

REPORT 96-01

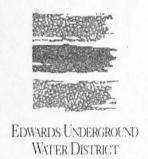
LEAK DETECTION / LOCATION SURVEY REPORT

FOR

THE CITY OF CONVERSE
BEXAR COUNTY, TEXAS

JULY 5, 1995 - OCTOBER 24, 1995





6.25-7.5

January 12, 1996

OFFICERS

JERRI W. MARTIN CHAIR HANS R. F. HELLAND VICE CHAIRMAN JACK R. OHLRICH SECRETARY GUENTER KRELLWITZ TREASURER

DIRECTORS

BEXAR COUNTY

CAROL G. PATTERSON COUNTY AREA CHAIR GENE L. AMES, III JO ANN S. DE HOYOS HANS R. F. HELLAND GUENTER KRELLWITZ ERNEST QUIROGA

COMAL COUNTY

JACK R. OHLRICH COUNTY AREA CHAIR S. CRAIG HOLLMIG KENNETH G. IKELS

HAYS COUNTY

A. KAYLENE RAY COUNTY AREA CHAIR HARRY BISHOP JERRI W. MARTIN

RICK ILLGNER GENERAL MANAGER Mr. Keith Dickerson Director of Public Works City of Converse 9239 Converse Business Lane Converse, Texas 78109

Dear Mr. Dickerson:

We are pleased to submit this final report of the leak detection survey performed on City of Converse 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 Juan Perez and Jerome Radtke 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.

Please convey our commendations and thanks to Manuel Troncoso, Jonathan Smith, Shawn Rhein, Joe Reina, and Leroy Brice for their assistance in this project. The Edwards Underground Water District sincerely appreciates your water conservation efforts. Should Mr. Keith Dickerson January 12, 1996 - Page 2

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

Sincerely,

John E. Gapinski

Jol 7. Seport

Leak Detection Technician I

James R. Shipley

Leak Detection Technician II

James R. Shipley

JEP:JRS/ bmc Enclosures

002jrs

LEAK DETECTION / LOCATION SURVEY REPORT FOR THE CITY OF CONVERSE BEXAR COUNTY, TEXAS

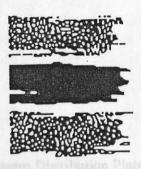
July 5, 1995 - October 24, 1995

By

John E. Gapinski and James R. Shipley of the

EDWARDS UNDERGROUND WATER DISTRICT

Division of Planning and Environmental Management Leak Detection/Location Program December, 1995



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

TABLE OF CONTENTS

	<u>Page</u>
the production of the state of the control of the c	
SUMMARY	
DISCUSSION	2
RECOMMENDATIONS AND COMMENTS	

APPENDICES

- A. Service Leaks
- B. Fire Hydrants Leak
- C. Meter Box Leaks
- D. Customer Side Leaks
- E. Added To Plats
- F. Unable To Locate
- G. Repairs Needed

ENCLOSURES TO REPORT

A. Revised Master Water System Distribution Plats

SUMMARY

On May 12, 1995, the Edwards Underground Water District (EUWD) received a request from the City of Converse to perform a leak detection / location survey on its water distribution system. A pre-survey conference was held June 28, 1995, at the City of Converse Public Works Center 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 at the conclusion of the survey.

John E. Gapinski of EUWD began the survey on July 5, 1995, and the survey was concluded on October 24, 1995. Over the course of the survey, EUWD surveyed a total of 4,758 access points including 3,455 customer service connections, 306 fire hydrants, 922 valves, and 75 other access points covering 46.27 miles of distribution main. Computer leak sound correlation was performed at 1 location by EUWD.

EUWD surveyors detected 47 utility side leaks and 39 customer side leaks for a total of 86 leaks. The utility side leaks included 9 service leaks, 30 meter box leaks, 2 main valve leaks, 1 main leak, and 5 fire hydrant leaks. EUWD estimates 29,581 gallons of water per day has been saved by the repair of 39 utility side leaks as of October 24, 1995. The leaks discovered during the survey range from 13,680 gallons per day to numerous small meter box leaks.

As part of the survey, EUWD located 118 valves of various types, 66 fire hydrants, and 11,400 feet of main not shown on the master water plats. EUWD surveyors were unable to locate 54 valves of various types and 1 fire hydrant shown on the master water plats. An additional 37 items were discovered to need some type of repair or adjustment.

DISCUSSION

A. Total Access Points Surveyed: 4,758

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

Customer Service Connections: 3,455

Main Valves: 922 Fire Hydrants: 306

Others: 75

B. Total Miles of Distribution Main Surveyed: 46.27

C. Total Leaks Detected: 86

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

Service Leaks: 9
Fire Hydrant Leaks: 5
Meter Box Leaks: 30
Customer Side Leaks: 39

A detailed listing of these leaks is recorded in appendices A through D. Separate appendices are provided for each category of leak.

Valve Leaks: 2

801 Meadow Dawn: Repaired 8/7/95

223 Kingsman: Repair Pending

Main Leaks: 1

8940 F.M. 78: Repaired 7/18/95

D. Detected Utility Side Leaks Not Repaired, as of October 24, 1995: 8

E. Total Estimated Water Saved by Repair of Detected Utility Side Leaks In Gallons Per Day as of, October 24 1995: 29,581

Leakage estimates for main line, service line, fire hydrants, and valve leaks are based on hole size and system pressure in pressure per square inch. This information was furnished by City of Converse personnel when EUWD was not on site at the time of repair. Totals are only recorded for leaks repaired as of October 24, 1995 with estimates.

Service Leaks: 20,145 GPD Fire Hydrant Leaks: 1,560 GPD Meter Box Leaks: 4,774 GPD

Valve Leaks: 26 GPD Main Leaks: 3,076 GPD

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 Converse personnel.

F. Field Survey Findings Vs. Master Water Plats.

1. Water system access points that could not be located: 55

Main Line Valves: 45 Blow Off Valves: 9 Fire Hydrants: 1

Suspected locations were surveyed by EUWD with a ferromagnetic detector to locate buried valves. When successful, these locations were marked. It is conceivable that additional valves remain unlocated within the system. All valve box lids located were painted blue.

A list of these items are included in appendix F.

2. Valves located, but not shown on plats: 118

Service Valves: 4
Fire Line Valves: 2
Fire Hydrant Valves: 1
Main Valves: 90

Blow Offs With Valves: 21

A list of these valves is included in appendix E.

3. Feet of main located, but not shown on plat: Approximately 11,400'

Kitty Hawk between Mesquite Pass and Scenic Circle. 800'

Kitty Hawk east of Toepperwein Rd. 400'

Schumann Rd. 200'

Dana Dr. 600'

F.M. 78 between Kneupper Ave. and F.M. 1604. 1,700'

Converse Business Park Lane. 2,000'

F.M. 1516 between Rocket Lane and F.M.78. 700'

F.M.78 between F.M.1516 and Rocket Lane. 200'

F.M.78 west of Rocket Lane. 200'

Coppergate. 2,400'

Toepperwein Rd. Between 3rd. St. and 4th. St. 2,200'

4. Fire hydrants located, but not shown on plats: 66

Fire hydrant with valve: 61 Fire hydrant without valve: 5

A list of these fire hydrants is included in appendix E.

G. Miscellaneous Maintenance Needed

Valve Stacks Needing Raise To Grade: 24

Replacement Needed: 4 Cleaning Needed: 8 Lids Needed: 1

A list of these items is included in appendix G.

H. Revisions To The Master Water System Distribution Plats Included With This Report

The 42" by 84", 1" = 400' Water Distribution Plat furnished by the City of Converse has been revised to reflect what was found in the field survey. Abandoned mains and streets and mains that were not build have been removed from the revised plat.

Abbreviations Used on the Revised Distribution System Plats:

UTL -- Unable To Locate

NC -- Needs Cleaning

RTG -- Raise To Grade

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.

Any item circled and highlighted in yellow on the plats indicates that it was added, could not be located, or needs repair. All items are labeled on the plats.

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 <u>best guess</u> 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

Revise master water distribution plats from "As built" plans, EUWD plats, and utilizing the knowledge and expertise of long term field employees. Master plats should show locations of all main valves, fire hydrants, blow off valves, drain or flush valves, air relief valves, and pressure regulating valves. Revised plats should be made available to field maintenance supervisors for use in the operation and maintenance of the water distribution system.

Implement an ongoing in-house main line valve preventive maintenance program for inspection and operation of all system valves. All distribution system valves should be located, cleaned, operated, repaired or replaced as needed on a routine basis. The use of valve markers are recommended on valves subject to being lost or buried.

The time spent on lost, buried, or nonoperational valves, and/or the flushing of fire hydrants to reduce pressure and volume to effect leak repair is an additional major source of water loss in leak repair.

Implement an ongoing fire hydrant preventive maintenance program in-house or in conjunction with the fire department. All hydrants should be inspected, flushed, lubricated, and painted on a routine basis. Lead valves should be installed as part of the installation on all new or replacement fire hydrants

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.

Consider ductile iron pipe for the primary main line material used for new installation and main replacement. As the production cost 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 pipe has a proven history of long service life and its sound carrying characteristics for leak detection are far superior to any other type if pipe material.

Placement of well flow meters should be checked against meter manufacturer specifications for recommended straight pipe lengths both upstream and downstream of meter. All meters have limitations due to piping configurations. An improperly located or installed meter will degrade the inherent specified accuracy below an

acceptable level. Meters installed in close proximity to a bend, valve, or other fitting that is likely to disturb the flow conditions at the meter could invalidate the manufactures meter calibration. EUWD recommends that all well meters and a percentage of large commercial meters be tested **in place** yearly for accuracy.

We are continually impressed by the pride and professionalism exhibited by all members of the Utilities Department. The quality workmanship and efficiency displayed by the staff reaffirmed the high standards we have come to expect from the City of Converse. The successful partnership we have established has once again saved a significant amount of precious water and benefited all citizens of the Edwards Aquifer region. The Edwards Underground Water District appreciates the water conservation efforts and recognizes the high level of cooperation provided. Please convey our commendations and thanks to Manuel Troncoso, Jonathan Smith, Shawn Rhein, Joe Reina, and Leroy Brice for their diligence in helping to conserve the Edwards Aquifer.

John E. Gapinski

Leak Detection Technician I

James R. Shipley

Leak Detection Technician II

James R Shiply

CITY OF CONVERSE SERVICE LINE LEAK LIST / 1995 APPENDIX A

						Page 1 of 1
Line#	<u>Date</u>	Address	Loss G.P.M.	Date Repaired	Comments	Recheck <u>Date</u>
1	7/17	8120 Pioneer Oak		Pending		
2	7/17	8026-30 Pioneer Oak		Pending		
3	8/7	9819 Flatland	26	10/17	Tee	10/18
4	8/8	318 Deborah	13,680	9/6		9/6
5	9/5	318 Deborah	120	9/5	Coupling	9/5
6	9/5	117 Meadow Way	1,440	10/17		
7	9/11	8465 F.M. 1976	3,439	9/13	Hole in copper	9/13
8	8/25	9710 Autumn Way	1,440	9/5	Tee	9/5
9	10/10	307 Castle Court		Pending		

CITY OF CONVERSE FIRE HYDRANT LEAK LIST / 1995 APPENDIX B

Page 1 of 1

Line#	<u>Date</u>	Address	Loss G.P.M.	Date Repaired	Comments	Recheck <u>Date</u>
1	7/7	Scenic @ Mission Creek	120	7/7	Flushed/Reseated	7/7
2	8/22	10037 Palomino Canyon	720	8/22	Flushed/Reseated	8/22
3	8/7	813 Meadow Dawn	360	8/7	Flushed/Reseated	8/7
4	8/24	Hilltop @ 6th. St.		Pending		
5	8/24	209 Brenda	360	8/24	Flushed/Reseated	8/24

CITY OF CONVERSE METER LEAK LIST / 1995 APPENDIX C

Page 1 of 2

Line#	<u>Date</u>	Address	Loss <u>G.P.M.</u>	Date Repaired	Recheck <u>Date</u>
1	7/6	10415 Mustang Ridge	9	7/6	7/6
2	7/6	7507 Rocky Trail	60	7/6	7/6
3	7/7	10107 Mission Creek	43	7/7	7/7
4	7/7	10306 Vigilante Trail	9	8/22	8/22
5	7/20	7908 Wells Fargo	9	8/22	8/22
6	8/22	8208 Pioneer Oak	17	8/22	8/22
7	8/22	9710 Wagon Train	9	8/22	8/22
8	8/7	9831 Flatland Trail	17	8/7	8/7
9	8/22	16108 Vigilante Trail	120	8/22	8/22
10	8/7	718 Meadow Top	26	8.7	8/7
11	8/7	808 Meadow Dawn	17	8/7	8/7
12	8/23	518 Erna	4	8/23	8/23
13	8/23	9508 Misty Meadow	9	8/23	8/23
14	8/23	9831 Meadow Lark	17	8/23	8/23
15	8/23	9804 Meadow Hills	34	8/23	8/23
16	8/23	Tillo	26	8/23	8/23
17	8/23	Jan Mille	240	8/28	8/28
18	824		9	8/24	8/24
19	8/17	Pl	720	10/17	10/18

CITY OF CONVERSE METER LEAK LIST / 1995 APPENDIX C

Page 2 of 2

Line#	<u>Date</u>	Address	Loss G.P.M.	Date Repaired	Recheck <u>Date</u>
20	8/23	Little Sugar Creek	9	8/23	8/23
21	8/24	8416 8th Street	26	8/24	8/24
22	8/17	703 Dana	360	8/18	8/18
23	8/24	213 Legion	43	8/25	8/25
24	8/25	103 Ave. F	43	8/25	8/25
25	10/10	105B Ave. G		Pending	
26	10/10	574 Oak	9	10/10	10/10
27	10/10	713 Willow	9	10/10	10/10
28	10/11	9205 Kneupper	2,880	Unknown	1/9
29	10/11	248 Ralston		Pending	
30	10/18	220 Ralston		Pending	

CITY OF CONVERSE CUSTOMER SIDE LEAK LIST / 1995 APPENDIX D

Page 1 of 3

Line#	<u>Date</u>	Address
1	7/6	7426 Redman Pass
2	7/6	10718 Mustang Ridge
3	7/6	10730 Mustang Ridge
4	7/17	10325 Vigilante Trail
5	7/17	10309 Vigilante Trail
6	8/7	10039 Sierra Pass
7	7/20	10107 Outlaw Bend
8	7/17	7915 Rifle Rock
9	7/20	9915 Wagon Train
10	7/20	10116 Windburn Trail
11	8/22	10340 Flatland Trail
12	8/7	9910 Covered Wagon
13	8/7	601 Meadow Forge
14	8/22	610 Meadow Gate
15	8/22	608 Meadow Gate
16	8/22	440 Bridgit
17	8/22	425 Bridgit
18	8/22	403 Bridgit

CITY OF CONVERSE CUSTOMER SIDE LEAK LIST / 1995 APPENDIX D

Page 2 of 3

Line#	<u>Date</u>	Address
19	8/22	222 Kimberly
20	8/23	9312 Misty Meadow
21	8/23	9835 Meadow Lark
22	8/23	204 Green Meadow
23	8/23	10623 Cross Plain
24	8/2	121 Meadow Dr.
25	8/25	9719 Autumn Hollow
26	8/28	405 Jeanette
27	8/25	8110 Pioneer Hill
28	8/25	8114 Pioneer Hill
29	8/28	123 Meadow Way
30	8/24	207 Brenda
31	10/10	213 Michelle
32	8/24	214 Legion
33	8/25	213 Legion
34	10/10	124 Kerry Brook
35	10/10	205 Kerry Brook
36	1010	8909 Shadow Wood
37	10/10	604 Oak

CITY OF CONVERSE CUSTOMER SIDE LEAK LIST / 1995 APPENDIX D

Page 3 of 3

Line#	<u>Date</u>	Address
38	10/18	7414 Coers
39	10/18	8834 Sleepy

Page 1 of 6

Line#	Address	Added	Number Added
1	Coyote Hill	Fire Hydrant With Valve	1
2	Mustang Ridge	Fire Hydrant With Valve	2
3	Laurel Creek	Valve	1
4	Mesquite Pass	Fire Line Valve	1
5	Mesquite Pass @ Kitty Hawk	3 Valves 2 Blow Offs	5
6	Kitty Hawk between Mesquite Pass and Scenic Circle	800' of Main Valve	1
7	Kitty Hawk west of Toepperwein Rd.	Fire Hydrant With Valve	1
8	Kitty Hawk east of Toepperwein Rd.	2 Valves 2 Blow Offs 400' of Main	4
	Control Control Control	Valve	1
9	Mission Creek to Flatland Trail		
10	Deadwood Ridge @ Shallow Crossing	Fire Hydrant With Valve	1
11	Toepperwein Rd. To Little Sugar Creek	Valves	2
12	Schumann Rd. @ Scotts Bluff	Valve	1
13	Toepperwein Rd. North of Windburn Trail	Fire Hydrant With Valve	1
14	Schumann Rd.	200' of Main, 3 Valves, 1 Blow Off, Fire Hydrant With Valve	5
15	Wagon Train @ Lonesome Trail	Valve	1

Page 2 of 6

Line#	Address	Added	Number <u>Added</u>
16	Spring Town @ Meadow Branch	Valve	5 1
17	8th Street west of Meadow Drive	Valve	1
18	Meadow Stone @ Meadow Burst	Fire Hydrant With Valve	1
19	Meadow Gate @ Meadow Scape	Valve	1
20	Meadow Gate @ Meadow Branch	Valve	1
21	Janice Lane @ Dana Dr.	Valve	1
22	Michelle Dr. @ Erma Dr.	Valve	1
23	Dana Dr.	600' of Main	2
		Fire Hydrant With Valve Valve	
24	Janice Dr.	Fire hydrant With Valve	1
25	Gail Circle	Valve	1
26	Park Meadow @ Green Meadow	Valve	1
27	Park Meadow @ F.M. 1976	Valve	1
28	Gibbs Sprawl Rd. @ Station St.	Fire Hydrant Valve	1
29	Gibbs sprawl Rd. @ Mesquite St.	Fire Hydrant Valve	1
30	Legion St. @ S. Seguin	Valve	1
31	S. Seguin St. @ Ave. D	Fire Hydrant With Valve	1
32	S. Seguin St.@ Ave E	Fire Hydrant With Valve	1
33	Station St. @ Ave D	Fire Hydrant With Valve	1

Page 3 of 6

Line#	Address	Added	Number Added
34	S. Seguin St. @ Ave. E	5 Valves	5
35	S. Seguin St. @ Ave. G	Valve	1
36	S. Seguin St. North of School St.	Fire Hydrant With Valve	1 3
37	Ave. E Between Station St. And Mesquite St.	Valve	1 2
38	Ave. F Between Station St. And Mesquite St.	Valve	1
39	Oak St.	Fire Hydrant	1
40	Willow Dr.	Fire Hydrant With Valve	1
41	City Park southeast of Willow	Fire Hydrant With Valve	1
42	Willow @ Mesquite St.	Valve	1
43	School St. @ Station St.	Fire Hydrant With Valve	1
44	School St. @ Willow	Fire Hydrant With Valve	1
45	F.M. 78 between Kneupper Ave. and F.M. 1604	4 Fire Hydrants With Valves 1 Valve 1,700' of Main	5
46	F.M. 78 between Shadow Creek and Legion St.	5 Valves 3 Blow Offs	8
47	Converse Business Park Lane	2,000' of Main 8 Fire Hydrants With Valves 4 Valves 3 Blow Offs	15
48	F. M. 78 @ Judson High School	Valve	

Page 4 of 6

Line#	Address	Added	Number Added
49	S. Seguin Rd. @ F.M. 78	Valve	1
50	F.M. 1516 @ F.M. 78	Valves	3
51	F.M. 78 @ Rocket Lane	Valves	3
52	F.M. 78 @ crossing to Upper Seguin Rd.	Valve Fire Hydrant With Valve	2
53	F.M. 78 east of Brucks Dr.	Valves	3
54	F.M. 78 @ Brucks Rd.	Valve Will Valve	1
55	West of Hilltop and north of 7th St.	Valve	1
56	F.M. 1516 between Rocket Lane and F.M. 78	3 Fire Hydrants With valves 1 Fire Line Valve	5
	Contribute Lake @ Kintgaman St.	1 Blow Off 700' of Main	
57	F.M. 78 between F.M. 1516 and Rocket Lane	Fire Hydrant With Valve Valve 200' of Main	2
58	F.M. 78 west of Rocket Lane	Fire Hydrant With Valve Blow Off 200' of Main	2
59	F.M. 1516 between Upper Seguin Rd. And Rocket Lane	2 Fire Hydrants With Valves Valve	3
60	Coers Drive Blvd.	Fire Hydrant With Valve	1

Page 5 of 6

Line#	Address	Added	Number <u>Added</u>
61	Coers Drive @ Pensive Dr.	2 Valves Fire Hydrant With Valve	3
62	Slumber Lane @ Tranquil	Valve Blow Off	2
63	Slumber Lane @ Tranquil	Valve Fire Hydrant With Valve	2
64	Sleepy Lane @ Tranquil	Valves	3
65	Sleepy Lane	Fire Hydrant With Valve	1
66	Tranquil @ Drowsy Lane	Fire Hydrant	1
67	F.M. 1516 @ Slumber Lane	Blow Off	1
68	Canterbury Lane @ Kingsman St.	Fire Hydrant With Valve	1
69	Kingsman St.	Fire Hydrant With Valve	1
70	Jeanette @ Ann St.	Valve	1
71	Ann Dr. @ Renee Dr.	Valve	1
72	Ann Dr.	Blow Off	1
73	Royal St. @ Gateway St.	Valves	2
74	Castle Court	Fire Hydrant With Valve	1
75	Dalewood Dr. @ Norris Dr. West	Valves	2
76	Canterbury @ Mayfield	2 Valves Fire Hydrant	2

Page 6 of 6

Line#	Address	Added	Number Added
77	Rocket Lane @ Norris Dr. East	Fire Line Valve Valve	3
		Fire Hydrant With Valve	
78	Rocket Lane @ S.A.R.A Plant	1 Fire Hydrant With Valve 4 Service Valves	2 8
		3 Valves	
79	Copperegate	8 Fire Hydrants With Valves 5 Blow Offs	17
	Little Sugar Cross QUP closer Files	4 Valves 2,400' of Main	
80	Autumn Hollow	Valves	2
81	Autumn Hollow @ Autumn Ledge	Fire Hydrant With Valve	1
82	Upper Sequin Rd between F.M.78 And	3 Fire Hydrants With Valves 4 Valves	7
	F.M. 1516	2,200' of Main	
83	Toepperwein Rd. Between 3nd St. And 4th St.	2" Fire Hydrant	1
		2" Fire Hydrent	1
84	Toepperwein Rd. @ 7th St.	2" Fire Hydrant	

CITY OF CONVERSE UNABLE TO LOCATE APPENDIX F

Page 1 of 3

Line#	Address	Type	Number
1	Mustang Ridge @ Coyote Hill	Valve	1
2	Rifle Rock	Blow Off	1
3	Kitty Hawk @ Toepperwein Rd.	Valve	1
4	Toepperwein Rd. south of Kitty Hawk	2 Blow Offs	2
5	Comanche Pass west of Wagon Train	Valve Blow Off	2
6	Lone Shadow @ Big Mesa	Valve	1
7	Little Sugar Creek @ Pioineer Hills	Valve	1
8	Windburn Trail @ Twin Saddles	Valve	1
9	Spring Town west of Meadow Branch	Blow Off	1
10	Meadow Forge @ Meadow Top	Valve	1
11	Dana west of Janice Lane	Valve	1
12	Kimberly Dr. @ Brenda Dr.	Valve	1
13	F.M. 78 @ Brenda Dr.	Valve	1
14	Meadow Dr. Between 7th. @ Green Meadow	Valve	1
15	Meadow Way between 7th. @ Green Meadow	Valve	1
16	North Meadow between 7th. @ Green Meadow	Valve	1

CITY OF CONVERSE UNABLE TO LOCATE APPENDIX F

Page 2 of 3

Line#	Address	Type	Number
17	Park Meadow @ F.M. 1976	2 Blow Offs	2
18	Ave. B east of Salado St.	Valve	1
19	Gibbs Sprawl Rd. @ Mesquite	Valve	1
20	Legion Dr. @ Mesquite	3 Valves	3
21	Willow @ Ave. E	2 Valve	2
22	Ave. E @ Oak Dr.	Valve	1
23	Mesquite @ Ave. F	Fire Hydrant	1
24	Ash Dr.	Valve	1
25	F.M.78 between Kneupper @ Legion Dr.	2 Valves	2
26	Converse Business Ln. @ last street	Valve	1
27	F.M. 789 between Rocket Ln. @ Upper Seguin Rd.	Valve	1
28	Pensive @ Coers	Valve	1
29	Slumber Ln. @ Pensive	Valve	1
30	Slumber Ln. at Sleepy	Valve	1
31	Vivian Dr. @ Jeanette	Valve Blow Off	2
32	Diana	Valve	1
33	Jeanette @ Diana	Blow Off	1
34	Gateway @ Kingsman	Valve	1
35	Gateway @ Crown Ct.	Valve	1

CITY OF CONVERSE UNABLE TO LOCATE APPENDIX F

of 3

			Page 3 o
Line #	Address	Type	Number
36	Toepperwein Rd. @ Gibbs Sprawl Rd.	Valves	2
37	Toepperwein Rd. @ Schuamann Rd.	Valve	Rook To Chice
38	Schumann Rd. @ Tree Line Court	Valve	Nation To Editade
39	East of Toepperwein Rd. @ 7th. St.	2 2" Valves	2
40	5th. St @ Toepperwein Rd.	Valves	2 de
41	3nd. St. @ Toepperwein Rd.	Valves	Raise Viv (2 de
42	3rd. West of Toepperwein Rd.	Valves	2

CITY OF CONVERSE REPAIRS OR CLEANING NEEDED APPENDIX G

Page 1 of 2

Line#	Address	Type	Needed
1	Mustang Ridge south of Sutter Mine	Valve	Raise To Grade
2	Comanche Ridge @ Windburn Trail	Valve	Raise To Grade
3	Meadow Gate @ Meadow Branch	Valve	Raise To Grade
4	Meadow Rock	Fire Hydrant Valve	Raise To Grade
5	Meadow Rock @ Meadow Burst	Valve	Raise To Grade
6	Meadow Scape @ Meadow Burst	Fire Hydrant Valve	Raise To Grade
7	F.M. 78 @ Legion St.	2 Valves	Raise To Grade
8	Diana @ Jeanette	Valve	Raise To Grade
9	10503 Coyote Hill	Valve	Raise To Grade
10	10610 Coyote Hill	Fire Hydrant Valve	Raise To Grade
11	10522 Mustang Ridge	Fire Hydrant Valve	Raise To Grade
12	10341 Vigilante Tr.	Valve	Raise To Grade
13	10059 Windburn Tr.	Valve	Raise To Grade
14	801 Meadow Peak	Valve	Raise To Grade
15	825 Meadow Stone	Valve	Raise To Grade
16	809 Meadow Peak	Fire Hydrant Valve	Raise To Grade
17	502 Jeanette	Fire Hydrant Valve	Raise To Grade
18	506 Jeanette	Valve	Raise To Grade

CITY OF CONVERSE REPAIRS OR CLEANING NEEDED APPENDIX G

Page 2 of 2

Line#	Address	Type	Needed
19	8710 Sleepy Meadow	Blow Off	Raise To Grade
20	105 South St.	3 Valves	Raise To Grade
21	7303 Autumn Brook	Fire Hydrant Valve	Raise To Grade
22	9218 Shallow Creek	Valve	Raise To Grade
23	110 Ave. F	Valve	Raise To Grade
24	Crown Court	Blow Off	Raise To Grade
25	531 Willow	Valve	Raise To Grade
26	8320 Spring Town	Curb Stop	Replacement
27	126 Kingsman	Curb Stop	Replacement
28	209 Kerry Brook	Curb Stop	Replacement
29	Kerry Brook @ Canterbury	Valve Box	Replacement
30	10307 Outlaw Bend	Fire hydrant Valve	Cleaning
31	8003 Deadwood Ridge	Valve	Cleaning
32	8011 Deadwood Ridge	Valve	Cleaning
33	10019 Windburn Tr.	Valve	Cleaning
34	10059 Windburn Tr.	Fire Hydrant Valve	Cleaning
35	9803 Balanced Rock	Fire Hydrant Valve	Cleaning
36	7418 Coers	Fire Hydrant Valve	Cleaning Valve Box Lid
37	223 Kerry Brook	2 Valves	Cleaning