APPENDIX 7

ADDITIONAL WATER USE PROJECTIONS

LONG-TERM WATER NEEDS
FOR SEQUOYAH COUNTY, OKLAHOMA

NAME: Sequoyah County Water Association
City, RWD, Community

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

	Maximum	Average
PRESENT DAILY DEMAND (Maximum / Average) (in gallons) 1.	1,570,000	1,107,000
2.	700,000	400,000
PROJECTED FUTURE DEMAND: (5 Years) 1.	2,041,000	1,439,100
2.	1,820,000	1,040,000
PROJECTED FUTURE DEMAND: (10 Years) 1.	2,755,350	1,942,785
2.	4,732,000	2,704,000
PROJECTED FUTURE DEMAND: (25 Years) 1.	5,235,165	3,691,292
2.	27,446,600	15,683,200
PROJECTED FUTURE DEMAND: (50 Years) 1.	13,088,913	9,228,230
2.	47,019,400	141,148,800

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, RWD, Community

PRESENT WATER SOURCE:
1. BRUSHY LAKE
2.

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

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

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

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

PROJECTED FUTURE DEMAND:
(50 Years)
1. 2,518,900,000 / YEAR
2. 6,901,000 / DAILY AVG.

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

BRUSHY LAKE PRIMARY SOURCE. ENGINEERING STUDIES ARE NOW BEING PERFORMED AS TO AVAILIBILITY 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: (5 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.

111 North Elm Street
Post Office Box 525
Sallisaw, Oklahoma 74955

City of Sallisaw

(918) 775-6241
Fax (918) 775-9550

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.G.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

Exhibit A

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

Year	Annual Production (Gallons)	Average Daily Production (Gallons)
1992	549,989,000	1,502,702
1993	631,000,000	1,728,767
1994	660,076,000	1,808,427
1995	695,168,000	1,904,570
1996	748,859,440	2,046,064

Exhibit B

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

Year	Annual Production (Million Gallons)	Average Daily Production (Million Gallons)
2002	1,020	2.79
2007	1,388	3.80
2012	1,890	5.16
2017	2,574	7.05

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 656' 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.

Exhibit C

TABLE 4
EXISTING WATER CUSTOMERS
SALLISAW, OKLAHOMA

Year	Residential	Commercial	Industrial
1992	2,366	477	2
1993	2,366	477	2
1994	2,451	492	3
1995	2,519	463	3
1996	2,581	450	6

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.

LAKE REGION ELECTRIC COOPERATIVE

Lake Region Electric Development Cooperation, Inc.

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
Hamid Vahdatipour
Chief Executive Officer

Lake Region Road • P.O. Box 127 • Hulbert, Oklahoma 74441 • (918) 772-2526 • 1-800-364-5752

Table 2 - 2 Present Demand

	Average Daily Use 1000 Gallons	Peak Daily Use 1000 Gallons
LRED (Chicken Creek)	100	250
LRED (Woodhaven)	62	155
LRED (Wildcat Point)	45	164
LRED (Lakewood)	46	116
Total	253	685

Table 2 - 3 Actual and Projected Water Demand

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

Table 2 - 4 Existing Treatment Facilities

	Type	Source	Water Rights	Age Age	State of repair	Capacity
LRED (Chicken Creek)	Rapid Sand	Lake Tenkiller	350	Unknown	Good	134,000
LRED (Woodhaven)	Slow Sand	Lake Tenkiller	35	Unknown	Good	70,000
LRED (Wildcat Point)	Rapid Sand	Lake Tenkiller	1	Unknown	Good	156,000
LRED (Lakewood)	Slow Sand	Lake Tenkiller	11	Unknown	Good	72,500

Table 2 - 5 Existing Distribution System

	State of Repair	Type of System	# of Meters
LRED (Chicken Creek)	Needs Upgrade	PVC / Galvanized	357
LRED (Woodhaven)	Needs Upgrade	PVC / Galvanized	96
LRED (Wildcat Point)	Needs Upgrade	PVC	125
LRED (Lakewood)	Needs Upgrade	PVC	135

Table 2 - 6 Water Storage Capacity

	Raw Water	Treated Water
LRED (Chicken Creek)	25,500	88,400
LRED (Woodhaven)	8,500	40,000
LRED (Wildcat Point)	26,000	40,000
LRED (Lakewood)	7,500	71,000

Table 2 - 9 Treatment Facilities

	Treatment Plant	Date	Capacity
LRED (Chicken Creek)	Y	Unknown	134,000
LRED (Woodhaven)	Y	Unknown	70,000
LRED (Wildcat Point)	Y	Unknown	156,000
LRED (Lakewood)	Y	Unknown	72,500

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

LRED (Chicken Creek)	$40.38
LRED (Woodhaven)	$40.38
LRED (Wildcat Point)	$40.38
LRED (Lakewood)	$40.38