APPENDIX 7
ADDITIONAL WATER USE PROJECTIONS
LONG-TERM WATER NEEDS
FOR SEQUOYAH COUNTY, OKLAHOMA

NAME: Sequoyah County Water Association
City, RWU, Community

PRESENT WATER SOURCE:
1. Lake Tenkiller Treatment Plant—SCWA
2. Van Buren, Arkansas

PRESENT DAILY DEMAND
(Maximum / Average)
(in gallons)

<table>
<thead>
<tr>
<th></th>
<th>Maximum</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1,570,000</td>
<td>1,107,000</td>
</tr>
<tr>
<td>2.</td>
<td>700,000</td>
<td>400,000</td>
</tr>
</tbody>
</table>

PROJECTED FUTURE DEMAND:
(5 Years)
1. 1,204,000 / 1,439,100
2. 1,820,000 / 1,040,000

PROJECTED FUTURE DEMAND:
(10 Years)
1. 2,755,350 / 1,942,783
2. 4,732,900 / 2,704,000

PROJECTED FUTURE DEMAND:
(25 Years)
1. 5,235,165 / 3,691,292
2. 246,466,600 / 15,683,200

PROJECTED FUTURE DEMAND:
(50 Years)
1. 13,088,913 / 9,228,230
2. 24,019,400 / 14,168,800

What is the source of your long-range water plan?
Lake Tenkiller & Van Buren/Ft. Smith
Possibly Lee Creek
LONG-TERM WATER NEEDS
FOR SEQUOYAH COUNTY, OKLAHOMA

NAME: ________________________________
CITY OF Sallisaw, Oklahoma
City, RWO, Community

PRESENT WATER SOURCE:
1. BRUSHY LAKE
2. ________________________________

PRESENT DAILY DEMAND
(Maximum / Average)
1. 4,315,000 M³ PEAK USAGE
2. 2,000,000 / DAILY AVERAGE

PROJECTED FUTURE DEMAND:
(5 Years)
1. 829,158,000 / YEAR
2. 2,271,000 / DAILY AVERAGE

PROJECTED FUTURE DEMAND:
(10 Years)
1. 938,116,000 / YEAR
2. 2,570,000 / DAILY AVERAGE

PROJECTED FUTURE DEMAND:
(25 Years)
1. 1,358,671,000 / YEAR
2. 3,722,000 / DAILY AVERAGE

PROJECTED FUTURE DEMAND:
(50 Years)
1. 2,518,900,000 / YEAR
2. 5,901,000 / DAILY AVERAGE

What is the source of your long-range water plan?
BRUSHY LAKE PRIMARY SOURCE. ENGINEERING STUDIES ARE NOW BEING
PERFORMED AS TO AVAILABILITY OF ALTERNATIVE WATER SOURCES FOR
FUTURE USAGE.
LONG-TERM WATER NEEDS
FOR SEQUOYAH COUNTY, OKLAHOMA

NAME: Rural Water Dist. #3 - Sequoyah County
      City, RWD, Community

PRESENT WATER SOURCE:
1. Purchased water from the City of Sallisaw
2. 

PRESENT DAILY DEMAND
(Maximum / Average)
1. _____ / 230,000 per day
2. _____ / __________

PROJECTED FUTURE DEMAND:
(5 Years)
1. _____ / 287,500 per day
2. _____ / __________

PROJECTED FUTURE DEMAND:
(10 Years)
1. _____ / 359,375 per day
2. _____ / __________

PROJECTED FUTURE DEMAND:
(25 Years)
1. _____ / 449,219 per day
2. _____ / __________

PROJECTED FUTURE DEMAND:
(50 Years)
1. _____ / 561,523 per day
2. _____ / __________

What is the source of your long-range water plan?
Our present long range water plan is to increase and upgrade our current lines and line sizes. We are working with an engineer to improve our present system. We are looking to add holding towers and possibly add some pump stations. Currently the City of Sallisaw is meeting our demand for water.
# Long-term Water Needs

For Sequoyah County, Oklahoma

**Name:** Rural Water Dist. #4 - Sequoyah County

City, RWD, Community

**Present Water Source:**

1. Purchased water from the City of Sallisaw
2. ________________________________

**Present Daily Demand**

(Maximum / Average)

1: ________/ 118,000 per day
2: ________/ ________

**Projected Future Demand**

(3 Years)

1. ________/ 147,500 per day
2. ________/ ________

**Projected Future Demand**

(10 Years)

1. ________/ 184,375 per day
2. ________/ ________

**Projected Future Demand**

(25 Years)

1. ________/ 230,469 per day
2. ________/ ________

**Projected Future Demand**

(50 Years)

1. ________/ 288,086 per day
2. ________/ ________

What is the source of your long-range water plan?

We are currently working with an engineer to increase line sizes, looping lines, and looking at more storage. We are also trying to determine the need for more pump stations and larger pumps.

The City of Sallisaw is meeting our demand for water.
June 26, 2000

Mr. Ed Henderson
1730 Highway 62 East
Fort Gibson, OK 74434

RE: Corps of Engineers Phase III Study

Dear Ed:

In reviewing the above referenced report I am concerned that the data for Sallisaw is inaccurate. For example – Table 2-8 Water Demand, Availability and Sources show that Sallisaw will not exceed water rights by 2050. Table 2-9 shows that Sallisaw’s treatment capacity will still be adequate in 2050.

Enclosed are pages from a 1997 engineering report marked as Exhibits A, B and C projecting average daily production requirements at 7 M.C.D.

I think that the data/report needs to be revisited and/or clarified. I do not find the data in the corps’ report on Sallisaw to be credible as presented.

Sincerely,

James R. Hudgens
City Manager

JRH:db

Enclosure(s): 3
C. **Existing System:**

1. **Water Supply:**

   The City of Sallisaw is the owner and operator of their water supply and treatment operations. The source of raw water supply is a surface water impoundment named Brushy Lake, located approximately eight (8) miles northwest of Sallisaw on the Sallisaw Creek watershed. From Brushy Lake, raw water is pumped through a 16" diameter transmission water line to the water treatment facility. The pump station contains two (2) pumps with a 3.0 million gallons per day (MGD) capacity, and one (1) pump rated at 4.0 MGD capacity. The 3.0 MGD pumps are driven by 125 horsepower (Hp) electric motors, and the 4.0 MGD pump is driven by a 200 Hp electric motor.

   The water treatment plant consists of two (2) surface water treatment units constructed on the same site, located north of Eppler Avenue and west of Maple Street. The plant has a rated capacity of 2.7 MGD, and produces an average of 2.3 MGD during the summer months. The plant has produced as much as 3.9 MGD.

   Based on "Water Use Reports," the water treatment plant's production records from 1992 through 1996 are shown in **Table 1**.

   **Table 1**

   **Production Records**

   **Water Treatment Plant**

   **Sallisaw, Oklahoma**

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual Production</th>
<th>Average Daily Production</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Gallons)</td>
<td>(Gallons)</td>
</tr>
<tr>
<td>1992</td>
<td>549,989,000</td>
<td>1,502,702</td>
</tr>
<tr>
<td>1993</td>
<td>631,000,000</td>
<td>1,728,767</td>
</tr>
<tr>
<td>1994</td>
<td>660,076,000</td>
<td>1,808,427</td>
</tr>
<tr>
<td>1995</td>
<td>695,168,000</td>
<td>1,904,570</td>
</tr>
<tr>
<td>1996</td>
<td>748,859,440</td>
<td>2,046,064</td>
</tr>
</tbody>
</table>
This data indicates an annual increase in production of potable water of 7.2 percent over the past five (5) years. Based on this trend, the projected water treatment plant production for the next twenty (20) years is outlined in TABLE 2.

**TABLE 2**
**PROJECTED PRODUCTION WATER TREATMENT PLANT Sallisaw, Oklahoma**

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual Production (Million Gallons)</th>
<th>Average Daily Production (Million Gallons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>1,020</td>
<td>2.79</td>
</tr>
<tr>
<td>2007</td>
<td>1,388</td>
<td>3.80</td>
</tr>
<tr>
<td>2012</td>
<td>1,890</td>
<td>5.16</td>
</tr>
<tr>
<td>2017</td>
<td>2,574</td>
<td>7.05</td>
</tr>
</tbody>
</table>

Although a thorough analysis of the City's treatment capacity is beyond the scope of this study, these projections indicate that the existing water treatment plant will exceed its rated capacity within the next five (5) years.

2. **DESCRIPTION OF DISTRIBUTION SYSTEM:**

The City of Sallisaw's existing water distribution system is presently served by two (2) different pressure planes. The 650' mean sea level, msl, pressure plane serves the majority of the customer base located primarily along and south of U.S. Highway 64. The 790' msl pressure plane represents the high pressure service area along and north of Taylor Drive. The existing water distribution system is composed of various sizes and lengths of water pipe as shown in TABLE 3.
Table 4
Existing Water Customers
Sallisaw, Oklahoma

<table>
<thead>
<tr>
<th>Year</th>
<th>Residential</th>
<th>Commercial</th>
<th>Industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>2,366</td>
<td>477</td>
<td>2</td>
</tr>
<tr>
<td>1993</td>
<td>2,366</td>
<td>477</td>
<td>2</td>
</tr>
<tr>
<td>1994</td>
<td>2,451</td>
<td>492</td>
<td>3</td>
</tr>
<tr>
<td>1995</td>
<td>2,519</td>
<td>463</td>
<td>3</td>
</tr>
<tr>
<td>1996</td>
<td>2,581</td>
<td>450</td>
<td>6</td>
</tr>
</tbody>
</table>

The distribution of these categories of water customers throughout the water system is also evaluated to determine the location of the demand. 2,276 of the 2,581 residential customers are served by the Zone 1 pressure plane. Of the 2,276 residential customers, 148 reside west of J.T. Stites Street and 85 reside within the Leisure Hills subdivision. The remaining 305 residential customers are served by the Zone 2 pressure plane.

440 of the 450 commercial customers are served by the Zone 1 pressure plane. Of these 440 commercial customers, 6 are located west of J.T. Stites Street. The remaining 10 commercial customers are served by the Zone 2 pressure plane.

The 6 industrial customers are all served by the Zone 1 pressure plane. These industrial customers are: Borg Warner, Rural Water District #3, Rural Water District #4, Blue Ribbon Downs, CD Water System, and Ross Breeders. A Contractor who is presently performing construction activities on Interstate 40 is also purchasing water as an industrial customer off the Zone 1 pressure plane. The Sequoyah County Water Association is also an industrial customer, however, they are primarily supplied by other sources and use their meter on the Sallisaw water system as an emergency supply only. The Sequoyah County Water Association is served by the Zone 2 pressure plane.

Water Usage Records, made available by the Sallisaw Water Department, are used to categorize the number of individual customers that use a specific amount of water in an average month. Based upon this information, it is calculated that the average monthly residential usage is 7,318 gallons. The average monthly commercial usage is calculated to be 23,824 gallons. A similar number cannot categorically be developed for the industrial customers because of the large and variable amount of water that they individually use, however, the average monthly usage for each industrial customer can be calculated. APPENDIX A - CUSTOMER PROFILE further details this information for each category of customer.
November 16, 1999

Charles Wilson, USACE
P. O. Box 61
Tulsa, OK 74121-0061

Dear Charles,

Enclosed please find the information that was missing from the engineering study regarding LRED. I would like to add that LRED has four separate water plants and customer territories. Chicken Creek and Wood Haven systems are located in the east region of Lake Tenkiller, Lakewood plant is on the west side of the lake and Wildcat Point is located in the northwest region.

The enclosed information are in the format and table numbers that appear on the report you gave us during our last TUA meeting. Please feel free to contact me if you need any further information.

Sincerely,

Hamid Vahdatipour
Chief Executive Officer
### Table 2 - 2 Present Demand

<table>
<thead>
<tr>
<th>Location</th>
<th>Average Daily Use</th>
<th>Peak Daily Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1000 Gallons</td>
<td>1000 Gallons</td>
</tr>
<tr>
<td>LRED (Chicken Creek)</td>
<td>100</td>
<td>250</td>
</tr>
<tr>
<td>LRED (Woodhaven)</td>
<td>62</td>
<td>155</td>
</tr>
<tr>
<td>LRED (Wildcat Point)</td>
<td>45</td>
<td>104</td>
</tr>
<tr>
<td>LRED (Lakewood)</td>
<td>46</td>
<td>116</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>253</strong></td>
<td><strong>685</strong></td>
</tr>
</tbody>
</table>

### Table 2 - 3 Actual and Projected Water Demand

<table>
<thead>
<tr>
<th>Location</th>
<th>1998</th>
<th>2000</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRED (Chicken Creek)</td>
<td>100</td>
<td>110</td>
<td>152</td>
<td>297</td>
<td>579</td>
<td>752</td>
<td>978</td>
</tr>
<tr>
<td>LRED (Woodhaven)</td>
<td>62</td>
<td>64</td>
<td>83</td>
<td>112</td>
<td>148</td>
<td>195</td>
<td>257</td>
</tr>
<tr>
<td>LRED (Wildcat Point)</td>
<td>45</td>
<td>47</td>
<td>61</td>
<td>79</td>
<td>103</td>
<td>134</td>
<td>174</td>
</tr>
<tr>
<td>LRED (Lakewood)</td>
<td>46</td>
<td>48</td>
<td>62</td>
<td>81</td>
<td>105</td>
<td>137</td>
<td>178</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>253</strong></td>
<td><strong>269</strong></td>
<td><strong>358</strong></td>
<td><strong>569</strong></td>
<td><strong>935</strong></td>
<td><strong>1,218</strong></td>
<td><strong>1,587</strong></td>
</tr>
</tbody>
</table>

### Table 2 - 4 Existing Treatment Facilities

<table>
<thead>
<tr>
<th>Location</th>
<th>Type</th>
<th>Source</th>
<th>Water Rights</th>
<th>Age</th>
<th>State of repair</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRED (Chicken Creek)</td>
<td>Rapid Sand</td>
<td>Lake Tenkiller</td>
<td>350</td>
<td>Unknown</td>
<td>Good</td>
<td>134,000</td>
</tr>
<tr>
<td>LRED (Woodhaven)</td>
<td>Slow Sand</td>
<td>Lake Tenkiller</td>
<td>35</td>
<td>Unknown</td>
<td>Good</td>
<td>70,000</td>
</tr>
<tr>
<td>LRED (Wildcat Point)</td>
<td>Rapid Sand</td>
<td>Lake Tenkiller</td>
<td>1</td>
<td>Unknown</td>
<td>Good</td>
<td>156,000</td>
</tr>
<tr>
<td>LRED (Lakewood)</td>
<td>Slow Sand</td>
<td>Lake Tenkiller</td>
<td>11</td>
<td>Unknown</td>
<td>Good</td>
<td>72,500</td>
</tr>
</tbody>
</table>
### Table 2 - 5 Existing Distribution System

<table>
<thead>
<tr>
<th></th>
<th>State of Repair</th>
<th>Type of System</th>
<th># of Meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRED (Chicken Creek)</td>
<td>Needs Upgrade</td>
<td>PVC / Galvanized</td>
<td>357</td>
</tr>
<tr>
<td>LRED (Woodhaven)</td>
<td>Needs Upgrade</td>
<td>PVC / Galvanized</td>
<td>96</td>
</tr>
<tr>
<td>LRED (Wildcat Point)</td>
<td>Needs Upgrade</td>
<td>PVC</td>
<td>125</td>
</tr>
<tr>
<td>LRED (Lakewood)</td>
<td>Needs Upgrade</td>
<td>PVC</td>
<td>135</td>
</tr>
</tbody>
</table>

### Table 2 - 6 Water Storage Capacity

<table>
<thead>
<tr>
<th></th>
<th>Raw Water</th>
<th>Treated Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRED (Chicken Creek)</td>
<td>25,500</td>
<td>88,400</td>
</tr>
<tr>
<td>LRED (Woodhaven)</td>
<td>8,500</td>
<td>40,000</td>
</tr>
<tr>
<td>LRED (Wildcat Point)</td>
<td>26,000</td>
<td>40,000</td>
</tr>
<tr>
<td>LRED (Lakewood)</td>
<td>7,500</td>
<td>71,000</td>
</tr>
</tbody>
</table>

### Table 2 - 9 Treatment Facilities

<table>
<thead>
<tr>
<th></th>
<th>Treatment Plant</th>
<th>Date</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRED (Chicken Creek)</td>
<td>Y</td>
<td>Unknown</td>
<td>134,000</td>
</tr>
<tr>
<td>LRED (Woodhaven)</td>
<td>Y</td>
<td>Unknown</td>
<td>70,000</td>
</tr>
<tr>
<td>LRED (Wildcat Point)</td>
<td>Y</td>
<td>Unknown</td>
<td>156,000</td>
</tr>
<tr>
<td>LRED (Lakewood)</td>
<td>Y</td>
<td>Unknown</td>
<td>72,500</td>
</tr>
</tbody>
</table>

### Table 2 - 11 Residential User Cost for 10,000 Gallons/Month

<table>
<thead>
<tr>
<th></th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRED (Chicken Creek)</td>
<td>$40.38</td>
</tr>
<tr>
<td>LRED (Woodhaven)</td>
<td>$40.38</td>
</tr>
<tr>
<td>LRED (Wildcat Point)</td>
<td>$40.38</td>
</tr>
<tr>
<td>LRED (Lakewood)</td>
<td>$40.38</td>
</tr>
</tbody>
</table>