lost or buried. Time spent searching for lost or buried main valves and flushing fire hydrants to reduce pressure and volume for leak repair is a major source of water loss. Consider replacing plastic valve box lids with metal lids to facilitate valve locating with a metal detector.
- IV. A thorough evaluation of the water distribution systems air relief needs should be conducted. Air relief valves should be located, inspected, repaired, replaced, or installed as needed. Transmission and cross-country mains with moderate to major elevation differentials should have the highest priority.
- V. Easements or rights-of-way on cross-country mains should be cleared, mowed, and maintained in order to expedite leak repair and allow access by post utility personnel for routine visual inspection.
- VI. Consider ductile iron pipe for the primary main line material used for new installations and main replacement. As the production costs of water increase, 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 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.

- VIII. Review the existing water distribution system and future water system improvements to ensure sufficient access points are in place to facilitate future leak detection/location surveys.
- IX. During the course of the survey, EUWD noted numerous fire hydrants behind fences or with pumper nozzles facing away from the road. Fences and fire hydrants should be adjusted to facilitate access by local fire departments. Additionally, numerous meter boxes were found with lids removed to facilitate meter reading. This is a potentially dangerous situation for citizens and Springs Hill alike.
- X. In Texas, as well throughout much of the country, water has become a precious commodity which must be used efficiently. Every utility should be a leader in promoting conservation and setting an example for its customers by reducing unaccounted for water to a minimal level. Springs Hill will benefit by saving the production cost of water lost through leakage while simultaneously increasing accountabilities through a comprehensive water auditing program.

Unaccounted for water is the difference between the amount of water a utility produces and the amount of water it can account for in sales and other known uses for a given period. Because water has been relatively cheap and easy to produce in the past, many utilities have not considered the reduction of unaccounted for water to be a cost effective way to lower operating costs. With the upward spiral of today's water production costs, the expense of funding unaccounted for water can often be made up within a short time. Reducing the amount of unaccounted for water provides other benefits as well. In effect, finding unaccounted for water recovers production capacity that has been lost to leaks or unauthorized uses. The additional capacity may allow Springs Hill to defer capital construction expenditures for new water supplies and water system expansion. The life of pumping and treatment equipment can be extended because the equipment will not be forced to work as hard to meet the demand. For the same reasons, maintenance and operating costs can also be reduced.

- XI. The active participation of Ben Riojas in this survey is greatly appreciated. His enthusiasm and professional work habits contributed to its completion. We commend your interest in water conservation and are grateful for the opportunity to survey your water system. Your efforts and the timely repair of the leaks recorded in this report will save a significant amount of precious Edwards aquifer water.

  
John E. Gapinski  
Leak Detection Technician I

  
James R. Shipley  
Leak Detection Technician II

JEG:JRS/bmc  
003jrs

# APPENDIX A

## Edwards Underground Water District Customer Side Leak List 1994

System: City of Springs Hill

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Line #	Date #	Plat	Address	Comments
1	1/31	D-5	134 Sauder Dr.	Notified
2	2/9	D-5	154 Sauder Dr.	
3	2/9	D-5	114 Sauder Dr.	Notified
4	2/9	D-5	122 Sauder Dr.	Notified
5	2/9	D-5	3 Delia	Notified
6	2/9	D-5	5 Patricia	Notified
7	2/9	D-9	335 River Springs	
8	2/9	G-11	Villa Vista Lot 15	
9	2/9	G-11	Villa Vista Lot 62	
10	2/9	G-11	Hwy 46 across from Tx Hwy Dept.	Notified
11	2/10	E-8	502 Elm Grove	Notified
12	2/10	D-9	469 Second St.	
13	3/1	H-5-A	231 McKinney	
14	3/4	I-8	2754 Laubach	
15	3/14	I-9	2170 Martindale	
16	3/14	J-8	Oak Springs south of Laubach	Notified
17	3/14	H-7	2230 Willman	Notified
18	3/22	G-5	2132 County Rd. 107	
19	3/23	F-4	County Rd. 107A L. L. Dumaway	Notified
20	3/28	E-10-1	227 Lake Ridge	
21	3/28	E-10-1	213 Lake Ridge	

## APPENDIX A

### Edwards Underground Water District Customer Side Leak List 1994

System: City of Springs Hill

Page 2 of 2

Line #	Date #	Plat	Address	Comments
22	3/28	F-10	80 Laguna Vista	
23	3/28	H-5-4	230 Ditmar	Notified
24	3/28	H-6	5523 Hwy 123	Notified
25	3/28	E-4	2nd house on Goldway	Notified



## APPENDIX B

### Edwards Underground Water District Valves/Unable to Locate 1994

System: City of Springs Hill

Page 1 of 3

Line #	Plat #	Address	Type of Valve	Number of Valves
1	D-6	Hwy 46 @ Center Street	Main Valve	1
2	D-6	Hwy 46 @ County Rd. 130	Main Valve	1
3	D-6	West St. @ Ella St.	Main Valve	1
4	D-6	Helen Rd. Lot 12	Main Valve	1
5	D-6	Center St. @ Flores St.	Main Valve	1
6	D-6	Center St. @ Bus St.	Main Valve	1
7	D-6	Center St. east of Ann St.	Flush Valve	1
8	D-7	Hwy 46 northeast of Ewald Rd.	Air Relief Valve	1
9	D-8	Las Brisas south of Aqua Dulce	Main Valve	1
10	D-9	East of First St.	Flush Valve	1
11	E-6	Ewald Rd.	Flush Valve	1
12	E-6	Krause Ln.	Flush Valve	1
13	E-7	Hwy 46 northeast of County Rd. 118	Main Valve	1
14	E-8	Elm Grove Rd. @ Hwy 46	Main Valve	2
15	E-8	Cordova @ Hwy 46	Main Valve	1
16	E-8	County Rd. 114 @ Hwy 46	Main Valve	2
17	E-8	Elm Grove Rd.	Air Relief Valve	1
18	E-9	Near Guadalupe River	Main Valve	1
19	E-9	West of Hwy 46	Air Relief Valve	1
20	E-10	Hwy 46 @ County Road 104	Main Valve	1
21	E-10	Lake Village Rd.	Main Valve	1

## APPENDIX B

### Edwards Underground Water District Valves/Unable to Locate 1994

System: City of Springs Hill

Page 2 of 3

Line #	Plat #	Address	Type of Valve	Number of Valves
22	E-10	Lake Ridge Estates	Main Valve	1
23	E-10	Northeast corner of plat - no street name	Main Valve	2
24	E-10-1	Lake Village Rd.	Main Valve	1
25	E-10-1	Between County Rd. and Ridge Crest Lot 105	Main Valve	1
26	E-10-1	Ridge Crest @ Lake Ridge	Main Valve	2
27	E-11-1	Lake Village Rd. @ Trails End	Main Valve	2
28	E-11-1	Bobwhite Trail @ Red Fox Run	Main Valve	1
29	F-4	Pieper Rd.	Main Valve	1
30	F-4	Silver Star Lane @ Southstar	Main Valve	1
31	F-8	County Rd. 108 @ County Rd. 107A	Flush Valve	1
32	F-11	Hwy 46	Main Valve	1
33	F-11	Hwy 46	Flush Valve	1
34	G-3	Huebner Rd.	Main Valve	1
35	G-4	County Rd. 105	Main Valve	1
36	G-5	County Rd. 107	Main Valve	2
37	G-6	County Rd. 118	Main Valve	1
38	G-11	Hwy 46	Main Valve	1
39	H-5	County Rd. 122	Main Valve	1
40	H-5A	Hwy 123	Main Valve	3
41	H-5A	County Rd. 121	Main Valve	2



## APPENDIX B

### Edwards Underground Water District Valves/Unable to Locate 1994

System: City of Springs Hill

Page 3 of 3

Line #	Plat #	Address	Type of Valve	Number of Valves
42	H-5A	County Rd. 107	Main Valve	1
43	H-5A	Hwy 123 north of McKinney Ave.	Flush Valve	1
44	H-6	County Rd. 118 @ Hwy 123	Main Valve	1
45	H-7	County Rd. 111 @ Hwy 123	Main Valve	1
46	H-7	County Rd. 111 @ Hwy 123	Flush Valve	1
47	H-8	County Rd. 110	Main Valve	1
48	I-8	Laubach Rd. @ County Rd. 109	Main Valve	1
49	I-8	Laubach Rd. west of Oak Spring	Main Valve	1
50	I-9	Oak Springs @ FM 20	Main Valve	1
51	I-9	Road south of FM 20	Main Valve	1

## APPENDIX C

### Edwards Underground Water District Fire Hydrants/Unable to Locate 1994

System: City of Springs Hill

Page 1 of 1

Line #	Plat #	Address	Number of Hydrants
1	D-8	Las Brisas Blvd.	4
2	D-8	Las Brisas @ Colina	1
3	D-8	Bosque	1
4	D-8	Encantada	1
5	D-8	Las Brisas Lot 37	1
6	D-8	Paseo De Rio Lots 110, 118, 125	3
7	E-10-1	Ridge Crest Lot 69	1
8	E-11-1	Red Fox Run Lot 213	1
9	F-4	County Road 107A @ Pieper	1
10	G-4	County Rd. 105	1
11	G-11	Hwy 46	1

# APPENDIX D

## Edwards Underground Water District Services/Unable to Locate 1994

System: City of Springs Hill

Page 1 of 2

Line #	Plat #	Address	Number of Services
1	D-6	Hwy 46 southeast of Center St.	1
2	D-6	Hwy 46 northeast of Center St.	1
3	D-8	Aqua Azul	1
4	D-8	Aqua Verde	1
5	D-9	East of Lot 1 on First St.	1
6	D-9	Lake Drive Lot 6	1
7	E-4	County Ranch Rd. northeast of Pieper Rd.	2
8	E-6	Krause Lane	12
9	E-6	Ewald Rd.	3
10	E-8	Hwy 46 northeast of Elm Grove	1
11	E-8	Cordova	2
12	E-8	Hwy 46 @ Elm Grove Rd.	1
13	E-9	Hwy 46 service #451	1
14	E-10	Hwy 46 @ County Rd. 104	1
15	E-10	Lake Ridge Lots 71, 72	2
16	E-11-1	Trails End Lots 258, 254, 253, 252, 251, 250, 249	7
17	E-11-1	Palomino Run Lots 229, 233, 225, 222	4
18	E-11-1	Lake Village Road Lots 232	1
19	F-4	County Rd. 107A	2
20	F-5	County Rd. 107A	1

## APPENDIX D

### Edwards Underground Water District Services/Unable to Locate 1994

System: City of Springs Hill

Page 2 of 2

Line #	Plat #	Address	Number of Services
21	F-8	County Rd. 108	1
22	G-5	County Rd. 107 Lot 180	1
23	G-8	County Rd. 105	1
24	G-11	Hwy 46	1
25	H-4	East of Geronimo Rd. Lot 94	1
26	H-5	FM 2623	1
27	H-6	County Rd. 118 Lot 55	1
28	H-7	County Rd. 120	4
29	H-7	Hwy 123 southwest of Bartelo Rd.	1
30	H-7	County Rd. 111 Lot 39E	1
31	H-8	County Rd. 110	1
32	H-8	County Rd. 108 Lot 4	1
33	I-6	Apache Trail Lot 8	1
34	I-9	County Rd. 109	5
35	I-9	FM 20	9
36	I-9	Road south of FM 20	1

# APPENDIX E

## Edwards Underground Water District Valves Added to Plats 1994

System: City of Springs Hill

Page 1 of 2

Line #	Plat #	Address	Type of Valve	Number Added
1	D-5	Hwy 46 @ Sauder Ln.	Main Valve	1
2	D-5	Pieper Ln.	Flush Valve	1
3	D-5	Hwy 46 northeast of Krause	Flush Valve	1
4	D-6	Hwy 46 southeast of Center St.	Flush Valve	1
5	D-6	West St. @ Ellen St.	Main Valve	1
6	D-8	Las Brisas Blvd. @ Caminos	Main Valve	2
7	D-9	Paseo Del Rio Lot 130	Main Valve	1
8	E-5	Krause Ln.	Flush Valve	1
9	E-6	Ewald Rd.	Main Valve	1
10	E-9	County Rd. 114	Main Valve	1
11	E-9	South of County Rd. 114	Flush Valve	1
12	E-10	Lake Ridge Estates	Main Valve	1
13	E-10	County Rd. 104	Main Valve	2
14	E-10-1	Lake Village Rd.	Main Valve	1
15	E-10-1	Between Ridge Crest Dr. and County Rd. 106	Main Valve	1
16	E-11-1	Lake Village Rd. Lots 231-2232	Main Valve	2
17	F-4	Pieper Rd. @ Southstar	Main Valve	1
18	F-4	Pieper Rd. @ County Rd. 107A	Main Valve	1
19	G-7	County Rd. 118 @ Country Rd. 105	Main Valve	1
20	H-5-A	McKinney Ave. @ Koelig St.	Main Valve	2
21	H-6	Hwy 123	Flush Valve	1

## APPENDIX E

### Edwards Underground Water District Valves Added to Plats 1994

System: City of Springs Hill

Page 2 of 2

Line #	Plat #	Address	Type of Valve	Number Added
22	H-7	County Rd. 120 @ Hwy 123	Main Valve	1
23	H-8	County Rd. 108	Main Valve	1
24	I-6	Geromino Trail	Flush Valve	1
25	I-9	FM 20	Flush Valve	1

# APPENDIX F

## Edwards Underground Water District Services Added To Plats 1994

System: City of Springs Hill

Page 1 of 4

Line #	Plat #	Address	Number Added
1	D-5	Hwy 46 northeast of Vogel Ln.	1
2	D-5	Pieper Ln.	1
3	D-6	Krause Ln.	5
4	D-6	Hwy 46 northeast of Krause Ln.	1
5	D-6	Sauder Dr. Lot 21	1
6	D-6	Ellen St. Lot 6	1
7	D-6	Doris St. Lot 7, 4	2
8	D-6	Helen St. Lot 24	1
9	D-6	Center St. Lot 5	1
10	D-6	Greata St. Lot 11, 13, 14, 15	4
11	D-6	Ann St. Lot 21	1
12	D-9	Las Brisas Bldg. Lots 37, 65, 66, 67	4
13	D-9	Paseo Del Rio Lots 68, 69, 70, 71, 72, 73, 74, 88, 89, 90, 91, 92, 93, 98, 100, 101, 102, 104, 105, 106, 113, 120, 125, 129, 127	25
14	D-9	Arroyo Lots 82, 83, 84, 86	4
15	D-9	Bosque Lots 47, 48, 49, 50, 51, 52, 54, 55, 57, 58, 59, 60, 62, 63	14
16	D-9	Second St. Lots 8, 11, 3	3
17	D-9	Fourth St. Lots 2, 34	3
18	D-9	First St. Lots 11, 13	2
19	D-9	River Dr. Lot 6	1
20	E-4	County Rd. 130	1

# APPENDIX F

## Edwards Underground Water District Services Added To Plats 1994

System: City of Springs Hill

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Line #	Plat #	Address	Number Added
21	E-4	West of County Rd. 129	1
22	E-5	County Rd. 130	1
23	E-5	Krause Lane	4
24	E-6	Krause Lane	7
25	E-6	Ewald Rd.	1
26	E-8	Road south of Elm Grove	1
27	E-9	County Rd. 114	1
28	E-9	Hwy 46	1
29	E-10	Windwood Subdivision Lots 1, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 21, 22, 24, 26, 28, 23, 25, 27, 33, 34, 35, 36, 37, 38, 39, 40, 42, 43	30
30	E-10	County Rd. 104	2
31	E-10	County Rd. 106	3
32	E-10	Lake Ridge Estates	1
33	E-10-1	East of Ridge Crest Lot 98	1
34	E-10-1	Ridge Crest Lots 71, 72	2
35	E-10-1	County Rd. 106 Lot 105	1
36	E-10-1	Lake Ridge Dr. Lots 8, 9, 11, 31, 48, 59	6
37	E-10-1	Lake Village Rd. Lot 100	1
38	E-11-1	Bobwhite Trail Lot 236	2
39	E-11-1	Palomino Run Lots 233, 234	2
40	F-4	County Road 107A	1



# APPENDIX F

## Edwards Underground Water District Services Added To Plats 1994

System: City of Springs Hill

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Line #	Plat #	Address	Number Added
41	F-4	South of County Rd. 130	1
42	F-4	County Rd. 107A north of County Rd. 130	2
43	F-4	Southstar Lot 214	1
44	F-4	County Rd. 130 Lot 211	1
45	F-5	County Rd. 107	1
46	F-8	County Rd. 107A	1
47	F-11	Hwy 46	1
48	G-4	County Rd. 105	1
49	G-5	County Rd. 107	1
50	G-6	County Rd. 118	1
51	G-8	County Rd. 105	1
52	G-11	Lots 3, 4, 5, 6, 10, 11, 13, 19, 21, 23, 26, 27, 28, 31, 32, 35, 36, 37, 41, 42, 43, 45, 47, 48, 50, 51, 53, 59	28
53	H-4	Geronimo Rd.	1
54	H-5	FM 2623	1
55	H-5-A	County Rd. 107 Lot 114	1
56	H-5-A	Koebig St. Lot 113	1
57	H-5-A	County Rd. 107	1
58	H-8	County Rd. 110, Lots 36, 40	2
59	H-8	County Rd. 108	2
60	I-7	County Rd. 120	3

## APPENDIX F

### Edwards Underground Water District Services Added To Plats 1994

System: City of Springs Hill

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Line #	Plat #	Address	Number Added
61	I-7	County Rd. 111, Lot 44	1
62	I-8	Oak Spring Lot 28	1
63	I-9	Oak Spring	2
64	I-9	FM 20	1

## APPENDIX G

### Edwards Underground Water District Fire Hydrants Added to Plats 1994

System: City of Springs Hill

Page 1 of 1

Line #	Plat #	Address	Number Added
1	D-6	Delta @ Sauder	1
2	D-6	Cora Circle @ Sauder	1
3	D-6	Ann St. @ West St.	1
4	D-6	Ann St. Lot 22	1
5	D-9	Fifth St.	1
6	D-9	Las Brisas @ Paseo Del Rio	1
7	D-9	Paseo Del Rio @ Arroya	1
8	E-9	Hwy 46	1
9	E-9	County Rd. 104	3
10	E-9	Windwood Subdivision Lots 1, 27, 31, 33, 36, 38, 41	7
11	E-9	Street east of County Rd. 106	1
12	E-11-1	Red Fox Run Lot 214	1
13	F-4	County Rd. 107A North of Pieper	1
14	G-6	County Rd. 118	1
15	I-9	Oak Springs Road	1

## APPENDIX H

### Edwards Underground Water District Main Added to Plats 1994

System: City of Springs Hill

Page 1 of 1

Plat #	Address	Footage
E-5	County Rd. 117	650'
E-10-1	Between County Rd. 106 to Lake Ridge	1800'
G-6	County Rd. 118	1000'
G-7	County Rd. 1600	1600'

**APPENDIX I**  
**Edwards Underground Water District**  
**Repairs Needed**  
**1994**

System: City of Springs Hill

Page 1 of 1

Line #	Plat #	Address	Needed	Number Needed
1	D-6	Florus @ Center St.	Valve Box Lid	1
2	D-6	Helen St. Lot 22	Valve Box Lid	1
3	D-6	216 West St.	Valve Box Lid	1
4	D-6	West St. @ Greta St.	Valve Box Lid	1
5	D-7	Hwy 46 northwest of Ewald	Air Relief Valve Needs Cleaning	1
6	E-8	County Rd. 114 @ Hwy 46	Valve Box Lid	1
7	E-8	Elm Grove @ Hwy 46	Valve Box Lid	2
8	E-10	Laguna Vista past Fire Hydrant	Valve Stack Needs Raise to Grade	1
9	F-4	Gold @ Pieper	Valve Stack Needs Cleaning	1
10	G-5	Huber @ County Rd. 107	Valve Stack Raise to Grade	1
11	G-6	Huber @ County Rd. 118	4 Valves and Flush Valve Raise to Grade	5
12	G-11	Vista Villa Lot 33	Needs Meter Box	1
13	H-8	Hwy 123 @ County Rd. 108	Valve Stacks Cleaning Raise to Grade	3
14	I-8	Oak Springs @ Lubach	Valve Stack Raise to Grade	1
15	I-9	Oak Springs @ FM 20	Fire Hydrants need 2-1/2" cups	1