APPENDIX A

FIGURE 1 CHEMICAL ANALYSES OF PUBLIC WATER SUPPLIES (By Planning Region)

SOUTHEAST PLANNING REGION

ATOKA CO.

CITY		Atoka (A)	Caney	Tuska RWD 2	Wardville RWD 1
SOURCE OF SUPPLY		Atoka Lake	Ground Water	Ground Water	Wardville Lake
DATE OF ANALYSIS		2-78	9-77	5-77	2-79
PARAMETERS	UNIT				
Total Hardness	mg/L	59	84	281	67
Total Alkalinity	mg/L	45	63	257	68
Chloride	mg/L	6	27	21	10
Sulfate	mg/L	41	13	17	14
Fluoride	mg/L	0.10	0.09	0.24	0.19
Dissolved Solids	mg/L	100	171	—	121
pH	SU	7.7	6.1	7.2	6.9
Sodium	mg/L	16	10	18	17
Nitrite-Nitrate	mg/L	0.4	0.6	0.5	1.2
Iron	µg/L	<100	160	<200	190
Manganese	µg/L	<20	<10	<10	<20
Silver	µg/L	<1	<2	2	<1
Cadmium	µg/L	<1	<1	3	<1
Chromium	µg/L	13	5	11	16
Copper	µg/L	14	39	—	17
Lead	µg/L	6	<5	39	9
Zinc	µg/L	9	10	—	40
Barium	µg/L	<100	<100	300	<100
Arsenic	µg/L	<2	<1	<1	<2
Selenium	µg/L	<1	1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5

(A) Serves RWD 4 and Stringtown

BRYAN CO.

CITY		Achille	Bennington	Bokchito	Caddo	Calera	Colbert (A)	Durant (B)	Hendrix-Kemp Water Dist. Inc.	Kenetic
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Blue River	Ground Water	Ground Water
DATE OF ANALYSIS		9-77	9-77	9-77	9-77	9-77	9-77	6-77	9-77	9-77
PARAMETERS	UNIT									
Total Hardness	mg/L	32	3	4	5	130	46	201	60	77
Total Alkalinity	mg/L	116	539	580	292	226	36	179	65	208
Chloride	mg/L	10	41	28	9	19	9	8	9	12
Sulfate	mg/L	11	85	54	45	74	5	18	7	100
Fluoride	mg/L	0.28	1.6	1.15	0.24	0.35	0.20	0.25	0.34	0.28
Dissolved Solids	mg/L	171	787	744	417	347	117	—	158	367
pH	SU	7.2	9.3	6.7	8.6	7.7	6.3	7.7	9.4	7.2
Sodium	mg/L	48	260	190	150	83	5.0	<5.0	10	99
Nitrite-Nitrate	mg/L	<0.1	<0.1	0.3	0.6	<0.1	3.4	0.2	5.8	0.2
Iron	µg/L	1770	<100	<100	<100	1430	<100	<200	<100	685
Manganese	µg/L	48	115	<10	15	<10	<10	<10	<10.0	290
Silver	µg/L	<2	3	3	<2	<2	<2	3	<2	2
Cadmium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium	µg/L	<5	<5	<5	<5	<5	<5	8	<5	<5
Copper	µg/L	8	2	10	4	2	63	—	850	5
Lead	µg/L	<5	10	10	<5	7	<5	4	<5	8
Zinc	µg/L	95	15	27	15	260	29	—	55	1560
Barium	µg/L	<100	<100	<100	<100	<100	<100	400	<100	<100
Arsenic	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Selenium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.0	<0.5	<0.5

(A) Serves RWD 1
(B) Serves RWD 2 & 5

CHOCTAW CO.

CITY		Boswell	Fort Towson	Hugo (A)	Soper	Swink (B)
SOURCE OF SUPPLY		Ground Water	Ground Water	Hugo Res.	Ground Water	Valliant
DATE OF ANALYSIS		5-77	5-77	5-77	5-77	4-79
PARAMETERS	UNIT					
Total Hardness	mg/L	288	163	222	216	56
Total Alkalinity	mg/L	242	163	250	222	34
Chloride	mg/L	49	6	6	6	<1
Sulfate	mg/L	76	33	41	10	29
Fluoride	mg/L	.2	<.1	.1	.2	<0.06
Dissolved Solids	mg/L	—	—	—	—	118
pH	SU	7.2	7.7	7.5	7.6	8.4
Sodium	mg/L	—	—	—	—	<10
Nitrite-Nitrate	mg/L	2.7	0.9	<0.1	<0.1	0.3
Iron	µg/L	680	<100	910	240	<100
Manganese	µg/L	140	<10	140	230	20
Silver	µg/L	<1	<1	3	2	<20
Cadmium	µg/L	2	1	2	1	<2
Chromium	µg/L	10	9	7	8	26
Copper	µg/L	—	—	—	—	<40
Lead	µg/L	18	11	11	10	<10
Zinc	µg/L	—	—	—	—	<40
Barium	µg/L	100	<100	200	160	290
Arsenic	µg/L	<1	1	2	<1	<2
Selenium	µg/L	<3	<3	<3	<3	<1
Mercury	µg/L	<1.2	<1.2	<0.5	<0.5	<0.5

(A) Serves RWD 1
(B) Purchases from Valliant, McCurtain County

COAL CO.

CITY		Coalgate (A)	Lehigh	Tupelo
SOURCE OF SUPPLY		Coalgate Lake Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		5-77	5-77	5-77
PARAMETERS	UNIT			
Total Hardness	mg/L	35	45	75
Total Alkalinity	mg/L	7	206	193
Chloride	mg/L	2	90	54
Sulfate	mg/L	30	20	163
Fluoride	mg/L	0.08	0.19	0.22
Dissolved Solids	mg/L	—	—	—
pH	SU	6.5	8.2	7.8
Sodium	mg/L	<10	102	167
Nitrite-Nitrate	mg/L	0.2	0.4	0.4
Iron	µg/L	200	<200	680
Manganese	µg/L	10.0	<10.0	120.0
Silver	µg/L	<1	1	2
Cadmium	µg/L	<1	2	<1
Chromium	µg/L	6	5	<1
Copper	µg/L	—	—	—
Lead	µg/L	8	6	8
Zinc	µg/L	—	—	—
Barium	µg/L	500	400	700
Arsenic	µg/L	<1	<1	<1
Selenium	µg/L	<1	<1	<1
Mercury	µg/L	0.7	0.9	0.9

(A) Serves Centrahoma Water Co. Inc. Clarita-Olney Water Inc., and RWD 1

JOHNSTON CO.

CITY		Bromide	Coleman	Mill Creek	Mannsville RWD 2	Ravia	Tishomingo	Wapanucka	RWD 3 (A)
SOURCE OF SUPPLY		Spring	Ground Water	Ground Water	Ground Water	Ground Water	Pennington Circle	Wapan-ucka City Lake	Ground Water
DATE OF ANALYSIS		4-78	4-78	4-78	4-78	4-78	4-78	4-78	5-78
PARAMETERS	UNIT								
Total Hardness	mg/L	325	144	260	337	439	211	270	275
Total Alkalinity	mg/L	332	128	315	310	445	205	250	288
Chloride	mg/L	6	31	6	31	18	8	27	5
Sulfate	mg/L	14	23	14	31	58	.20	21	9
Fluoride	mg/L	0.13	0.26	0.20	0.18	0.21	0.16	0.15	0.14
Dissolved Solids	mg/L	332	225	312	400	510	258	293	326
pH	SU	7.3	7.0	7.5	7.0	7.3	7.7	8.3	7.4
Sodium	mg/L	12.0	30.0	10.0	22	35	7.0	17.0	15.0
Nitrite-Nitrate	mg/L	0.8	0.6	0.3	1.3	0.3	0.2	2.0	0.3
Iron	µg/L	<50	70	<50	490	<50	250	160	<50
Manganese	µg/L	<10	20	<10	10	10	<10	10	30
Silver	µg/L	2	<2	<2	2	3	<2	<2	<2
Cadmium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Chromium	µg/L	30	12	20	15	20	19	20	16
Copper	µg/L	7	18	5	51	22	8	4	15
Lead	µg/L	28	11	28	35	38	23	23	15
Zinc	µg/L	74	230	59	565	295	325	81	240
Barium	µg/L	<50	<50	100	<50	150	<50	<50	<50
Arsenic	µg/L	1	<1	<1	<1	<1	1	<1	<1
Selenium	µg/L	<1	6	<1	<1	1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

(A) Serves RWD 1

McCURTAIN CO.

CITY		Broken Bow	Clebit	Garvin	Haworth	Idabel	Millerton RWD 2	Mt. Fork RWD	RWD 1	Valliant (A)	Wright City
SOURCE OF SUPPLY		Broken Bow Res.	Ground Water	Ground Water	Ground Water	Little River	Ground Water	Pine Creek	Little River	Little River	Little River
DATE OF ANALYSIS		4-79	5-78	2-78	5-78	4-79	4-78	4-79	4-79	4-79	4-79
PARAMETERS	UNIT										
Total Hardness	mg/L	20	445	152	61	33	25	18	50	56	44
Total Alkalinity	mg/L	24	169	169	10	27	6	22	22	34	22
Chloride	mg/L	<1	7	4	<2	<1	<2	<1	<1	<1	<1
Sulfate	mg/L	11	37	17	31	23	4	9	44	29	34
Fluoride	mg/L	<0.06	0.15	0.09	0.07	0.14	0.06	<0.06	<0.06	<0.06	0.1
Dissolved Solids	mg/L	46	665	261	103	83	41	50	115	118	96
pH	SU	6.6	6.8	7.7	7.2	7.2	7.2	6.3	6.1	8.4	7
Sodium	mg/L	<10	45	35	7.0	<10	<5	<10	<10	<10	<10
Nitrite-Nitrate	mg/L	0.4	0.1	<0.1	0.3	0.3	0.3	0.3	0.2	0.3	0.3
Iron	µg/L	100	340	340	90	<100	2700	100	<100	<100	<100
Manganese	µg/L	40	1100	50	40	<20	20	20	<20	20	<20
Silver	µg/L	<20	3	<2	<2	<20	<2	<20	<20	<20	<20
Cadmium	µg/L	<2	<1	<1	<1	<2	<1	<2	<2	<2	<2
Chromium	µg/L	28	19	23	16	28	20	<27	31	26	30
Copper	µg/L	<40	4	4	<2	<40	38	<40	<40	<40	<40
Lead	µg/L	<10	18	7	<15	<10	<5	<10	<10	<10	<10
Zinc	µg/L	50	205	160	20	<40	73	<40	<40	<40	<40
Barium	µg/L	100	170	60	<50	110	<50	<100	290	280	190
Arsenic	µg/L	<2	<1	<1	<1	<2	<1	<2	<2	<2	<2
Selenium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

(A) Serves Forest Grove Water Corp., Swink Water Corp. Choctaw County.

PONTOTOC CO.

CITY		Ada (A)	Allen	Francis	Roff	Stonewall
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		12-76	12-76	12-76	12-76	12-76
PARAMETERS	UNIT					
Total Hardness	mg/L	331	—	—	—	—
Total Alkalinity	mg/L	336	—	—	—	—
Chloride	mg/L	9	—	—	—	—
Sulfate	mg/L	14	—	—	—	—
Fluoride	mg/L	0.1	0.10	1.9	0.7	0.5
Dissolved Solids	mg/L	370	—	—	—	—
pH	SU	7	—	—	—	—
Sodium	mg/L	—	—	—	—	—
Nitrite-Nitrate	mg/L	1.0	4.8	<0.1	0.1	0.1
Iron	µg/L	0	—	—	—	—
Manganese	µg/L	—	—	—	—	—
Silver	µg/L	2	1	8	2	3
Cadmium	µg/L	<1	<1	<1	<1	<1
Chromium	µg/L	11	14	10	14	12
Copper	µg/L	—	—	—	—	—
Lead	µg/L	10	5	21	10	14
Zinc	µg/L	—	—	—	—	—
Barium	µg/L	<2000	<2000	<2000	<2000	<2000
Arsenic	µg/L	<1	<1	<1	3	<1
Selenium	µg/L	1	<1	<1	<1	<1
Mercury	µg/L	<0.5	0.6	<0.5	<0.5	<0.7

(A) Serves RWD 1, 2, 3, 4, 5, 7, 8 and Fittstown RWD 6.

PUSHMATAHA CO.

CITY		Antlers (A)	Clayton (B)	RWD 2 (C)
SOURCE OF SUPPLY		Hugo Res.	Kiamichi River	Talihina
DATE OF ANALYSIS		3-79	3-79	N/A
PARAMETERS	UNIT			
Total Hardness	mg/L	64	66	
Total Alkalinity	mg/L	12	10	
Chloride	mg/L	2	1	
Sulfate	mg/L	53	65	
Fluoride	mg/L	<0.06	0.07	
Dissolved Solids	mg/L	122	91	
pH	SU	7.4	6.3	
Sodium	mg/L	<10	<10	
Nitrite-Nitrate	mg/L	0.5	0.4	
Iron	µg/L	230	240	
Manganese	µg/L	<20	20	
Silver	µg/L	<2	<2	
Cadmium	µg/L	<2	<2	
Chromium	µg/L	29	29	
Copper	µg/L	<4	98	
Lead	µg/L	14	15	
Zinc	µg/L	220	12	
Barium	µg/L	<100	100	
Arsenic	µg/L	<2	<2	
Selenium	µg/L	<1	<1	
Mercury	µg/L	<0.5	<0.5	

(A) Serves RWD 3.
(B) Serves RWD 1.
(C) Purchases water from Talihina, LeFlore County.

CENTRAL PLANNING REGION

CANADIAN CO.

CITY		Calumet	El Reno (A)	Mustang	Okarche	Piedmont	RWD 1	Union City	Yukon
SOURCE OF SUPPLY		Ground Water	Ground Water	Oklahoma City	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		8-78	8-78		11-78	4-79	11-78	3-78	11-79
PARAMETERS	UNIT								
Total Hardness	mg/L	156	324		318	87	280	513	31
Total Alkalinity	mg/L	292	187		267	273	192	376	256
Chloride	mg/L	49	154		63	77	12	27	22
Sulfate	mg/L	219	278		46	298	310	305	25
Fluoride	mg/L	1.45	0.51		0.35	0.8	0.26	0.71	0.25
Dissolved Solids	mg/L	728	861		476	452	406	996	4290
pH	SU	8.5	7.8		7.4	7.8	7.1	7.8	8.7
Sodium	mg/L	201	160		72	145	57	160	155
Nitrite-Nitrate	mg/L	0.5	0.7		1.5	0.2	5.5	0.1	0.8
Iron	µg/L	540	440		<300	<300	<300	1660	<100
Manganese	µg/L	20	220		<20	<20	<20	390	<20
Silver	µg/L	2	3		<2	<2	<2	3	<3
Cadmium	µg/L	1	1		<1	<1	<1	<1	<2
Chromium	µg/L	14	12		<5	38	<5	25	42
Copper	µg/L	17	315		100	83	130	21	<40
Lead	µg/L	8	10		18	7	8	21	<20
Zinc	µg/L	31	160		65	38	1000	88	39
Barium	µg/L	<100	<100		286	214	357	130	140
Arsenic	µg/L	3	<1		2	<5	<1	1	62
Selenium	µg/L	<1	<1		4	23	<1	<1	10
Mercury	µg/L	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5	<5

(A) Serves Heaston Rural Water Corp.

CLEVELAND CO.

CITY		Lexington	Moore	Noble	Norman
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Thunderbird Lake Ground Water
DATE OF ANALYSIS		6-77	6-77	6-77	6-77
PARAMETERS	UNIT				
Total Hardness	mg/L	35	177	415	113
Total Alkalinity	mg/L	343	281	234	86
Chloride	mg/L	177	8	123	31
Sulfate	mg/L	163	<2	484	34
Fluoride	mg/L	0.51	0.38	0.86	0.9
Dissolved Solids	mg/L	823	299	1292	161
pH	SU	8.2	7.9	8.1	8.4
Sodium	mg/L	350	63	390	24
Nitrite-Nitrate	mg/L	0.1	0.5	0.4	0.1
Iron	µg/L	<200	<200	<200	<200
Manganese	µg/L	<10	<10	20	<10
Silver	µg/L	2	1	3	<1
Cadmium	µg/L	2	1	3	1
Chromium	µg/L	31	24	25	13
Copper	µg/L	7	15	13	—
Lead	µg/L	7	5	13	5
Zinc	µg/L	58	13	390	—
Barium	µg/L	400	700	800	200
Arsenic	µg/L	4	<1	30	<1
Selenium	µg/L	6	6	6	<1
Mercury	µg/L	1.4	<0.5	<0.5	<0.5

McCLAIN CO.

CITY		Blanchard	Byars	Goldsby RWD 5	Newcastle	Purcell (A)	RWD 1 (B)	Washington	Wayne	Wayne RWD 8 (C)
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	City Lake Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		7-77	6-77	7-77	6-77	9-77	6-77	7-77	6-77	6-77
PARAMETERS	UNIT									
Total Hardness	mg/L	450	197	556	546	409	428	430	384	384
Total Alkalinity	mg/L	375	296	615	287	369	278	367	375	338
Chloride	mg/L	23	35	28	104	26	37	37	23	14
Sulfate	mg/L	35	32	202	278	—	284	44	64	54
Fluoride	mg/L	0.23	0.34	0.46	0.47	0.35	0.49	0.25	0.5	0.2
Dissolved Solids	mg/L	500	435	1037	907	621	864	515	526	456
pH	SU	7.6	7.2	8.8	7.5	7.4	7.1	7.3	7.3	7.3
Sodium	mg/L	29	94	120	104	70	132	39	30	53
Nitrite-Nitrate	mg/L	4.3	4	1.1	0.8	0.5	3.4	4.8	0.6	0.4
Iron	µg/L	<100	230	1700	<200	<100	<200	220	1600	330
Manganese	µg/L	<10	20	1000	310	300	<10	10	260	60
Silver	µg/L	4	4	5	3	<2	4	4	3	3
Cadmium	µg/L	1	<1	1	<1	<1	1	<1	<1	<1
Chromium	µg/L	10	<5	20	15	5	10	<5	20	25
Copper	µg/L	23	14	5	24	31	288	45	120	125
Lead	µg/L	5	11	18	20	<5	23	12	33	5
Zinc	µg/L	22	315	21	35	30	478	295	66	21
Barium	µg/L	483	<300	<100	<300	300	<300	600	700	<300
Arsenic	µg/L	2	<1	1	3	<1	1	2	1	<1
Selenium	µg/L	<1	<1	1	<1	<1	7.3	1	<1	<1
Mercury	µg/L	1.5	<0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

(A) Serves RWD 2, 3, & 7
(B) Serves Rosedale
(C) Purchases water from Half-Circle J.H. Ranch Inc.

OKLAHOMA CO.

CITY		Bethany	Choctaw	Deer Creek	Del City	Edmond	Harrah
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Thunderbird Lake Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		7-79	2-79	2-79	5-77	3-79	2-79
PARAMETERS	UNIT						
Total Hardness	mg/L	143	174	54	200	123	99
Total Alkalinity	mg/L	60	173	312	202	55	198
Chloride	mg/L	129	10	145	37	115	48
Sulfate	mg/L	158	8	46	17	321	24
Fluoride	mg/L	0.19	0.17	0.80	0.8	1.15	0.34
Dissolved Solids	mg/L	504	198	618	—	622	421
pH	SU	9.5	7.3	8.2	7.9	7.3	7.9
Sodium	mg/L	124	12	219	—	192	95
Nitrite-Nitrate	mg/L	2.5	0.3	0.6	0.1	1.5	0.5
Iron	µg/L	800	<100	850	<200	<100	21
Manganese	µg/L	5	<20	5	<10	<20	1
Silver	µg/L	<2	1	<2	3	<2	<2
Cadmium	µg/L	<1	<1	1	<1	<2	<1
Chromium	µg/L	21	21	63	4	85	37
Copper	µg/L	2	9	19	—	33	6
Lead	µg/L	10	26	8	5	17	6
Zinc	µg/L	6	14	15	—	10	7
Barium	µg/L	<100	180	<100	400	100	<100
Arsenic	µg/L	<2	<2	26	<1	21	<2
Selenium	µg/L	<1	<1	154	<1	38	10
Mercury	µg/L	<0.5	0.6	<0.5	<0.5	<0.5	<0.5

CITY		OKLAHOMA CO. Continued							POTTAWATOMIE CO.				
		Independent Water Corp.	Jones	Luther	Midwest City	Nichols Hills	Oklahoma City (A)*	Spencer	Maud	McLoud	Shawnee	Tecumseh	Wanette
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Thunder-bird Lake Ground Water	Ground Water	Lakes Hefner, Overholser & Atoka	Ground Water	N/A	Ground Water	City Lake	City Lake Ground Water	Ground Water
DATE OF ANALYSIS		3-79	2-79	2-79	5-77	2-79	2-79	2-79		3-78	5-78	8-78	3-78
PARAMETERS	UNIT												
Total Hardness	mg/L	62	193	271	205	13	223	233		97	106	113	511
Total Alkalinity	mg/L	427	192	230	189	197	28	232		197	123	88	364
Chloride	mg/L	88	8	204	35	79	164	8		18	24	26	238
Sulfate	mg/L	125	4	89	23	16	222	4		5	26	44	25
Fluoride	mg/L	0.90	0.21	0.28	1.1	0.29	1.01	0.18		0.29	0.80	0.69	0.27
Dissolved Solids	mg/L	970	220	701	—	376	613	257		250	165	239	748
pH	SU	7.2	7.4	7.6	7.7	8.3	9.3	7.4		7.9	7.5	7.9	8.1
Sodium	mg/L	290	10	165	—	140	123	11		58	16	34	92
Nitrite-Nitrate	mg/L	2	0.5	3	<0.1	0.3	0.1	0.5		0.2	0.1	0.2	0.1
Iron	μg/L	100	20	35	<200	<100	<100	39		120	110	80	130
Manganese	μg/L	<20	2	3	<10	<20	<20	2		<10	10	10	70
Silver	μg/L	<20	<2	<2	2	<1	2.0	<2		<2	<2	<2	3
Cadmium	μg/L	<2	<1	<1	<1	<1	<1.0	<1		<1	<1	<1	<1
Chromium	μg/L	243	20	28	4	42	18.0	19		32	13	16	22
Copper	μg/L	90	6	6	—	12	3.0	25		18	39	14	95
Lead	μg/L	<10	9	11	6	10	14.0	12		13	<5	18	51
Zinc	μg/L	<40	140	110	—	5	2.0	12		32	5	21	110
Barium	μg/L	150	230	230	300	<100	<100	640		100	110	110	1300
Arsenic	μg/L	6	<2	<2	<1	5	<2	<2		1	<1	<1	<1
Selenium	μg/L	3	<1	6	<1	39	<1	<1		4	<1	<1	<1
Mercury	μg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5

(A) Serves Mustang, Yukon, Canadian RWD 3 and Piedmont in Canadian Co. and emergency supply to Nichols Hills and Del City.
*Analysis taken from water supply treated at Lake Hefner facility.

SOUTH CENTRAL PLANNING REGION

CARTER CO.

CITY		Ardmore	Healdton	Lone Grove	Ratliff City	Southern Oklahoma Water	West Carter Co. RWD	Wilson
SOURCE OF SUPPLY		Ground Water City Lake	Ground Water	Ground Water	Ground Water	Arbuckle Lake	Ground Water	Ground Water
DATE OF ANALYSIS		1-79	6-78	6-78	6-78	12-78	6-78	6-78
PARAMETERS	UNIT							
Total Hardness	mg/L	167	23.4	281	106	172	7	53
Total Alkalinity	mg/L	146	565	297	503	167	506	373
Chloride	mg/L	10	197	28	27	62	18	16
Sulfate	mg/L	—	70	79	161	23	61	72
Fluoride	mg/L	0.3	2.7	0.35	1.6	0.33	1.2	0.75
Dissolved Solids	mg/L	212	1158.7	451	840	298	652	526
pH	SU	—	8.7	7.5	8.6	8	9	8.7
Sodium	mg/L	< 5	250	43	270	25	240	173
Nitrite-Nitrate	mg/L	0.2	0.3	0.2	0.1	0.1	<0.1	<0.1
Iron	μg/L	140	140	450	250	150	200	200
Manganese	μg/L	20	<20	40	<20	<20	<20	<20
Silver	μg/L	<2	2	<2	<2	<2	<2	<2
Cadmium	μg/L	<1	1	1	1	<1	1	1
Chromium	μg/L	<5	115	<5	<5	<5	5	7
Copper	μg/L	4	6	31	26	4	8	115
Lead	μg/L	8	<5	16	11	8	<5	8
Zinc	μg/L	12	39	31	6	7	16	30
Barium	μg/L	<100	<100	100	160	<100	<100	100
Arsenic	μg/L	<1	<1	<1	<1	<1	<1	<1
Selenium	μg/L	<1	ND	<1	<1	<1	<1	<1
Mercury	μg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

GARVIN CO.

CITY		Elmore City (A)	Lindsay (B)	Maysville (C)	Paoli	Pauls Valley (D)	Stratford	Wynnewood (E)
SOURCE OF SUPPLY		City Lake	Ground Water	Wiley Post Lake	Ground Water	Ground Water City Lake	Ground Water	Arbuckle Lake
DATE OF ANALYSIS		2-79	6-78	6-78	6-78	8-78	6-78	8-78
PARAMETERS	UNIT							
Total Hardness	mg/L	129	523	154	165	98	228	171
Total Alkalinity	mg/L	207	787	166	438	119	317	146
Chloride	mg/L	23	72	15	41	14	14	63
Sulfate	mg/L	28	145	55	24	26	11	20
Fluoride	mg/L	0.24	0.5	0.16	0.46	0.25	0.19	0.22
Dissolved Solids	mg/L	183	1024	309	540	210	361	298
pH	SU	8	7.5	7.3	7.8	7.8	7.6	7.7
Sodium	mg/L	12	90	34	140	18	40	40
Nitrite-Nitrate	mg/L	0.1	0.1	0.2	4.2	0.4	2.1	0.2
Iron	μg/L	46	1210	110	400	120	460	110
Manganese	μg/L	8	470	70	20	<20	<20	<20
Silver	μg/L	<2	3	<2	<2	<2	2	<2
Cadmium	μg/L	<1	1	<1	<1	<1	<1	<1
Chromium	μg/L	11	19	<5	12	16	11	<5
Copper	μg/L	14	5	59	43	16	53	41
Lead	μg/L	18	22	9	6	9	11	7
Zinc	μg/L	6	39	8	36	7	49	21
Barium	μg/L	100	150	200	320	250	640	140
Arsenic	μg/L	<2	<1	<1	3	<1	<1	<1
Selenium	μg/L	<1	<1	<1	<1	<1	<1	<1
Mercury	μg/L	<0.5	<0.5	ND	<0.5	0.6	<0.5	<0.5

(A) Serves Elmore City Rural Water Corp.
(B) Serves RWD 2.
(C) Serves RWD 2.
(D) Serves RWD 1 & 4.
(E) Serves Wynnewood Rural Water Corp.

GRADY CO.

CITY		Alex	Bradley	Chickasha (A)	Minco	RWD 1	RWD 2	Rush Springs	Tuttle	Verden
SOURCE OF SUPPLY		Ground Water	Ground Water	Ft Cobb Lake	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ft Cobb Lake
DATE OF ANALYSIS		2-79	2-79	10-77	2-79	2-79	2-79	2-79	2-79	1-79
PARAMETERS	UNIT									
Total Hardness	mg/L	563	451	219	326	500	945	393	333	469
Total Alkalinity	mg/L	500	434	142	224	297	170	204	151	356
Chloride	mg/L	32	22	18	98	18	33	30	29	25
Sulfate	mg/L	91	25	113	280	209	755	119	77	102
Fluoride	mg/L	0.28	0.46	0.32	0.35	0.41	0.25	0.26	0.24	0.41
Dissolved Solids	mg/L	661	485	359	785	683	1495	496	515	550
pH	SU	7.4	7.5	8.1	8.1	7.4	7.3	7.4	6.9	7.5
Sodium	mg/L	37	35	27	152	46	84	22	30	34
Nitrite-Nitrate	mg/L	0.5	0.2	0.2	0.1	2.4	1.3	3.9	—	8.5
Iron	μg/L	100	<100	<100	<100	<100	<100	<100	180	99
Manganese	μg/L	160	510	<10	30	<20	<20	<20	5	6
Silver	μg/L	2	1	<2	20	3	<1	2	2	<2
Cadmium	μg/L	1	<1	<1	1	1	2	2	2	1
Chromium	μg/L	18	16	9	19	19	17	16	15	15
Copper	μg/L	5	125	5	3	7	6	9	44	28
Lead	μg/L	31	34	<5	17	29	39	39	20	44
Zinc	μg/L	410	125	9	<0.5	32	57	210	35	8
Barium	μg/L	320	230	100	100	100	<100	140	230	150
Arsenic	μg/L	5	<2	<1	<2	<2	<2	<2	<2	<1
Selenium	μg/L	<1	<1	<1	<1	1	<1	<1	<1	<1
Mercury	μg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

(A) Serves Norge Water Corp., RWD 6

JEFFERSON CO.

CITY		Ringling (A)	Ryan	Waurika (B)
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		9-77	10-77	10-77
PARAMETERS	UNIT			
Total Hardness	mg/L	7	431	454
Total Alkalinity	mg/L	494	423	361
Chloride	mg/L	19	69	172
Sulfate	mg/L	127	52	124
Fluoride	mg/L	1.6	0.64	0.35
Dissolved Solids	mg/L	781	641	858
pH	SU	9.1	7.5	7.7
Sodium	mg/L	261	66	110
Nitrite-Nitrate	mg/L	<0.1	4.2	1.1
Iron	μg/L	<100	<100	<100
Manganese	μg/L	<10	<10	<10
Silver	μg/L	3	3	5
Cadmium	μg/L	<1	<1	<1
Chromium	μg/L	8	<5	5
Copper	μg/L	5	9	20
Lead	μg/L	7	10	18
Zinc	μg/L	6	28	44
Barium	μg/L	<100	200	100
Arsenic	μg/L	<1	<1	<1
Selenium	μg/L	<1	2	3
Mercury	μg/L	<0.5	<0.5	<0.5

(A) Serves Cornish Utility Corp.
(B) Serves Hastings, RWD 1

LOVE CO.

CITY		Leon RWD 1	Marietta	Thackerville
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		3-78	1-78	3-78
PARAMETERS	UNIT			
Total Hardness	mg/L	144	20	—
Total Alkalinity	mg/L	159	370	—
Chloride	mg/L	195	35	—
Sulfate	mg/L	45	62	—
Fluoride	mg/L	0.12	0.51	0.22
Dissolved Solids	mg/L	223	453	—
pH	SU	7.6	9.2	—
Sodium	mg/L	17	190	207
Nitrite-Nitrate	mg/L	1.3	0.5	0.6
Iron	μg/L	760	240	190
Manganese	μg/L	10	10	10
Silver	μg/L	<2	<2	<2
Cadmium	μg/L	<1	1	2
Chromium	μg/L	15	10	15
Copper	μg/L	6	90	3
Lead	μg/L	9	8	<5
Zinc	μg/L	135	33	2
Barium	μg/L	50	60	<50
Arsenic	μg/L	1	1	1
Selenium	μg/L	3	<1	<1
Mercury	μg/L	<0.5	<0.5	<0.5

		MARSHALL CO.				MURRAY CO.			STEPHENS CO.						
CITY		Kelly	Kingston	Madill (A)	Marshall (B)	Arbuckle (A)	Davis (B)	Sulphur (C)	Adams RWD 1	Comanche	Duncan	Loco RWD 4 (A)	Marlow	Meridian RWD 3	Verden-Alma RWD 1
SOURCE OF SUPPLY		Ground Water	Ground Water	City Lake	Oteka Lake	Arbuckle Lake	Arbuckle Lake	Ground Water	Ground Water	Comanche Lake	City Lakes*	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		9-77	9-77	3-79	3-79	N/A	3-79	6-78	12-78	2-79	2-79	7-78	3-77	7-78	7-78
PARAMETERS	UNIT														
Total Hardness	mg/L	5	5	134	189		170	331	259	110	248	—	—	157	—
Total Alkalinity	mg/L	201	440	95	112		137	315	212	110	131	—	—	363	—
Chloride	mg/L	6	7	7	8		60	5	14	17	55	—	—	46	—
Sulfate	mg/L	11	32	37	77		19	13	47	11	102	—	—	46	—
Fluoride	mg/L	0.22	0.7	0.88	0.27		0.23	0.22	1.6	0.21	0.33	—	0.25	0.60	—
Dissolved Solids	mg/L	272	564	186	233		293	335	332	145	346	—	—	562	—
pH	SU	9.1	9	7.2	8		7.8	7.4	7.6	7.7	8.5	—	—	7.6	—
Sodium	mg/L	106	220	15	11		26	8	15	23	39	—	—	145	—
Nitrite-Nitrate	mg/L	< 1	0.1	0.2	0.1		0.1	< 0.1	3.1	0.1	0.1	0.5	—	2.2	0.6
Iron	µg/L	< 100	< 100	255	36		35	190	78	865	625	—	—	<100	—
Manganese	µg/L	< 10	< 10	7	4		9	< 20	2	22	9	—	—	< 20	—
Silver	µg/L	< 2	2	< 2	< 2		< 2	< 2	< 2	< 2	< 2	—	3	2	—
Cadmium	µg/L	< 1	< 1	1	2		<1	1	1	1	<1	—	3	<1	—
Chromium	µg/L	11	< 5	10	8		7	< 5	7	18	20	—	12	11	—
Copper	µg/L	23	37	6	8		45	30	13	5	3	—	—	7	—
Lead	µg/L	<5	7	9	13		8	15	< 2	9	14	—	22	11	—
Zinc	µg/L	34	70	26	11		14	21	120	170	7	—	—	78	—
Barium	µg/L	< 100	< 100	< 100	< 100		< 100	240	<100	140	180	<100	<2000	100	<100
Arsenic	µg/L	< 1	< 1	<1	<1		< 2	< 1	3	< 2	< 2	—	2	2	—
Selenium	µg/L	< 1	< 1	<1	<1		<1	< 1	2	<1	2	—	1	<1	—
Mercury	µg/L	0.7	< 0.5	< 0.5	<0.5		1.1	< 0.5	<0.5	<0.5	<0.5	—	<0.5	0.6	—

(A) Serves Oakland Public Works Auth.
(B) Serves Little City, McBride

(A) Serves Dougherty
(B) Serves West Davis Rural Water Corp.
(C) Serves Buckhorn Rural Water Corp., RWD 1

(A) Serves Loco.
*City lakes include Humphreys, Clean Clear Lake & Fuqua Lake.

SOUTHWEST PLANNING REGION

BECKHAM CO.

CITY		Dehli (A)	Elk City	Erick	RWD 1 (B)	RWD 2 (C)	Sayre	Texola
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		11-78	7-77	1-79	8-79	11-78	7-77	3-77
PARAMETERS	UNIT							
Total Hardness	mg/L	340	355	464	307	211	355	2292
Total Alkalinity	mg/L	267	206	248	216	205	209	248
Chloride	mg/L	29	27	61	76	39	13	229
Sulfate	mg/L	78	158	229	141	19	150	1868
Fluoride	mg/L	0.75	0.25	0.48	—	0.28	0.32	—
Dissolved Solids	mg/L	454	496	673	589	294	501	3553
pH	SU	7.3	7.37	7.5	7.4	7.3	7.63	7.3
Sodium	mg/L	34	25	55	—	25	34	—
Nitrite-Nitrate	mg/L	9.7	5.2	6.1	8.9	6	4.8	8.7
Iron	µg/L	49	<200	130	<100	93	<200	—
Manganese	µg/L	3	<20	9	<20	7	<20	—
Silver	µg/L	2	3	2	—	<2	4	—
Cadmium	µg/L	1	1	4	—	4	<1	—
Chromium	µg/L	8	40	8	—	8	<10	—
Copper	µg/L	12	108	6	—	32	7	—
Lead	µg/L	9	<5	14	—	12	13	—
Zinc	µg/L	70	85	250	—	1600	85	—
Barium	µg/L	214	100	<100	—	429	<100	—
Arsenic	µg/L	<1	<1	<1	—	1	2	—
Selenium	µg/L	1	<1	2	—	<1	<1	48
Mercury	µg/L	<0.5	<0.5	<0.5	—	<0.5	<0.5	—

(A) Serves Carter PWA
(B) Serves Sentinel, Carter, Rocky, Hicks Mountain
(C) Serves Sweetwater

CADDO CO.

CITY		Anadarko	Apache	Binger	Bridgeport	Carnegie	Cement	Cyril	Eakly	Fort Cobb
SOURCE OF SUPPLY		Ft. Cobb Lake	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		9-77	9-77	9-77	9-77	9-77	7-78	3-79	9-77	9-77
PARAMETERS	UNIT									
Total Hardness	mg/L	202	266	170	337	286	189	564	191	269
Total Alkalinity	mg/L	127	267	172	293	216	191	214	200	160
Chloride	mg/L	15	5	6	10	14	71	135	4	8
Sulfate	mg/L	106	28	18	108	87	432	208	7	104
Fluoride	mg/L	0.3	0.2	0.35	0.50	0.15	—	19	0.25	0.35
Dissolved Solids	mg/L	300	312	246	474	403	1000	784	229	391
pH	SU	7.7	7.5	7.7	7.3	7.3	7.9	7.7	7.6	7.6
Sodium	mg/L	25	15	17	45	18	—	36	14	12
Nitrite-Nitrate	mg/L	0.2	0.1	1.5	6.6	2.6	0.1	3.5	2.0	5.5
Iron	µg/L	<100	<100	100	<100	270	600	68	<100	<100
Manganese	µg/L	<10	<10	<10	<10	10	40	7	<10	<10
Silver	µg/L	3	1	1	3	3	—	3	2	4
Cadmium	µg/L	<1	1	1	2	<1	—	2	<1	<1
Chromium	µg/L	<5	10	15	10	<10	—	13	<10	<10
Copper	µg/L	5	5	8	6	160	—	60	35	59
Lead	µg/L	5	20	10	11	17	—	30	6	14
Zinc	µg/L	20	980	250	360	90	—	49	780	24
Barium	µg/L	<100	100	100	100	<100	—	120	100	<100
Arsenic	µg/L	<1	<1	5	3	8	—	<1	20	4
Selenium	µg/L	<1	5	7	2	1	—	3	<1	<1
Mercury	µg/L	<0.5	1.4	<0.5	1.0	<0.5	—	<0.5	0.7	<0.5

CADDO CO. Continued

CITY		Gracemont	Hinton	Hydro	Lookeba RWD 1	RWD 1	RWD 3 (A)	Washita
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Fort Cobb
DATE OF ANALYSIS		3-79	3-79	9-77	9-77	3-79	3-79	9-77
PARAMETERS	UNIT							
Total Hardness	mg/L	266	236	240	247	242	323	158
Total Alkalinity	mg/L	168	302	219	212	203	223	35
Chloride	mg/L	19	23	17	3	16	21	18
Sulfate	mg/L	54	54	37	50	56	92	155
Fluoride	mg/L	0.22	0.15	0.2	0.3	0.26	0.14	0.30
Dissolved Solids	mg/L	346	406	353	326	141	429	307
pH	SU	7.7	7.5	7.4	7.4	7	7	10.2
Sodium	mg/L	<10	61	26	11	12	25	23
Nitrite-Nitrate	mg/L	9.7	0.7	8.0	1.9	1.1	3	<0.1
Iron	µg/L	64	60	<100	<100	41	46	<100
Manganese	µg/L	3	3	<10	<10	3	3	<10
Silver	µg/L	<2	<2	2	3	2	<2	3
Cadmium	µg/L	<1	1	<1	<1	<1	1	<1
Chromium	µg/L	14	15	<10	<10	14	16	<10
Copper	µg/L	52	13	6	26	100	36	3
Lead	µg/L	14	14	15	17	13	12	11
Zinc	µg/L	150	26	40	60	12	27	10
Barium	µg/L	290	280	400	200	170	300	<100
Arsenic	µg/L	<1	<1	7	10	3	<1	<1
Selenium	µg/L	<1	<1	<1	<1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	1.4	<1.2	0.5	<0.5	<0.5

(A) Serves Gotebo

COMANCHE CO.

CITY		Cache	Chattanooga	CKT Rural Water Assoc. (A)	Elgin	Faxon	Fletcher	Geronimo	Indiahoma	Lawton (B)
SOURCE OF SUPPLY		Ground Water	Ground Water	Tom Steed	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	City Lake
DATE OF ANALYSIS		5-77	5-77	5-77	3-79	5-77	7-78	6-79	1-79	3-79
PARAMETERS	UNIT									
Total Hardness	mg/L	36	316	262	286	614	1020	135	10	161
Total Alkalinity	mg/L	134	256	244	248	338	163	356	318	123
Chloride	mg/L	74	195	98	1	413	24	475	25	28
Sulfate	mg/L	15	28	25	17	111	903	166	61	34
Fluoride	mg/L	2.5	0.35	0.3	0.18	0.33	0.41	7.97	7.43	0.8
Dissolved Solids	mg/L	—	—	—	299	—	1598	1415	522	234
pH	SU	8.6	7.4	7.3	7.4	7.2	7.4	7.7	8.7	7.9
Sodium	mg/L	104	135	76	11	290	28	490	203	14
Nitrite-Nitrate	mg/L	0.1	10.8	0.6	4.4	8.9	7.9	1.5	0.2	0.1
Iron	µg/L	<250	730	<250	130	<250	280	100	101	56
Manganese	µg/L	<10	30	<10	3	<10	<20	6	2	4
Silver	µg/L	2	5	2	<2	7	4	<2	<2	<2
Cadmium	µg/L	1	1	1	1	3	<1	2	1	<1
Chromium	µg/L	10	14	14	12	13	9	17	8	10
Copper	µg/L	—	—	—	7	—	39	35	2	7
Lead	µg/L	7	39	10	12	15	30	16	11	17
Zinc	µg/L	—	—	—	225	—	745	405	8	5
Barium	µg/L	200	500	600	580	700	150	140	<100	16
Arsenic	µg/L	4	<1	<1	<1	<1	<1	<1	6	<1
Selenium	µg/L	<1	2	<1	<1	4	<1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

(A) Purchases water from Snyder, Kiowa County
(B) Serves RWD 1, Medicine Park Public Works

		COMANCHE CO. Continued			COTTON CO.						CUSTER CO.				
CITY		RWD 2	RWD 3	Sterling	Devol	Randlett RWD 1	RWD 1	RWD 2	Temple	Walters RWD 2	Clinton (A)	Custer City (B)	Foss	Thomas	Weatherford
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	City Lake	Ground Water City Lake	City Lake	Ground Water	Foss Res.	Ground Water	Ground Water
DATE OF ANALYSIS		3-79	3-79	3-79	1-79	10-77	4-79	1-79	1-79	10-77	4-77	1-79	1-79	1-79	1-79
PARAMETERS	UNIT														
Total Hardness	mg/L	293	154	435	286	236	314	116	192	100	240	208	263	357	243
Total Alkalinity	mg/L	231	168	253	323	228	301	141	164	100	189	200	32	288	129
Chloride	mg/L	14	12	3	17	18	206	10	58	4	19	7	13	32	4
Sulfate	mg/L	21	15	168	22	17	28	6	72	8	82	28	357	142	101
Fluoride	mg/L	0.21	0.25	0.3	1	0.26	0.51	0.34	0.42	0.30	0.4	0.15	0.11	0.26	0.41
Dissolved Solids	mg/L	339	313	57	404	340	778	293	405	232	368	355	1092	544	318
pH	SU	7.5	7.7	7.7	7.6	8	7.1	7.5	7.4	7.3	8.1	7.7	7.2	7.7	7.9
Sodium	mg/L	21	49	32	58	24	19	36	66	34	—	20	57	60	<10
Nitrite-Nitrate	mg/L	0.7	9.4	2.3	7	7.7	5.6	8	0.2	6	0.1	5.3	<0.1	1.5	4.3
Iron	μg/L	74	57	62	90	140	<100	68	370	<100	<0.1	270	270	360	2500
Manganese	μg/L	3	3	3	44	<10	<20	<2	130	<10	<0.01	<20	<20	<20	40
Silver	μg/L	<2	<2	<2	<2	2	<20	<2	<2	<2	.001	<2	<2	<2	<2
Cadmium	μg/L	1	<1	1	1	<1	<2	<1	1	<1	.001	<2	<2	<2	<2
Chromium	μg/L	15	8	18	6	<5	12	<5	<5	<5	.013	<5	<5	<5	<5
Copper	μg/L	7	22	46	19	6	150	16	29	30	—	9	26	16	11
Lead	μg/L	11	26	12	6	5	19	9	9	8	.009	7	10	14	14
Zinc	μg/L	9	115	25	20	18	390	55	70	230	—	120	<5	20	1600
Barium	μg/L	130	480	120	100	10	780	500	200	<100	0.13	143	<100	143	143
Arsenic	μg/L	<1	<1	<1	<1	<1	<2	<1	<1	<1	.001	1	<1	2	27
Selenium	μg/L	<1	<1	3	1	1	<1	<1	<1	<1	.001	<1	<1	2	<1
Mercury	μg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<.0005	<0.5	<0.5	<0.5	<0.5

(A) Serves Arapaho, Butler PWA
(B) Will Serve Proposed RWD 3

		GREER CO.					HARMON CO.		JACKSON CO.			
CITY		Centralvue (A)	Granite	Mangum (B)	Thirsty	Willow	Harmon County (A)	Hollis	Altus (A)	Duke (B)	Eldorado (C)	Jackson Co. Water Company (D)
SOURCE OF SUPPLY		Duke	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Tom Steed Lake	Ground Water	Harmon	Ground Water
DATE OF ANALYSIS			4-77	4-77	11-78	4-79	9-77	10-77	4-77	4-77	N/A	4-77
PARAMETERS	UNIT											
Total Hardness	mg/L		198	148	130	182	263	227	486	251		148
Total Alkalinity	mg/L		204	119	134	157	228	234	137	217		129
Chloride	mg/L		11	30	14	11	16	11	210	14		27
Sulfate	mg/L		27	18	15	10	68	41	98	13		21
Fluoride	mg/L		0.4	0.2	0.6	0.47	0.43	0.54	0.4	0.4		0.5
Dissolved Solids	mg/L		285	211	222	268	498	390	671	283		222
pH	SU		7.9	7.8	7.3	7.5	7.4	7.5	8	7.9		7.7
Sodium	mg/L		—	—	16	13	36	38	—	—		—
Nitrite-Nitrate	mg/L		8.45	8.45	7.3	11	8.2	9.5	4.7	9.7		2.2
Iron	μg/L		<100	360	70	340	<100	<100	<100	<100		<100
Manganese	μg/L		<10	<10	2	7	<10	<10	<10	<10		<10
Silver	μg/L		4	3	<2	<2	3	2	4	4		4
Cadmium	μg/L		1	1	1	1	<1	<1	3	1		1
Chromium	μg/L		19	13	6	6	<5	<5	27	17		20
Copper	μg/L		—	—	13	53	5	57	—	—		—
Lead	μg/L		9	12	7	12	8	10	12	14		4
Zinc	μg/L		—	—	55	465	44	42	—	—		—
Barium	μg/L		180	140	143	357	<100	<100	300	260		<100
Arsenic	μg/L		<1	3	1	4	<1	<1	<1	3		1
Selenium	μg/L		<1	<1	<1	<1	1	<1	<1	1		1
Mercury	μg/L		0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5

(A) Purchases water from Duke, Jackson Co.
(B) Serves Reed Water Corporation & Hester Water Corporation

(A) Serves Gould, El Dorado, Jackson Co., Arnett School

(A) Serves Blair Public Works Authority, Olustee Public Works Authority
(B) Serves Centralvue Water Corp., Grant County
(C) Purchases water from Harmon County Water Corporation
(D) Serves Martha, Headrick

KIOWA CO.

CITY		Gotebo (A)	Hobart	Lone Wolfe	Mountain Park	Mountain View	Roosevelt	Snyder
SOURCE OF SUPPLY		Ground Water	City Lake	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water Tom Steed Lake
DATE OF ANALYSIS		N/A	4-79	4-79	9-77	9-77	12-78	9-77
PARAMETERS	UNIT							
Total Hardness	mg/L		210	411	279	225	476	359
Total Alkalinity	mg/L		26	299	390	263	460	347
Chloride	mg/L		11	48	154	12	72	99
Sulfate	mg/L		277	56	92	23	167	107
Fluoride	mg/L		0.19	0.67	0.30	0.30	0.36	0.30
Dissolved Solids	mg/L		496	580	795	305	897	683
pH	SU		6.9	7.1	7.5	7.5	7.3	7.3
Sodium	mg/L		59	45	190	26	145	107
Nitrite-Nitrate	mg/L		0.1	19	3.4	1.2	8.2	1.1
Iron	µg/L		240	2200	<100	<100	925	<100
Manganese	µg/L		<20	20	<10	<10	6	<10
Silver	µg/L		<2	<2	4	<2	<2	4
Cadmium	µg/L		2	<2	<1	<1	3	<1
Chromium	µg/L		16	19	<5	<5	11	<5
Copper	µg/L		<40	50	7	14	10	23
Lead	µg/L		20	29	13	11	20	17
Zinc	µg/L		80	100	50	20	2500	50
Barium	µg/L		110	270	300	200	214	300
Arsenic	µg/L		<2	3	1	2	2	8
Selenium	µg/L		<1	<1	5	<1	2	<1
Mercury	µg/L		<0.5	<0.5	0.7	<0.5	<0.5	<0.5

(A) Purchases water from RWD 3, Caddo Co.

ROGER MILLS CO.

CITY		Cheyenne	Hammon	Reydon	RWD 1 (A)	RWD 2 (B)
SOURCE OF SUPPLY		Tompson Lake	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		11-78	11-78	11-78	11-78	11-78
PARAMETERS	UNIT					
Total Hardness	mg/L	164	581	213	469	198
Total Alkalinity	mg/L	246	194	277	192	243
Chloride	mg/L	36	26	35	29	7
Sulfate	mg/L	19	399	21	223	2
Fluoride	mg/L	0.53	0.32	0.78	0.37	0.24
Dissolved Solids	mg/L	313	880	419	596	296
pH	SU	7.9	7.7	7.3	7.5	7.4
Sodium	mg/L	65	14	69	13	31
Nitrite-Nitrate	mg/L	<0.1	4.9	7.6	4.1	6.3
Iron	µg/L	265	180	45	70	135
Manganese	µg/L	5	6	<1	3	<1
Silver	µg/L	<2	3	<2	3	<2
Cadmium	µg/L	<1	2	2	2	2
Chromium	µg/L	8	5	8	7	7
Copper	µg/L	60	<5	21	45	9
Lead	µg/L	7	14	6	15	10
Zinc	µg/L	40	75	95	105	215
Barium	µg/L	214	<100	214	<100	500
Arsenic	µg/L	5	1	2	2	<1
Selenium	µg/L	<1	1	2	2	1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5

(A) Serves Strong City
(B) Serves Leedy

TILLMAN CO.

CITY		Davidson	Frederick	Grandfield	Hollister	Manitou	RWD 1 (A)	Tipton
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		11-78	12-78	12-78	12-78	12-78	12-78	12-78
PARAMETERS	UNIT							
Total Hardness	mg/L	563	118	243	355	253	168	282
Total Alkalinity	mg/L	347	194	182	338	257	158	393
Chloride	mg/L	108	24	13	233	18	15	146
Sulfate	mg/L	100	38	8	123	16	<1	144
Fluoride	mg/L	0.59	0.22	0.6	0.31	0.45	0.48	0.95
Dissolved Solids	mg/L	712	293	322	896	382	250	932
pH	SU	7.4	8.1	7.6	7.6	7.4	7.4	7.2
Sodium	mg/L	75	70	17	218	43	18	156
Nitrite-Nitrate	mg/L	18	0.2	19.5	3.1	12.8	8.8	12.3
Iron	µg/L	52	61	93	5850	58	52	81
Manganese	µg/L	4	8	2	7	2	1	12
Silver	µg/L	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	2	1	<1	4	1	1	2
Chromium	µg/L	<5	<5	<5	<5	<5	<5	<5
Copper	µg/L	40	35	110	135	14	25	22
Lead	µg/L	15	6	6	12	7	6	14
Zinc	µg/L	56	100	10	2500	15	70	750
Barium	µg/L	200	300	200	100	200	200	<100
Arsenic	µg/L	<1	<1	<1	31	<1	<1	<1
Selenium	µg/L	3	<1	<1	3	<1	<1	90
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

(A) Serves Loveland

WASHITA CO.

CITY		Bessie	Canute	Colony	Cordell	Corn	Dill City	Foss	Rocky (A)	RWD 2	Sentinel
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		1-78	4-79	9-77	4-79	12-78	4-79	4-79	N/A	N/A	9-77
PARAMETERS	UNIT										
Total Hardness	mg/L	320	398	182	280	188	351	526	—	—	380
Total Alkalinity	mg/L	288	333	162	258	214	306	549	—	—	212
Chloride	mg/L	161	17	8	6	4	24	35	—	—	14
Sulfate	mg/L	62	15	10	13	<1	17	50	—	—	148
Fluoride	mg/L	0.33	0.37	0.35	0.44	0.28	0.45	0.34	—	—	0.50
Dissolved Solids	mg/L	636	707	246	433	255	476	707	—	—	579
pH	SU	7.5	70	7.8	1	7.4	6.9	7	—	—	7.5
Sodium	mg/L	140	40	<5	20	12	32	<2	—	—	19
Nitrite-Nitrate	mg/L	0.4	6.7	4.5	6	2.2	6.2	8.4	—	—	5.9
Iron	µg/L	<40	<100	<100	<100	61	700	<100	—	—	<100
Manganese	µg/L	<20	<20	<10	<20	1	<20	<20	—	—	<10
Silver	µg/L	3	<2	<2	<2	<2	<2	56	—	—	<1
Cadmium	µg/L	<1	<2	<1	<2	1	3	2	—	—	<1
Chromium	µg/L	11	17	6	18	<5	16	16	—	—	<5
Copper	µg/L	65	230	9	<40	20	60	<40	—	—	10
Lead	µg/L	45	22	9	16	16	27	32	—	—	12
Zinc	µg/L	27	90	540	100	230	800	70	—	—	50
Barium	µg/L	100	680	200	680	286	650	490	—	—	<100
Arsenic	µg/L	<1	<2	7	4	11	<2	3	—	—	<1
Selenium	µg/L	<1	<1	<1	<1	<1	<1	<1	—	—	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	—	—	<0.5

(A) Purchases water from RWD 1, Beckham Co.

EAST CENTRAL PLANNING REGION

HASKELL CO.

CITY		Haskell (A)	Keota	Mason Oaks RWD 3	RWD 1	Stigler
SOURCE OF SUPPLY		Eufaula Lake	Strip Pits	Eufaula Lake	Eufaula Lake	Eufaula Lake
DATE OF ANALYSIS		5-78	5-77	3-79	3-79	5-77
PARAMETERS	UNIT					
Total Hardness	mg/L	134	246	140	144	67
Total Alkalinity	mg/L	44	110	93	99	30
Chloride	mg/L	72	7	70	77	9
Sulfate	mg/L	80	162	47	45	33
Fluoride	mg/L	0.12	0.30	0.47	0.45	<0.1
Dissolved Solids	mg/L	291	—	333	334	100
pH	SU	7.1	8.4	7.5	7.6	7.6
Sodium	mg/L	42	—	53	51	—
Nitrite-Nitrate	mg/L	0.1	0.2	0.1	0.2	<0.1
Iron	µg/L	560	500	110	<100	765
Manganese	µg/L	20.0	90.0	<20	<20	50
Silver	µg/L	<2	2	<20	<20	4
Cadmium	µg/L	<1	3	<2	<2	1
Chromium	µg/L	21	10	<10	<10	11
Copper	µg/L	90	—	<40	<40	—
Lead	µg/L	7	15	10	10	124
Zinc	µg/L	24	—	<40	130	—
Barium	µg/L	<100	<100	590	600	<100
Arsenic	µg/L	<1	1	<2	<2	2
Selenium	µg/L	<1	<3	<1	<1	<3
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5

(A) Serves Kinta; Longtown RWD 1, Pittsburg Co.; Quinton, Pittsburg Co.

HUGHES CO.

CITY		Calvin	Dustin	Holdenville (A)	Stuart RWD 2	Wetumka (B)
SOURCE OF SUPPLY		Ground Water	City Lake	City Lakes	Ground Water	City Lake
DATE OF ANALYSIS		7-78	5-78	5-78	7-78	5-78
PARAMETERS	UNIT					
Total Hardness	mg/L	503	47	67	216	80
Total Alkalinity	mg/L	363	20	68	198	44
Chloride	mg/L	49	9	9	20	27
Sulfate	mg/L	56	31	24	98	29
Fluoride	mg/L	0.21	0.06	0.19	0.23	0.14
Dissolved Solids	mg/L	615	113	120	390	155
pH	SU	7	6.5	8.3	6.9	7.6
Sodium	mg/L	28	5	6	49	13
Nitrite-Nitrate	mg/L	4.4	0.3	0.1	0.1	0.1
Iron	µg/L	150	600	110	490	500
Manganese	µg/L	20	130	<10	370	<10
Silver	µg/L	3	<2	<2	<2	<2
Cadmium	µg/L	<1	<1	<1	<1	<1
Chromium	µg/L	<10	17	14	10	18
Copper	µg/L	35	26	<2	6	85
Lead	µg/L	25	<5	<5	9	5
Zinc	µg/L	125	120	13	29	25
Barium	µg/L	240	<50	<50	<100	60
Arsenic	µg/L	1	3	22	<1	<1
Selenium	µg/L	1.9	<1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5

(A) Serves Lamar and RWD 3.
(B) Serves RWD 1.

LATIMER CO.

CITY		Red Oak (A)	RWD 3	Wilburton (B)
SOURCE OF SUPPLY		Strip Pits	Eufaula Lake	Church Lake
DATE OF ANALYSIS		3-79	N/A	3-79
PARAMETERS	UNIT			
Total Hardness	mg/L	133	—	32
Total Alkalinity	mg/L	121	—	15
Chloride	mg/L	11	—	3
Sulfate	mg/L	67	—	16
Fluoride	mg/L	0.28	—	0.43
Dissolved Solids	mg/L	253	—	77
pH	SU	8.2	—	6.8
Sodium	mg/L	31	—	<10
Nitrite-Nitrate	mg/L	0.5	—	0.1
Iron	µg/L	110	—	140
Manganese	µg/L	<20	—	<20
Silver	µg/L	<20	—	<20
Cadmium	µg/L	<20	—	<2
Chromium	µg/L	<10	—	10
Copper	µg/L	<40	—	<40
Lead	µg/L	12	—	<10
Zinc	µg/L	70	—	<40
Barium	µg/L	370	—	150
Arsenic	µg/L	<2	—	<2
Selenium	µg/L	<1	—	<1
Mercury	µg/L	<0.5	—	<0.5

(A) Serves Water Distributors Co., Inc., Leflore County.
(B) Serves RWD 1, Gowen, Panola, Denman, Damon, Higgins.

LeFLORE CO.

CITY		Heavener (A)	Ouchita	Poteau Valley Improvement Authority (B)	Spiro	Talihina (C)
SOURCE OF SUPPLY		Poteau River	Ground Water	Wister Lake	City Lake	Carl Albert Lake
DATE OF ANALYSIS		3-79	5-78	5-77	5-77	5-77
PARAMETERS	UNIT					
Total Hardness	mg/L	27	62	55	69	71
Total Alkalinity	mg/L	27	72	34	40	115
Chloride	mg/L	<1	5	4	11	7
Sulfate	mg/L	26	12	22	21	32
Fluoride	mg/L	<0.06	0.13	0.1	0.1	<0.1
Dissolved Solids	mg/L	59	134	78	96	188
pH	SU	6.5	6.8	9.0	7.6	7.8
Sodium	mg/L	<10	17	—	—	—
Nitrite-Nitrate	mg/L	0.3	0.1	0.3	0.2	<0.1
Iron	µg/L	<100	860	<100	730	130
Manganese	µg/L	<20	140	<10	70	<10
Silver	µg/L	<20	<1	1	<1	2
Cadmium	µg/L	<2	<1	2	2	2
Chromium	µg/L	26	10	5	5	4
Copper	µg/L	<40	6	—	—	—
Lead	µg/L	<10	5	3	7	4
Zinc	µg/L	<40	41	—	—	—
Barium	µg/L	130	<100	<100	<100	<100
Arsenic	µg/L	<2	<1	<1	<1	<1
Selenium	µg/L	<1	<1	<3	<3	<3
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5

LEFLORE
(A) Serves RWD 5, Howe Water Distributors Co.
(B) Serves Cameron PWA, Monroe Water Assoc. Inc., RWD 1, 2, 4, Spiro East-West Water Assoc., Northwest Water Assoc., Pocola, Howe, Bokoshe, Poteau, McCurtain, Fanshawne, LeFlore, Summerfield, Wister, Rock Island, Heavener, Panama, Shady Point, Cowlington, Tucker, Kerr Lock & Dam.
(C) Serves RWD 2, Pushmataha Co. & RWD 2, Latimer Co., RWD 3.

McINTOSH CO.

CITY		Checotah (A)	Eufaula (B)	Hanna (C)	Muskogee RWD 3 (D)	Standing Rock (E)
SOURCE OF SUPPLY		City Lake	Eufaula Lake	Ground Water	Eufaula Lake	Eufaula Lake
DATE OF ANALYSIS		3-78	3-78	3-78	3-78	N/A
PARAMETERS	UNIT					
Total Hardness	mg/L	164	112	74	148	—
Total Alkalinity	mg/L	115	64	110	140	—
Chloride	mg/L	88	40	6	87	—
Sulfate	mg/L	60	71	18	—	—
Fluoride	mg/L	0.29	0.12	0.11	0.31	—
Dissolved Solids	mg/L	347	208	137	367	—
pH	SU	8.5	6.9	7.4	8.7	—
Sodium	mg/L	71	26	28	84	—
Nitrite-Nitrate	mg/L	<0.1	0.4	0.3	0.1	—
Iron	µg/L	50	380	50	<50	—
Manganese	µg/L	<20	30	<20	<20	—
Silver	µg/L	<2	<2	<1	12	—
Cadmium	µg/L	<1	<1	<1	<1	—
Chromium	µg/L	23	28	7	20	—
Copper	µg/L	2	4	7	34	—
Lead	µg/L	9	13	<5	7	—
Zinc	µg/L	34	33	22	100	—
Barium	µg/L	70	70	80	90	—
Arsenic	µg/L	1	<1	2	<1	—
Selenium	µg/L	<1	<1	<1	<1	—
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	—

McINTOSH
(A) Serves Shady Grove RWD 5, RWD 3, Pierce Area Dev. Corp., RWD 2, Onapa RWD, Victor RWD, 4-Man's Cove, Brushhill Village RWD.
(B) Serves RWD 6, Eufaula Utility Auth., Eufaula Enterprises, River Oaks, Eagle Bluff.
(C) Serves Vernon. (D) Serves RWD 4, Hitchita. (E) Serves Cresent Hills.

OKFUSKEE CO.

CITY		Boley RWD 1	Okemah (A)	Paden	Weleetka
SOURCE OF SUPPLY		Ground Water	Okemah Lake	Ground Water	Weleetka Lake
DATE OF ANALYSIS		4-77	11-77	4-77	11-77
PARAMETERS	UNIT				
Total Hardness	mg/L	36	111	325	52
Total Alkalinity	mg/L	20	60	299	21
Chloride	mg/L	12	29	9	26
Sulfate	mg/L	10	26	7	3
Fluoride	mg/L	0.10	0.91	0.20	0.44
Dissolved Solids	mg/L	58	119	356	201
pH	SU	6.3	8.2	7.6	7.2
Sodium	mg/L	—	20	—	15
Nitrite-Nitrate	mg/L	1.0	0.2	0.1	0.3
Iron	µg/L	<100	165	<100	525
Manganese	µg/L	<10	10	<10	65
Silver	µg/L	2	1	33	<2
Cadmium	µg/L	<1	<1	1	<1
Chromium	µg/L	25	8	20	7.5
Copper	µg/L	—	4	—	5
Lead	µg/L	<3	5	4	6
Zinc	µg/L	—	16.5	—	115
Barium	µg/L	<100	<100	200	<100
Arsenic	µg/L	1	<1	1	1
Selenium	µg/L	<1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5

(A) Serves RWD 1, 2, Bearden, Castle, Cromwell Water District 3, Seminole Co., Okfuskee, Pharoah.

PITTSBURG CO.

CITY		Crowder (A)	Kiowa (B)	Krebs	McAlester (C)	Pittsburg	Pittsburg Co. (D)	RWD 4	U.S. Naval Ammunition Depot (E)
SOURCE OF SUPPLY		City Lake	City Lake	McAlester Lake	McAlester Lake	City Lake	Eufaula Lake	Eufaula Lake	Brown Lake
DATE OF ANALYSIS		5-77	7-79	5-79	5-77	5-77	3-78	5-77	2-78
PARAMETERS	UNIT								
Total Hardness	mg/L	42	44	58	45	54	77	64	63
Total Alkalinity	mg/L	18	26	29	21	<3	59	11	51
Chloride	mg/L	6	5	5	6	5	12	21	7
Sulfate	mg/L	17	30	45	20	51	79	49	68
Fluoride	mg/L	0.08	<0.6	<0.06	0.45	0.06	0.08	0.1	0.11
Dissolved Solids	mg/L	—	119	131	—	—	131	—	88
pH	SU	8.1	6.3	7.3	9.2	4.8	9.4	7.0	8.2
Sodium	mg/L	<10	<10	<10	<10	<10	20	21	8
Nitrite-Nitrate	mg/L	<0.1	0.3	<0.5	0.3	<0.1	0.2	0.1	<0.1
Iron	μg/L	200	320	200	<200	330	90	<200	60
Manganese	μg/L	50	60	370	<10	70	<20	<10	<20
Silver	μg/L	2	<2	<2	<1	2	<2	1	<2
Cadmium	μg/L	<1	<2	3	<1	<1	<1	1	1
Chromium	μg/L	7	<10	<10	<1	3	20	7	20
Copper	μg/L	—	<40	<46	—	—	2	—	4
Lead	μg/L	16	<10*	10	4	8	<5	<1	<5
Zinc	μg/L	—	<40	<40	—	—	127	—	18
Barium	μg/L	500	<100	<100	600	400	<50	500	70
Arsenic	μg/L	<1	<5	<5	<1	<1	1	<1	1
Selenium	μg/L	<1	<5	<6	<1	<1	<1	<1	<1
Mercury	μg/L	0.8	<0.5	0.6	1.3	0.9	<0.5	0.9	<0.5

(A) Serves Indianola Water Co., Canadian, Lakeside Water Company, Inc., Canadian Shores, Sam's Point.
(B) Serves RWD 11.
(C) Serves Tannehill Water Co., RWD 5, 6, 7, 9, McAlester State Prison.
(D) Serves Hartshorne Public Works Auth., Adamson Water District Co., Inc.; Haileyville.
(E) Serves Savana

SEMINOLE CO.

CITY		Bowlegs-Lima RWD (A)	Cromwell	Konowa	Maud	Sasakwa	Sasakwa RWD 4	Seminole (B)	Wewoka (C)
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	City Lake
DATE OF ANALYSIS		10-77	5-78	10-77	7-77	10-77	10-77	10-77	10-77
PARAMETERS	UNIT								
Total Hardness	mg/L	12	93	398	<3	173	258	105	94
Total Alkalinity	mg/L	429	80	448	748	339	263	179	69
Chloride	mg/L	45	33	268	51	8	10	30	34
Sulfate	mg/L	81	33	39	97	48	15	53	31
Fluoride	mg/L	2	1.1	0.91	4.5	0.42	0.28	0.36	0.2
Dissolved Solids	mg/L	676	205	931	1025	420	319	338	183
pH	SU	8.8	8.0	7.5	8.9	7.2	7.3	7.7	7.6
Sodium	mg/L	250	20	185	45	95	<10	100	<10
Nitrite-Nitrate	mg/L	<0.1	0.2	0.4	0.2	<0.1	0.1	0.4	0.1
Iron	μg/L	<100	430	100	<200	850	<100	225	110
Manganese	μg/L	<10	20	<10	<10	180	15	12	<10
Silver	μg/L	<2	<2	3	2	<2	<2	<2	<2
Cadmium	μg/L	<1	<1	<1	<1	<1	<1	<1	<1
Chromium	μg/L	8	18	45	<5	35	20	5	15
Copper	μg/L	9	<2	14	12	8	42	85	7
Lead	μg/L	<5	6	<5	15	<5	<5	<5	<5
Zinc	μg/L	5	25	33	19	15	49	1200	13
Barium	μg/L	<100	60	500	<100	<100	400	<100	<100
Arsenic	μg/L	<1	<1	<1	<1	<1	<1	1	<1
Selenium	μg/L	<1	<1	<1	<1	<1	<1	<1	<1
Mercury	μg/L	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5

(A) Serves Bowlegs, Lima, & New Lima.
(B) Serves Earlsboro Water District.
(C) Serves RWD 1 & 2

SEQUOYAH CO.

CITY		East Central Okla. Water Authority (A)	Muldrow	Sallisaw (B)	Sequoyah Co. Water Assoc. (C)	Sequoyah Utility
SOURCE OF SUPPLY		Tenkiller Res.	City Lake	Brush Lake	Tenkiller Res.	Tenkiller Res.
DATE OF ANALYSIS		4-79	8-78	4-79	8-78	8-78
PARAMETERS	UNIT					
Total Hardness	mg/L	96	69	47	82	59
Total Alkalinity	mg/L	85	64	26	76	80
Chloride	mg/L	11	4	6	7	4
Sulfate	mg/L	10	40	14	28	12
Fluoride	mg/L	0.06	0.09	0.06	<0.06	<0.06
Dissolved Solids	mg/L	150	132	123	151	85
pH	SU	7.7	8.8	8.4	7.8	7.7
Sodium	mg/L	<10	10	10	9	6
Nitrite-Nitrate	mg/L	0.7	0.1	1	0.3	0.4
Iron	μg/L	<100	<100	<100	640	<100
Manganese	μg/L	<20	<20	<20	<20	30
Silver	μg/L	<2	<2	<2	<2	<2
Cadmium	μg/L	3	<1	4	1	<1
Chromium	μg/L	21	11	18	6	8
Copper	μg/L	<4	2	4	3	2
Lead	μg/L	10	40	17	47	8
Zinc	μg/L	<4	9	5	3	3
Barium	μg/L	<100	<100	<100	<100	<100
Arsenic	μg/L	<2	<1	<2	<1	<1
Selenium	μg/L	<1	<1	<1	<1	<1
Mercury	μg/L	<0.5	4	<0.5	<0.5	0.9

(A) Serves Gore.
(B) Serves RWD 1, 3, 4 & Gans
(C) Serves Vian PWA, Box, Blackgum, McKay, Marble City, Brushy, Liberty, Short, Nicut, Maple, Long, Blue Mouse, Scott, & Atkins.

NORTHEAST PLANNING REGION

ADAIR CO.

CITY		Cherry Tree RWD 1	Stilwell	Watts	Westville
SOURCE OF SUPPLY		Ground Water	Lake Carson	Lake Francis	Ground Water
DATE OF ANALYSIS		5-78	11-78	11-78	8-77
PARAMETERS	UNIT				
Total Hardness	mg/L	180	84	113	109
Total Alkalinity	mg/L	172	99	136	77
Chloride	mg/L	8	4	10	6
Sulfate	mg/L	13	15	22	<3
Fluoride	mg/L	0.19	0.07	<0.06	<0.06
Dissolved Solids	mg/L	214	123	182	153
pH	SU	7	8.4	7.9	8.0
Sodium	mg/L	<5	10	18	<5
Nitrite-Nitrate	mg/L	0.9	0.6	1.7	1.5
Iron	µg/L	<100	100	<100	<200
Manganese	µg/L	<20	30	<20	<10
Silver	µg/L	<2	<2	<2	2
Cadmium	µg/L	2	<1	<1	<1
Chromium	µg/L	9	14	12	10
Copper	µg/L	34	4	9	180
Lead	µg/L	11	33	7	6
Zinc	µg/L	95	2	12	<10
Barium	µg/L	<100	<100	<100	<100
Arsenic	µg/L	<0.1	<1	<1	<1
Selenium	µg/L	<1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5

CHEROKEE CO.

CITY		Cinderwood	Cookson	Hulbert	Keyes RWD 2	Norwood RWD 1	Peggs	Summit	Tahlequah (A)	Tenkiller Water Inc.
SOURCE OF SUPPLY		Tenkiller	Tenkiller	Fourteen Mile Cr.	Tenkiller	Ft. Gibson Res.	Springs	Tenkiller	Illinois River	Tenkiller
DATE OF ANALYSIS		7-77	7-77	7-77	7-77	6-77	7-77	7-77	7-77	12-78
PARAMETERS	UNIT									
Total Hardness	mg/L	41	84	118	88	124	93	99	107	115
Total Alkalinity	mg/L	122	71	107	83	110	94	95	94	ND
Chloride	mg/L	13	11	9	10	14	3	4	8	37
Sulfate	mg/L	11	15	17	18	32	5	12	13	25
Fluoride	mg/L	12	0.11	0.08	0.09	0.14	0.13	0.06	1.2	<0.06
Dissolved Solids	mg/L	264	132	162	157	208	124	136	146	179
pH	SU	8.7	8.2	7.2	8.1	7.9	7.1	7.6	7.2	7.8
Sodium	mg/L	12.1	<5	7	9	15	<5	10	7	<10
Nitrite-Nitrate	mg/L	<0.1	0.3	0.2	0.2	<0.1	1.2	4	0.3	0.6
Iron	µg/L	6800	<200	<200	<200	<200	<200	<200	<200	110
Manganese	µg/L	70	10	10	10	10	10	10	10	20
Silver	µg/L	<2	<2	3	<2	3	2	<2	6	<1
Cadmium	µg/L	1	1	<1	1	<1	<1	<1	<1	2
Chromium	µg/L	45	10	15	<10	25	20	<10	20	14
Copper	µg/L	5	5	3	3	4	24	11	7	3
Lead	µg/L	8	6	<5	<5	5	7	10	<5	8
Zinc	µg/L	49	20	14	12	32	70	62	13	6
Barium	µg/L	<400	<400	<400	<400	<400	<400	<400	<400	<100
Arsenic	µg/L	13	<1	<1	<1	1	<1	<1	<1	<1
Selenium	µg/L	<1	<1	<1	<1	1	<1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

(A) Serves Parkhill RWD 5, Stick Ross Mtn. Water Co., Grandview RWD 3.

CRAIG CO.

CITY		Blue Jacket	Ketchum	Vinita (A)	Welch
SOURCE OF SUPPLY		Ground Water	Grand Lake	Grand Lake	Ground Water
DATE OF ANALYSIS		4-77	7-77	5-79	4-77
PARAMETERS	UNIT				
Total Hardness	mg/L	92	93	157	208
Total Alkalinity	mg/L	169	83	99	163
Chloride	mg/L	166	7	16	455
Sulfate	mg/L	27	55	47	14
Fluoride	mg/L	3.6	0.25	0.41	0.10
Dissolved Solids	mg/L	—	158	221	—
pH	SU	8.2	7.7	7.1	7.8
Sodium	mg/L	—	24	10	—
Nitrite-Nitrate	mg/L	0.8	0.9	2.6	<0.1
Iron	µg/L	<200	300	<100	<200
Manganese	µg/L	<10	20	<20	<10
Silver	µg/L	<1	3	<2	3
Cadmium	µg/L	1	<1	<2	2
Chromium	µg/L	25	10	<10	32
Copper	µg/L	—	46	<4.0	—
Lead	µg/L	5	12	16	8
Zinc	µg/L	—	435	<40	—
Barium	µg/L	<100	<100	<100	290
Arsenic	µg/L	<1	<1	<2	<1
Selenium	µg/L	<1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5

(A) Serves Big Cabin, RWD 1 and RWD 2.

CREEK CO.

CITY		Bristow	Depew	Drumright	Mannford (A)	Mounds RWD 7	Oilton	Sapulpa (B)	Shamrock	Slick
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	City Lake	Jackson Lake	Ground Water	Sahoma Lake	Ground Water	Ground Water
DATE OF ANALYSIS		9-77	9-77	6-78	6-78		9-77	9-77	6-78	9-77
PARAMETERS	UNIT									
Total Hardness	mg/L	220	208	353	103		82	29	165	359
Total Alkalinity	mg/L	239	234	307	62		201	45	167	283
Chloride	mg/L	20	6	10	58		16	7	22	156
Sulfate	mg/L	10	7	81	46		121	15	11	72
Fluoride	mg/L	0.20	0.20	0.17	0.70		0.30	0.20	0.30	0.18
Dissolved Solids	mg/L	283	279	420	231		496	64	198	ND
pH	SU	7.5	7.6	7.4	7.5		8.0	6.4	7.4	7.3
Sodium	mg/L	25	18	18	21		114	13	14	91
Nitrite-Nitrate	mg/L	0.4	0.2	<0.1	<0.1		<0.1	<0.7	<0.1	<0.1
Iron	µg/L	<100	<100	770	160		<100	100	2300	900
Manganese	µg/L	<10	<10	20	<20		20	50	440	350
Silver	µg/L	<2	4	<2	<2		2	<2	<2	4
Cadmium	µg/L	<1	<1	<2	<1		<1	<1	2	<1
Chromium	µg/L	20	10	5	<5		<5	<5	<5	<5
Copper	µg/L	<3	10	25	20		2	31	15	12
Lead	µg/L	<5	25	20	8		6	<5	25	9
Zinc	µg/L	10	90	200	23		50	40	1300	470
Barium	µg/L	<100	200	<100	<100		<100	<100	110	<100
Arsenic	µg/L	2	<1	<1	<1		<1	<1	15	<1
Selenium	µg/L	1	1	<1	<1		<1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5	<0.5

(A) Serves RWD 5, RWD 2 Inc. Pawnee Co.
(B) Serves Glenpool, Kiefer, RWD 1, 2, 3, 4, Sapulpa Rural Water Corp., & RWD 2 Tulsa County.

DELAWARE CO.

CITY		Colcord	Durett	Grove	Jay	Kansas	Oaks
SOURCE OF SUPPLY		Ground Water	Grand Lake	Grand Lake	Grand Lake	Ground Water	Ground Water
DATE OF ANALYSIS		9-77	5-79	9-77	9-77	9-77	8-77
PARAMETERS	UNIT						
Total Hardness	mg/L	137	133	108	96	136	44
Total Alkalinity	mg/L	126	93	60	89	191	177
Chloride	mg/L	<3	13	12	8	63	41
Sulfate	mg/L	5	36	45	19	17	19
Fluoride	mg/L	0.07	0.16	0.14	0.10	0.90	3
Dissolved Solids	mg/L	192	196	193	141	286	285
pH	SU	7.2	7.5	7.4	7.8	8.2	7.7
Sodium	mg/L	5.0	14	8.0	6.0	63	93
Nitrite-Nitrate	mg/L	2.4	1.8	0.7	0.2	<0.1	0.1
Iron	µg/L	<100	360	150	100	100	170
Manganese	µg/L	<10	<20	10.0	10.0	<10	<10
Silver	µg/L	2	<2	<2	<2	2	1
Cadmium	µg/L	<1	<2	<1	<1	<1	1
Chromium	µg/L	<10	10	10	10	15	10
Copper	µg/L	25	<40	7	73	160	75
Lead	µg/L	10	16	8	7	10	<5
Zinc	µg/L	60	<40	320	37	80	60
Barium	µg/L	<100	<100	<100	<100	<100	<100
Arsenic	µg/L	<1	<2	<1	<1	<1	<1
Selenium	µg/L	<1	<1	2	1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

MAYES CO.

CITY		Adair	Craig	Disney RWD 3	Grand Lake Towne	Lake Hudson RWD 6	Langley	Locust Grove	RWD 3	Salina	Spavinaw
SOURCE OF SUPPLY		Quarry Pit	Ground Water	Grand Lake	Grand Lake	Hudson Lake	Hudson Lake	Ground Water	Grand Lake	Hudson Lake	Spavinaw Lake
DATE OF ANALYSIS		5-78	7-78	5-79	5-79	5-79	9-79	5-79	10-78	5-79	5-79
PARAMETERS	UNIT										
Total Hardness	mg/L	173	152	129	131	145	93	121	124	131	83
Total Alkalinity	mg/L	124	160	86	99	84	54	81	87	81	81
Chloride	mg/L	9	7	13	12	16	6	15	12	12	5
Sulfate	mg/L	62	<1	42	38	68	42	40	69	57	15
Fluoride	mg/L	0.15	<0.06	0.17	0.10	0.09	0.15	0.15	0.13	0.07	<0.06
Dissolved Solids	mg/L	240	206	206	188	230	176	193	178	197	196
pH	SU	7.2	7.2	7.1	7.1	6.9	7.4	6.9	7.8	7.1	7.2
Sodium	mg/L	12	<10	<10	10	10	9	10	14	10	<10
Nitrite-Nitrate	mg/L	0.3	0.7	2.1	2.2	2.1	0.7	1.7	0.6	1.8	0.8
Iron	µg/L	140	140	120	<100	<100	340	180	<100	<100	110
Manganese	µg/L	<20	<20	<20	<20	<20	20	50	20	<20	<20
Silver	µg/L	<2	2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	2	1	3	3	<2	<1	3	<1	<2	3
Chromium	µg/L	10	11	10	10	12	10	10	11	10	11
Copper	µg/L	<40	22	<40	<40	<40	40	<40	8	<40	<40
Lead	µg/L	16	13	12	12	16	7	<10	9	12	16
Zinc	µg/L	110	33	140	300	<40	80	<40	290	130	140
Barium	µg/L	<100	100	<100	<100	<100	<100	<100	<100	<100	<100
Arsenic	µg/L	<2	<1	<2	<2	<2	<1	<2	<1	<2	<2
Selenium	µg/L	<1	<1	<1	<1	<1	1	<1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

MUSKOGEE CO.

CITY		Boynton	Braggs	Ft. Gibson (A)	Haskell	Muskogee (B)	Porum	RWD 3	Warner
SOURCE OF SUPPLY		City Lake	Ground Water	Grand River	Ground Water	Ft. Gibson Lake	Eufaula Lake	Eufaula Lake	Jacob Johnston Lake
DATE OF ANALYSIS		10-78	6-78	5-79	6-78	5-79	5-79	3-78	5-79
PARAMETERS	UNIT								
Total Hardness	mg/L	120	23	131	159	102	138	148	27
Total Alkalinity	mg/L	55	55	85	189	54	88	140	47
Chloride	mg/L	18	8	29	35	31	77	87	8
Sulfate	mg/L	78	6	40	9	39	47	—	20
Fluoride	mg/L	0.13	0.11	0.18	0.22	0.39	0.25	31	0.14
Dissolved Solids	mg/L	228	179.9	219	324.3	189	345	367	117
pH	SU	8.9	6.3	7.3	6.9	8.2	7.3	8.7	7.2
Sodium	mg/L	12	10	11	39	10	51	84	17
Nitrite-Nitrate	mg/L	0.3	1.4	1.2	3.0	1.2	0.2	0.1	1.5
Iron	µg/L	<100	<100	<100	360	100	<100	<50	400
Manganese	µg/L	<120	60.0	<20	40	<20	<2	20	30
Silver	µg/L	2	<1	<2	<1	<2	<2	12	<2
Cadmium	µg/L	1	<1	5	2	3	3	<1	3
Chromium	µg/L	<5	9	17	7	16	15	20	15
Copper	µg/L	7	22	<40	8	<40	<40	34	<40
Lead	µg/L	6	<5	14	5	19	15	7	10
Zinc	µg/L	7	13	<40	9	<40	<40	100	60
Barium	µg/L	<100	<100	<100	250	<100	100	90	<100
Arsenic	µg/L	<1	<1	<2	6	<2	<2	<1	<2
Selenium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

(A) Serves RWD 4 & 7.
(B) Serves RWD 1, 2, 5, 7, Taft, Porter P.W.A. Wagoner Co.

NOWATA CO.

CITY		Delaware	Lenapah	New Alluwe & RWD 1	Nowata (A)
SOURCE OF SUPPLY		Verdigris River	Verdigris River	Oolagah River	Verdigris River
DATE OF ANALYSIS		6-79	7-77	7-77	7-77
PARAMETERS	UNIT				
Total Hardness	mg/L	217	126	826	145
Total Alkalinity	mg/L	63	80	87	93
Chloride	mg/L	29	15	24	21
Sulfate	mg/L	120	85	961	45
Fluoride	mg/L	0.12	0.15	0.28	0.41
Dissolved Solids	mg/L	306	229	1481	212
pH	SU	6.6	8.1	7.3	8.0
Sodium	mg/L	12	36	32	13
Nitrite-Nitrate	mg/L	1.5	0.4	0.1	0.2
Iron	µg/L	340	<200	<200	290
Manganese	µg/L	<20	40	50	<20
Silver	µg/L	<2	<2	4	<2
Cadmium	µg/L	5	<1	<1	<1
Chromium	µg/L	16	10	10	15
Copper	µg/L	<40	6	14	140
Lead	µg/L	—	5	8	18
Zinc	µg/L	170	58	100	120
Barium	µg/L	150	<100	100	<100
Arsenic	µg/L	<2	<1	<1	3
Selenium	µg/L	<1	<1	3	<1
Mercury	µg/L	0.8	<0.5	<0.5	<0.5

(A) Serves Elm Bend, RWD 2, 3, 5 and 6.

OKMULGEE CO.

CITY		Beggs	Henryetta (A)	Okmulgee (B)
SOURCE OF SUPPLY		City Lake	City Lake	City Lake
DATE OF ANALYSIS		8-78	8-78	9-77
PARAMETERS	UNIT			
Total Hardness	mg/L	68	62	63
Total Alkalinity	mg/L	42	21	50
Chloride	mg/L	22	8	33
Sulfate	mg/L	36	50	17
Fluoride	mg/L	0.1	0.11	0.16
Dissolved Solids	mg/L	140	114	164
pH	SU	7.7	8.1	8.9
Sodium	mg/L	12	8	18
Nitrite-Nitrate	mg/L	0.1	0.4	0.1
Iron	µg/L	250	320	<100
Manganese	µg/L	20	<20	<10
Silver	µg/L	<2	<2	<2
Cadmium	µg/L	<1	<1	1
Chromium	µg/L	11	11	10
Copper	µg/L	3	4	1
Lead	µg/L	5	36	<5
Zinc	µg/L	3	<1	<10
Barium	µg/L	<100	<100	<100
Arsenic	µg/L	<1	<1	<1
Selenium	µg/L	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5

(A) Serves Dewar, RWD 1, 3, & 5, Salem Rural Water Corp., Dripping Springs Rural Water Corp.
(B) Serves RWD 2, 4, 6, 7, Southeast Okmulgee Rural Water Corp., M & L Water District Inc.

OSAGE CO.

CITY		Avant	Barnsdall (A)	Burbank	Fairfax (B)	Hominy	Hulah	Osage	Pawhuska	Prue	Shidler	Wynona
SOURCE OF SUPPLY		City Lake	Waxhoma Lake	Ground Water	Ground Water	City Lake	Hulah Lake	Ground Water	City Lake	Ground Water	Lake Charlott	Ground Water
DATE OF ANALYSIS		6-79	6-79	9-77	6-79	6-79	10-77	9-77	6-79	9-77	9-77	9-77
PARAMETERS	UNIT											
Total Hardness	mg/L	101	78	414	127	119	144	100	184	271	144	162
Total Alkalinity	mg/L	97	26	293	125	78	86	126	133	267	106	164
Chloride	mg/L	12	61	167	12	66	14	<3	34	62	27	82
Sulfate	mg/L	13	36	25	16	16	47	17	34	91	16	34
Fluoride	mg/L	0.14	0.1	0.27	0.28	0.15	0.40	0.20	0.91	0.25	0.28	0.30
Dissolved Solids	mg/L	133	169	749	175	239	250	213	265	484	218	365
pH	SU	7.4	7.1	7.4	7.2	7.2	7.6	6.9	7.3	7.5	7.6	8.0
Sodium	mg/L	<10	13	70	11	30	25	16	19	81	6.0	68
Nitrite-Nitrate	mg/L	0.3	0.3	0.1	0.1	0.2	0.4	3.5	0.2	0.5	0.1	0.1
Iron	µg/L	<100	<100	1260	<100	<100	<100	310	<100	<100	110	<100
Manganese	µg/L	<20	<20	20.0	<20	<20	<10	10	<20	10	50	20
Silver	µg/L	<2	<2	3	<2	<2	<2	<2	<2	2	<2	<2
Cadmium	µg/L	4	4	<1	4	<2	<1	<1	4	<1	4	<1
Chromium	µg/L	23	27	<5	26	35	5	<5	32	<5	<5	<5
Copper	µg/L	<40	<40	14	<40	60	160	33	<40	8	82	23
Lead	µg/L	14	10	10	16	13	7	<5	20	10	<5	<5
Zinc	µg/L	80	<40	30	<40	<40	140	210	<40	110	1580	150
Barium	µg/L	<100	<100	200	<100	<100	100	100	120	100	<100	<100
Arsenic	µg/L	8	6	<1	4	6	<1	1	6	<1	2	2
Selenium	µg/L	4	4	<1	4	4	<1	<1	4	<1	<1	<1
Mercury	µg/L	<0.5	1.2	<0.5	1.2	0.8	<0.5	<0.5	1.2	<0.5	<0.5	<0.5

(A) Serves Barnsdall RWD.
(B) Serves Greyhorse RWD.

OTTAWA CO.

CITY		Afton	Cardin	Commerce	Fairland	Miami	Peoria RWD 3	Picher	Quapaw	RWD 1	RWD 2	RWD 4	Wyandotte	Wyandotte RWD 1
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		8-78	6-78	6-78	6-78	6-78	6-78	6-78	6-78	5-78	6-78	6-78	6-78	6-78
PARAMETERS	UNIT													
Total Hardness	mg/L	183	127	134	140	139	140	147	146	127	139	132	124	127
Total Alkalinity	mg/L	146	134	134	142	131	145	126	128	137	137	128	131	137
Chloride	mg/L	399	7	10	112	99	4	12	7	12	122	6	3	12
Sulfate	mg/L	15	11	27	13	34	11	29	20	11	11	11	11	11
Fluoride	mg/L	1.4	0.45	0.54	0.71	0.55	0.11	0.24	0.20	0.45	0.75	0.18	0.46	0.45
Dissolved Solids	mg/L	882	166	188	331	324	167	203	191	171	367	163	149	171
pH	SU	7.6	8.3	8.2	8.2	8.2	8.5	8.1	8.4	8.4	8.4	8.3	8.2	8.4
Sodium	mg/L	238	6	9.0	66	63	<5.0	12	<5	13	80	<5.0	7	13
Nitrite-Nitrate	mg/L	0.1	<0.1	0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1
Iron	µg/L	250	1280	1410	920	920	1990	1060	1660	1200	2000	740	1310	1200
Manganese	µg/L	<20	<10	10.0	10	<10	20	<10	20	<10	<10	<10	20	<10
Silver	µg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1
Chromium	µg/L	13	6	14	68	55	14	43	9	10	50	24	42	10
Copper	µg/L	66	17	3	2	5	24	6	13	3	11	4	8	3
Lead	µg/L	19	6	7	5	8	<5	7	5	6	<5	5	6	6
Zinc	µg/L	13	140	10	25	48	66	90	79	43	39	27	56	43
Barium	µg/L	140	<100	<100	<100	<100	<100	<100	<100	<100	100	<100	<100	<100
Arsenic	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Selenium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

ROGERS CO.

CITY		Chelsea	Claremore (A)	RWD 3	RWD 4	RWD 5
SOURCE OF SUPPLY		Chelseahoma Lake	City Lake	Oolagah Res.	Oologah Res.	Verdigris River
DATE OF ANALYSIS		6-79	6-78	6-79	6-79	6-79
PARAMETERS	UNIT					
Total Hardness	mg/L	166	118	106	159	166
Total Alkalinity	mg/L	77	44	69	90	95
Chloride	mg/L	7	13	34	31	31
Sulfate	mg/L	82	67	84	56	60
Fluoride	mg/L	0.22	0.15	0.14	0.18	0.19
Dissolved Solids	mg/L	237	310	275	255	271
pH	SU	7.1	7.3	6.8	7.1	7.2
Sodium	mg/L	<10	13	21	22	20
Nitrite-Nitrate	mg/L	0.2	0.1	1.3	1.4	0.8
Iron	µg/L	<100	<100	<100	<100	<100
Manganese	µg/L	<20	<20	<20	<20	<20
Silver	µg/L	<2	<2	<2	<40	<2
Cadmium	µg/L	<2	<2	<2	<2	<2
Chromium	µg/L	11	10	11	11	10
Copper	µg/L	<40	<40	<40	<40	<40
Lead	µg/L	14	10	10	12	15
Zinc	µg/L	<40	<40	<40	<40	<40
Barium	µg/L	<100	<100	<100	<100	<100
Arsenic	µg/L	<2	<2	<2	<2	<2
Selenium	µg/L	<1	<1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5

(A) Serves RWD 2, 6, 7, 8 and 9, and Inola.

TULSA CO.

CITY		Bixby (A)	Broken Arrow (B)	Collinsville (C)	RWD 2	Sand Springs (D)	Tulsa (E)
SOURCE OF SUPPLY		Bixhoma	Verdigris River	Oologah	Sapulpa	Shell Creek	Spavinaw Eucha Oologah
DATE OF ANALYSIS		7-77	6-79	6-79	11-77	6-79	6-79
PARAMETERS	UNIT						
Total Hardness	mg/L	74	161	169	118	81	84
Total Alkalinity	mg/L	49	75	100	66	46	75
Chloride	mg/L	8	54	43	50	11	9
Sulfate	mg/L	34	77	59	29	27	9
Fluoride	mg/L	0.02	0.17	0.30	0.70	0.60	0.86
Dissolved Solids	mg/L	170	276	257	181	150	127
pH	SU	7.1	6.8	6.9	8.6	7.3	6.9
Sodium	mg/L	6	22	22	15	10	<10
Nitrite-Nitrate	mg/L	<0.1	1.1	0.3	0.19	0.1	0.5
Iron	µg/L	<200	<100	<100	160	<100	<100
Manganese	µg/L	240	<20	20	<10	<20	<20
Silver	µg/L	2	<2	<2	<2	<2	<2
Cadmium	µg/L	<1	<2	2	<1	2	2
Chromium	µg/L	10	10	<10	10	10	<10
Copper	µg/L	2	<40	<40	11	<40	<40
Lead	µg/L	<5	15	—	13	<10	<10
Zinc	µg/L	66	<40	<40	2000	<40	<40
Barium	µg/L	<100	<100	100	<100	110	<100
Arsenic	µg/L	<1	<2	<2	3	<2	<2
Selenium	µg/L	<1	<1	<1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

(A) Serves RWD 8, Wagoner County.
(B) Serves RWD 4 & 5 Wagoner County.
(C) Serves RWD 3 & SAR Water Corp. Washington Co.
(D) Serves RWD 1 & Tulsa Water Improvement Dist. 14.
(E) Serves RWD 3 & 5, Catoosa, Jenks, Owasso, Skiatook, Sperry, Spavinaw, Turley Water Improvement Dist. 1, Jay, West Jay RWD 1, Standby service to Broken Arrow, Bixby, Sapulpa, Sand Springs, Rogers Co. RWD 3, & Wagoner Co. RWD 4.

WAGONER CO.

CITY		Coweta (A)	Mallard Bay RWD 1	Okay	Porter (B)	RWD 1	RWD 2	RWD 5 (C)	RWD 7	RWD 8 (D)	Wagoner (E)
SOURCE OF SUPPLY		Verdigris	Ground Water	Verdigris	Ft. Gibson	GRDA	GRDA	Verdigris River	GRDA	Bixby	GRDA
DATE OF ANALYSIS		5-79	8-77	5-79	5-79	5-79	5-79	6-79	5-79	7-77	5-79
PARAMETERS	UNIT										
Total Hardness	mg/L	106	96	80	102	111	116	161	113	74	140
Total Alkalinity	mg/L	54	81	52	54	78	87	75	78	49	84
Chloride	mg/L	37	13	30	31	13	16	54	16	8	15
Sulfate	mg/L	56	31	59	39	55	42	77	35	34	55
Fluoride	mg/L	0.23	0.15	0.13	0.39	0.14	0.15	0.17	0.15	0.02	0.10
Dissolved Solids	mg/L	208	172	195	189	197	191	276	185	170	209
pH	SU	6.7	7.8	6.9	8.2	7	7	68	6.9	7.1	6.9
Sodium	mg/L	15	9	28	10	10	13	22	11	6	<10
Nitrite-Nitrate	mg/L	1	0.4	0.6	1.2	1.5	1.3	1.1	1.5	0.1	1.6
Iron	µg/L	<100	<200	<100	100	100	100	<100	120	200	250
Manganese	µg/L	<20	<10	30	<20	<20	<20	<20	<20	240	40
Silver	µg/L	<2	<2	<2	<2	<2	<2	<2	<2	2	<2
Cadmium	µg/L	3	<1	4	3	2	3	<2	2	<1	3
Chromium	µg/L	14	<10	12	16	10	10	10	11	10	<10
Copper	µg/L	<40	2	<40	<40	<40	<40	<40	<40	2	<40
Lead	µg/L	10	11	14	19	10	13	15	11	<5	12
Zinc	µg/L	<40	20	<40	<40	<40	<40	<40	<40	66	<40
Barium	µg/L	<100	<100	100	<100	<100	<100	<100	<100	100	<100
Arsenic	µg/L	<2	<1	<2	<2	<2	<2	<2	<2	<1	<2
Selenium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

(A) Serves RWD 5
(B) Served by Muskogee, Muskogee Co.
(C) Served by Broken Arrow, Tulsa Co.
(D) Served by Bixby, Tulsa Co.
(E) Serves RWD 6, 9

WASHINGTON CO.

CITY		Bartlesville (A)	Copan	Ochelata	Ramona
SOURCE OF SUPPLY		Hudson Lake	Ground Water	Ochelata Lake	Ground Water
DATE OF ANALYSIS		6-79	7-77	7-77	7-77
PARAMETERS	UNIT				
Total Hardness	mg/L	134	213	129	41
Total Alkalinity	mg/L	77	119	102	87
Chloride	mg/L	30	81	11	8
Sulfate	mg/L	34	55	40	40
Fluoride	mg/L	0.90	0.25	0.09	0.10
Dissolved Solids	mg/L	219	402	252	218
pH	SU	7.3	7.3	6.9	7.7
Sodium	mg/L	18	42	<5	36
Nitrite-Nitrate	mg/L	0.3	2.6	<0.1	0.1
Iron	µg/L	<100	<200	<200	<200
Manganese	µg/L	<20	<10	10	590
Silver	µg/L	<2	4	<2	<2
Cadmium	µg/L	<2	1	2	1
Chromium	µg/L	12	15	10	15
Copper	µg/L	40	275	6	4
Lead	µg/L	10	9	15	<5
Zinc	µg/L	<40	23	1700	44
Barium	µg/L	<100	<100	<100	<100
Arsenic	µg/L	<2	1	1	<1
Selenium	µg/L	1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5

(A) Serves Strike Axe Non-Profit Water Company, and RWD 1 Osage County, RWD 1, 2 & 4, Bar Dew Water District.

NORTH CENTRAL PLANNING REGION

GARFIELD CO.

CITY		Breckinridge	Covington	Douglas	Enid (A)	Fairmont	Garber	Hunter	Kremlin-Hillsdale RWD 1	Lahoma	Waukomis
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		10-78	10-78	10-78	10-78	10-78	10-78	9-77	10-77	10-78	10-78
PARAMETERS	UNIT										
Total Hardness	mg/L	503	241	254	310	472	300	259	257	579	300
Total Alkalinity	mg/L	322	320	305	232	283	281	281	308	448	232
Chloride	mg/L	139	193	44	96	217	168	32	46	338	97
Sulfate	mg/L	100	84	52	32	434	66	36	52	121	32
Fluoride	mg/L	0.23	0.39	0.41	0.74	0.30	0.27	0.40	0.44	0.37	0.79
Dissolved Solids	mg/L	699	767	438	475	1121	683	418	432	1146	468
pH	SU	7.3	7.8	7.4	7.5	7.4	7.4	7.4	7.3	7.3	7.3
Sodium	mg/L	125	225	81	66	240	155	60	80	250	70
Nitrite-Nitrate	mg/L	4.2	4	0.3	6.3	3.6	3.4	0.1	0.3	1.4	6.3
Iron	µg/L	<100	120	<100	<100	100	400	<100	<100	<100	120
Manganese	µg/L	<20	<20	<20	<20	<20	20	380	<20	<20	<20
Silver	µg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	µg/L	<1	<1	<1	<1	<1	7	<1	<1	<1	<1
Chromium	µg/L	10	23	<5	<5	6	10	<5	<5	11	7
Copper	µg/L	15	20	125	1800	25	23	95	14	280	15
Lead	µg/L	11	10	19	43	19	31	<5	14	23	10
Zinc	µg/L	460	37	68	21	90	2300	90	52	14	175
Barium	µg/L	<100	150	180	510	<100	<100	<100	160	250	480
Arsenic	µg/L	1	3	<1	<1	7	2	2	<1	4	2
Selenium	µg/L	4	22	<1	3	10.7	4	<1	<1	5	<1
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5

(A) Serves Spring Valley Rural Water Association.

GRANT CO.

CITY		Deer Creek	Jefferson	Lamont	Manchester (A)	Medford (B)	Nash
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		10-78	1-78	1-78	1-78	9-77	9-77
PARAMETERS	UNIT						
Total Hardness	mg/L	472	301	315	47	341	318
Total Alkalinity	mg/L	370	337	332	63	343	270
Chloride	mg/L	100	96	31	4	31	38
Sulfate	mg/L	118	33	63	14	39	48
Fluoride	mg/L	0.31	0.55	0.41	0.34	0.40	0.60
Dissolved Solids	mg/L	732	446	470	102	444	468
pH	SU	7.5	7.3	7.7	7.0	7.3	7.5
Sodium	mg/L	122	43	47	10	62	42
Nitrite-Nitrate	mg/L	3.5	5.1	0.2	1.2	5.5	8.8
Iron	µg/L	100	100	100	105	<100	120
Manganese	µg/L	<2.0	3.0	65	275	<10	20
Silver	µg/L	2	2	2	<2	<2	2
Cadmium	µg/L	<1	<1	<1	<1	2	<1
Chromium	µg/L	8	<5	<5	<5	<5	<5
Copper	µg/L	20	23	1350	7	110	32
Lead	µg/L	24	8	10	<5	5	10
Zinc	µg/L	100	375	150	725	20	140
Barium	µg/L	150	150	200	50	400	200
Arsenic	µg/L	11	1	<1	<1	1	3
Selenium	µg/L	4	5	<1	<1	2	14
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	3.1	<0.5

(A) Serves RWD 1.
(B) Serves R & C Water Corp.

GRANT CO. Continued

CITY		Pond Creek (C)	Wakita
SOURCE OF SUPPLY		Ground Water	Ground Water
DATE OF ANALYSIS		1-78	9-77
PARAMETERS	UNIT		
Total Hardness	mg/L	309	238
Total Alkalinity	mg/L	409	405
Chloride	mg/L	118	63
Sulfate	mg/L	60	78
Fluoride	mg/L	0.57	0.75
Dissolved Solids	mg/L	670	664
pH	SU	7.4	7.6
Sodium	mg/L	120	162
Nitrite-Nitrate	mg/L	0.8	5.9
Iron	µg/L	42	<100
Manganese	µg/L	3.5	10
Silver	µg/L	3	<2
Cadmium	µg/L	<1	1
Chromium	µg/L	<5	7
Copper	µg/L	100	76
Lead	µg/L	8	25
Zinc	µg/L	85	650
Barium	µg/L	150	100
Arsenic	µg/L	<1	4
Selenium	µg/L	6	4
Mercury	µg/L	<0.5	2.0

(C) Serves SW Water Inc.

KAY CO.

CITY		Blackwell (A)	Braman	Chilocco	Kaw City	Newkirk (B)	O.K. Rural Water	Ponca City (C)	Tonkawa
SOURCE OF SUPPLY		Blackwell Lake	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		9-77	1-78	8-77	9-77	1-78	9-77	9-77	9-77
PARAMETERS	UNIT								
Total Hardness	mg/L	155	192	229	170	344	487	236	491
Total Alkalinity	mg/L	75	120	295	145	248	221	201	304
Chloride	mg/L	12	72	21	9	173	381	80	51
Sulfate	mg/L	89	88	32	16	115	135	46	171
Fluoride	mg/L	0.28	0.36	0.28	0.19	0.37	0.42	0.70	0.25
Dissolved Solids	mg/L	245	369	403	281	710	1148	433	768
pH	SU	7.9	8.2	7.5	7.2	7.5	7.3	7.3	7.3
Sodium	mg/L	15	53	63	20.0	115	180	56	57
Nitrite-Nitrate	mg/L	1.1	0.7	6.1	6.5	1.6	0.9	0.8	1.4
Iron	µg/L	<100	46	<100	800	120	1800	110	190
Manganese	µg/L	10.0	4.5	<10	30.0	7.0	11.0	10.0	30.0
Silver	µg/L	<2	2	<2	<2	3	6	<2	2
Cadmium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Chromium	µg/L	<5	<5	<5	<5	<5	<5	<5	<5
Copper	µg/L	8	6	38	80	41	200	10	205
Lead	µg/L	20	<5	<5	25	18	38	<5	5
Zinc	µg/L	30	75	570	2700	40	11	60	20
Barium	µg/L	100	50	300	200	150	400	100	<100
Arsenic	µg/L	3	1	2	2	<1	<1	2	2
Selenium	µg/L	<1	2	<1	<1	1	<1	<1	2
Mercury	µg/L	<0.5	<0.5	0.7	<0.5	<0.5	<0.7	<0.5	<0.5

(A) Serves Blackwell Rural Water Corp.
(B) Serves Dale Water Corp.
(C) Serves RWD 1, 2, & 3.

KINGFISHER CO.

CITY		Cashion	Dover (A)	Hennessey	Kingfisher (B)	Okarche
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		1-78	9-77	9-77	9-77	9-77
PARAMETERS	UNIT					
Total Hardness	mg/L	331	559	353	339	296
Total Alkalinity	mg/L	319	253	248	270	248
Chloride	mg/L	126	115	188	83	77
Sulfate	mg/L	46	83	51	65	50
Fluoride	mg/L	0.20	0.60	0.40	0.45	0.35
Dissolved Solids	mg/L	621	819	742	538	508
pH	SU	7.4	7.3	7.1	7.4	7.2
Sodium	mg/L	95	85	115	60	65
Nitrite-Nitrate	mg/L	6.8	16.2	6.8	2.9	26.1
Iron	µg/L	120	<100	<100	<100	<100
Manganese	µg/L	<20	30	30	40	40
Silver	µg/L	2	<2	<2	3	<2
Cadmium	µg/L	<1	2	<1	<1	3
Chromium	µg/L	<5	5	<5	6	10
Copper	µg/L	20	22	27	128	36
Lead	µg/L	20	<5	<5	<5	<5
Zinc	µg/L	27	40	40	20	600
Barium	µg/L	250	100	200	200	100
Arsenic	µg/L	2	<1	<1	1	<1
Selenium	µg/L	1	4	3	3	16
Mercury	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5

(A) Serves RWD 3.
(B) Serves RWD 2.

LINCOLN CO.

CITY		Big Creek (A)	Carney	Chandler	Davenport	Meeker	Prague	Sparks RWD 1	Stroud	Wellston
SOURCE OF SUPPLY		Ground Water	Ground Water	Lake Chandler	Lake Davenport	Ground Water	Ground Water	Sparks Lake	Lake Stroud	Ground Water
DATE OF ANALYSIS		6-76	6-77	5-77	5-77	5-77	6-77	7-79	5-77	6-77
PARAMETERS	UNIT									
Total Hardness	mg/L	252	219	143	143	166	166	74	122	45
Total Alkalinity	mg/L	242	273	130	192	169	163	71	112	446
Chloride	mg/L	17	11	16	57	10	5	8	10	187
Sulfate	mg/L	23	10	64	24	-20	178	14	33	184
Fluoride	mg/L	—	0.39	0.30	0.30	0.20	0.69	0.15	0.20	2.1
Dissolved Solids	mg/L	301	—	—	—	—	—	119	—	—
pH	SU	7.4	8.0	7.7	7.6	7.5	7.9	7.3	7.6	9
Sodium	mg/L	—	65	—	—	—	102	10	—	540
Nitrite-Nitrate	mg/L	—	0.2	0.1	0.1	0.2	0.2	< 5	0.1	< 0.1
Iron	µg/L	0.8	< 200	< 200	< 200	< 200	< 200	< 100	< 200	< 200
Manganese	µg/L	141	< 10	20.0	10.0	< 10.0	20.0	20	< 10	< 10
Silver	µg/L	—	< 1	< 1	< 1	3	< 1	< 2	1	5
Cadmium	µg/L	111	2	1	< 1	< 1	3	2	< 1	2
Chromium	µg/L	—	10	2	2	2	15	< 10	5	12
Copper	µg/L	—	—	—	—	—	—	< 40	—	—
Lead	µg/L	—	2	8	< 1	5	11	13	6	13
Zinc	µg/L	—	—	—	—	—	—	< 40	—	—
Barium	µg/L	—	600	100	100	100	400	< 100	100	700
Arsenic	µg/L	—	2	< 1	2	< 1	2	< 5	1	12
Selenium	µg/L	—	4	< 1	< 1	1	2	< 5	2	< 1
Mercury	µg/L	—	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

(A) Serves Agra.

LOGAN CO.

CITY		Coyle	Crescent	Guthrie	Langston	Marshall	Mulhall	Orlando
SOURCE OF SUPPLY		Ground Water	Ground Water	Guthrie Lake	Langston Lake	Otter Creek	Ground Water	Ground Water
DATE OF ANALYSIS		1-79	1-79	1-79	1-79	5-77	9-77	1-79
PARAMETERS	UNIT							
Total Hardness	mg/L	619	165	257	151	535	484	368
Total Alkalinity	mg/L	432	187	233	123	285	341	390
Chloride	mg/L	299	32	32	18	330	54	33
Sulfate	mg/L	293	28	29	136	20	80	60
Fluoride	mg/L	0.35	0.19	0.62	0.15	0.30	0.25	0.57
Dissolved Solids	mg/L	1241	307	316	205	—	591	477
pH	SU	7.2	7.1	7.8	7.7	8.0	7.2	7.4
Sodium	mg/L	219	46	37	20	—	40	69
Nitrite-Nitrate	mg/L	6.3	5.3	0.2	0.1	0.1	9.6	0.1
Iron	µg/L	< 300	< 300	< 300	300	200	< 100	320
Manganese	µg/L	180	< 20	< 20	40	30.0	20.0	240
Silver	µg/L	3	< 2	< 2	< 2	5	< 2	< 2
Cadmium	µg/L	< 1	< 1	< 1	< 1	3	3	< 1
Chromium	µg/L	7	< 5	9	8	7	15	< 5
Copper	µg/L	11	12	12	68	—	75	28
Lead	µg/L	20	9	12	7	18	6	11
Zinc	µg/L	18	75	15	7	—	50	70
Barium	µg/L	214	214	286	15	600	200	214
Arsenic	µg/L	< 1	1	2	1	< 1	1	< 1
Selenium	µg/L	1	2	< 1	< 1	1	1	< 1
Mercury	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.5

LOGAN CO. Continued

CITY		RWD 1	RWD 2
SOURCE OF SUPPLY		Ground Water	Ground Water
DATE OF ANALYSIS		1-79	1-79
PARAMETERS	UNIT		
Total Hardness	mg/L	299	78
Total Alkalinity	mg/L	296	108
Chloride	mg/L	30	35
Sulfate	mg/L	< 3	21
Fluoride	mg/L	0.29	0.24
Dissolved Solids	mg/L	293	209
pH	SU	7.5	7.1
Sodium	mg/L	22	35
Nitrite-Nitrate	mg/L	< 0.1	6
Iron	µg/L	< 300	< 300
Manganese	µg/L	< 20	< 20
Silver	µg/L	< 2	< 2
Cadmium	µg/L	< 1	< 1
Chromium	µg/L	< 5	< 5
Copper	µg/L	270	160
Lead	µg/L	15	5
Zinc	µg/L	150	28
Barium	µg/L	571	143
Arsenic	µg/L	2	1
Selenium	µg/L	4	< 1
Mercury	µg/L	< 0.5	< 0.5

NOBLE CO.

CITY		Billings	Bressie	Lucien RWD 1	Marland (A)	Morrison (B)	Perry	Red Rock
SOURCE OF SUPPLY		Ground Water	Ground Water	Lake Carl Blakely	Ground Water	Private Lake	Lake Perry	Ground Water
DATE OF ANALYSIS		7-77	8-79	8-79	7-77	5-77	5-77	7-77
PARAMETERS	UNIT							
Total Hardness	mg/L	731	371	87	246	150	145	623
Total Alkalinity	mg/L	406	257	17	377	102	105	465
Chloride	mg/L	577	364	11	92	36	34	120
Sulfate	mg/L	205	122	54	78	63	65	107
Fluoride	mg/L	0.32	0.16	0.09	0.45	0.30	0.2	0.31
Dissolved Solids	mg/L	1765	1046	145	524	—	—	902
pH	SU	7.1	7.4	8.8	7.2	7.4	7.5	7.4
Sodium	mg/L	280	221	10	50	—	—	—
Nitrite-Nitrate	mg/L	< 0.1	0.4	1.0	1.7	0.1	< 0.1	0.5
Iron	µg/L	1540	< 100	< 100	< 200	< 200	< 200	< 200
Manganese	µg/L	100	< 20	< 20	< 10	< 10	< 10	20
Silver	µg/L	5	< 2	< 2	3	3	1	4
Cadmium	µg/L	1	6	3	1	1	1	1
Chromium	µg/L	40	12	13	20	5	3	30
Copper	µg/L	8	< 40	< 40	9	—	—	74
Lead	µg/L	18	30	17	13	6	6	18
Zinc	µg/L	95	170	< 40	95	—	—	110
Barium	µg/L	200	130	< 100	400	300	300	200
Arsenic	µg/L	< 1	< 5	< 0.5	2	25	1	3
Selenium	µg/L	< 1	< 5	< 5	2	< 1	< 1	2
Mercury	µg/L	< 0.5	< 0.5	< 0.5	1.0	1.0	0.8	< 0.5

(A) Serves Marland Water Inc.
(B) Serves Morr Water Corp.

PAWNEE CO.

CITY		Blackburn-Skedee	Cleveland (A)	Hallett	Jennings	Pawnee (B)	Ralston (C)
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	Pawnee Lake	Ground Water
DATE OF ANALYSIS		6-78	5-77	11-77	5-78	5-77	11-77
PARAMETERS	UNIT						
Total Hardness	mg/L	524	113	220	54	160	370
Total Alkalinity	mg/L	421	100	270	257	154	349
Chloride	mg/L	41	19	31	105	13	44
Sulfate	mg/L	37	28	38	107	268	38
Fluoride	mg/L	0.35	0.20	0.36	0.65	0.30	0.28
Dissolved Solids	mg/L	683	—	425	549	—	528
pH	SU	7.0	7.3	7.5	8.1	7.7	7.3
Sodium	mg/L	27	—	70	178	—	—
Nitrite-Nitrate	mg/L	< 0.1	0.1	0.9	< 0.1	0.1	3.1
Iron	µg/L	660	350	2750	230	< 200	135
Manganese	µg/L	300	340	47	30	20	17
Silver	µg/L	< 2	3	< 2	< 2	1	3
Cadmium	µg/L	< 1	< 1	< 1	< 1	1	< 1
Chromium	µg/L	< 5	7	10	< 5	6	7
Copper	µg/L	41	—	3	5	—	14
Lead	µg/L	33	15	< 5	< 5	5	12
Zinc	µg/L	265	—	190	31	—	60
Barium	µg/L	330	100	< 100	< 100	< 100	800
Arsenic	µg/L	< 1	< 1	< 1	< 1	< 1	< 1
Selenium	µg/L	< 1	< 1	< 1	< 1	< 1	2.2
Mercury	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

(A) Serves RWD 1.
(B) Serves RWD 3.
(C) Serves Ralston Water Inc.

		PAWNEE CO. Continued		PAYNE CO.						
CITY		RWD 2 (D)	RWD 2 Inc. (E)	Cushing	Glencoe	Perkins	Ripley	RWD 3	Stillwater (A)	Yale (B)
SOURCE OF SUPPLY		Ground Water	Mannford City Lake	Lake Cushing	Ground Water	Ground Water	Ground Water	Ground Water	Lake Carl Blackwell	Ground Water
DATE OF ANALYSIS		10-77	6-78	5-77	6-78	6-78	6-78	6-78	5-77	5-78
PARAMETERS	UNIT									
Total Hardness	mg/L	282	103	171	409	198	476	153	207	363
Total Alkalinity	mg/L	202	62	159	233	144	305	161	230	283
Chloride	mg/L	91	58	45	20	40	39	12	58	134
Sulfate	mg/L	50	46	20	203	31	71	24	36	48
Fluoride	mg/L	0.34	0.70	0.30	0.49	0.26	0.47	0.40	0.90	0.35
Dissolved Solids	mg/L	464	231	—	591	328	587	223	—	608
pH	SU	7.2	7.5	7.7	7.6	—	7.4	6.9	7.9	7.3
Sodium	mg/L	35	21	—	39	37	34	22	—	71
Nitrite-Nitrate	mg/L	0.1	<0.1	0.1	1.5	7.4	0.3	5.0	<0.1	2.1
Iron	µg/L	<100	160	<200	<100	130	<100	<100	<200	140
Manganese	µg/L	<10	<20	<10	<20	<20	240	<20	<10	<20
Silver	µg/L	2	<2	2	<2	<2	<2	<2	3	3
Cadmium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	1
Chromium	µg/L	8	<5	3	<5	<5	<5	<5	6	<5
Copper	µg/L	63	20	—	80	27	25	170	—	35
Lead	µg/L	9	8	8	17	20	25	8	5	17
Zinc	µg/L	31	23	—	100	100	100	45	—	58
Barium	µg/L	100	<100	300	<100	520	310	170	<100	620
Arsenic	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1
Selenium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Mercury	µg/L	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.8	<0.5

(D) Serves Terlton.
(E) Purchases water from Mannford, Creek County.

(A) Serves RWD 1, Fifty-One East Water Inc. and Payne Co. Rural Water Corp. 3.
(B) Serves Yale Rural Water Corp.

NORTHWEST PLANNING REGION

ALFALFA CO.

CITY		Aline	Carmen	Cherokee	Goltry	Helena	Jet	RWS & SWMD 1	RWS & SWMD 1 (A) North
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		1-78	1-78	1-78	2-78	1-78	1-78	4-79	10-78
PARAMETERS	UNIT								
Total Hardness	mg/L	499	350	735	215	282	219	180	631
Total Alkalinity	mg/L	238	310	434	241	334	337	172	314
Chloride	mg/L	98	55	92	42	63	79	10	119
Sulfate	mg/L	144	95	376	24	32	37	16	174
Fluoride	mg/L	0.46	0.46	0.40	0.51	0.37	0.81	0.31	0.48
Dissolved Solids	mg/L	796	533	1162	397	493	579	310	727
pH	SU	7.4	7.5	7.4	7.3	7.4	7.7	7.8	7.3
Sodium	mg/L	55.0	65.0	150.0	75.0	85.0	154	30	70
Nitrite-Nitrate	mg/L	16.2	6.1	7.4	7.4	4.0	13.7	—	16.2
Iron	μg/L	180	<40	130	300	<40	<40	140	190
Manganese	μg/L	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20	20
Silver	μg/L	4	3	3	<2	<2	3	<2	3
Cadmium	μg/L	<1	<1	<1	1	<1	<1	<2	<2
Chromium	μg/L	<5	5	12	8	22	7	9	6
Copper	μg/L	13	850	34	38	75	16	10	28
Lead	μg/L	28	88	98	40	41	15	11	27
Zinc	μg/L	1050	90	70	255	27	75	17	35
Barium	μg/L	<50	<50	<50	150	100	100	200	100
Arsenic	μg/L	<1	1	1	1	<1	1	<2	2
Selenium	μg/L	4	6	8	<1	3	6	<1	3
Mercury	μg/L	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7

(A) Serves Lambert, Amorita, Byron, Burlington, Driftwood and Yewed.

BEAVER CO.

CITY		Beaver	Beaver State Park	Forgan	Gate RWD 2	Knowles	Turpin RWD 1
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		1-78	1-78	1-78	1-79	1-78	12-78
PARAMETERS	UNIT						
Total Hardness	mg/L	246	234	268	250	228	200
Total Alkalinity	mg/L	214	211	223	232	186	210
Chloride	mg/L	34	17	58	30	27	36
Sulfate	mg/L	35	18	45	35	18	59
Fluoride	mg/L	0.55	0.60	0.43	0.39	0.51	1.7
Dissolved Solids	mg/L	351	285	437	361	291	401
pH	SU	7.6	7.6	7.6	7.1	7.5	7.6
Sodium	mg/L	27	19	47	17	18	45
Nitrite-Nitrate	mg/L	3.0	0.7	47	3.7	2.3	3.3
Iron	μg/L	8.0	1015	31	150	105	58
Manganese	μg/L	3.0	27.0	2	7	5.0	3
Silver	μg/L	<2	<2	3	<2	<2	<2
Cadmium	μg/L	<1	8	<1	2	<1	2
Chromium	μg/L	<5	<5	<5	5	<5	10
Copper	μg/L	23	15	19	105	12	7
Lead	μg/L	6	34	8	16	6	8
Zinc	μg/L	180	1400	22	50	425	195
Barium	μg/L	<50	550	400	214	100	<100
Arsenic	μg/L	1	<1	<1	2	<1	3
Selenium	μg/L	5	2	8	2	—	5
Mercury	μg/L	<0.5	<0.5	<0.5	<0.5	<0.5	0.5

BLAINE CO.

BLAINE CITY		Canton	Geary	Greenfield	Hitchcock	Longdale	North Blaine Water (A)	Watonga
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Springs	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		9-77	9-77	9-77	9-77	8-77	1-78	9-77
PARAMETERS	UNIT							
Total Hardness	mg/L	214	230	721	217	222	263	233
Total Alkalinity	mg/L	244	185	449	180	186	196	211
Chloride	mg/L	12	37	71	32	18	57	11
Sulfate	mg/L	21	21	629	58	56	63	41
Fluoride	mg/L	0.30	0.30	0.50	0.30	0.40	0.37	0.40
Dissolved Solids	mg/L	376	40.2	1544	4.42	3.69	428	325
pH	SU	8.2	7.1	7.1	7.1	7.3	7.2	7.3
Sodium	mg/L	39.0	45.0	176.0	49.0	19.0	50.0	25.0
Nitrite-Nitrate	mg/L	2.3	12.7	1.9	10.8	2.8	9.5	3.4
Iron	μg/L	<100	<100	<100	110	<100	50	<100
Manganese	μg/L	<10.0	100	30.0	<10.0	<10.0	<20	<10.0
Silver	μg/L	2	2	6	3	2	2	2
Cadmium	μg/L	<1	1	<1	2	<1	<1	<1
Chromium	μg/L	<10	10	10	<10	<10	5	10
Copper	μg/L	14	90	28	110	3	35	52
Lead	μg/L	10	10	18	5	10	53	7
Zinc	μg/L	60	220	40	70	70	150	20
Barium	μg/L	100	300	100	<100	200	100	<100
Arsenic	μg/L	5	2	2	<1	<1	<1	2
Selenium	μg/L	<1	1	6	1	1	3	1
Mercury	μg/L	<0.5	<0.5	<5	<0.5	<0	<0.5	0.8

(A) Serves Okeene, Okarche RWD & Loyal.

CIMARRON CO.

CITY		Boise City	Felt	Keyes
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		1-78	1-78	1-78
PARAMETERS	UNIT			
Total Hardness	mg/L	226	177	208
Total Alkalinity	mg/L	171	177	168
Chloride	mg/L	22	5	13
Sulfate	mg/L	43	26	43
Fluoride	mg/L	1.21	1.30	2.3
Dissolved Solids	mg/L	317	243	283
pH	SU	7.8	7.8	8
Sodium	mg/L	23.0	24	19
Nitrite-Nitrate	mg/L	2.7	1.5	1.3
Iron	μg/L	30	64	79
Manganese	μg/L	3.5	2	1.5
Silver	μg/L	3	<2	<2
Cadmium	μg/L	<1	<1	<1
Chromium	μg/L	<5	<5	<5
Copper	μg/L	295	8	105
Lead	μg/L	9	<5	5
Zinc	μg/L	750	490	220
Barium	μg/L	50	<50	<50
Arsenic	μg/L	<1	<1	2
Selenium	μg/L	5	2	<1
Mercury	μg/L	<0.5	0.8	<0.5

DEWEY		DEWEY CO.							ELLIS CO.				HARPER CO.		
CITY		Camargo RWD 2	Leedey	Mutual & Lenora RWD 3	Oakwood RWD 1	Seiling	Taloga	Vici	Arnett	Fargo	Gage	Shattuck	Buffalo (A)	Laverne	Selman
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		1-78	10-77	N/A	10-78	1-78	1-78	1-78	2-78	2-78	2-78	3-78	2-78	2-78	2-78
PARAMETERS	UNIT														
Total Hardness	mg/L	191	221	—	270	271	479	215	61	248	246	204	209	244	263
Total Alkalinity	mg/L	173	233	—	210	207	272	205	181	197	251	184	261	297	243
Chloride	mg/L	1	4	—	40	12	27	4	13	43	45	22	30	128	21
Sulfate	mg/L	16	13	—	19	73	186	16	6	83	53	9	47	121	75
Fluoride	mg/L	0.16	0.24	—	0.14	0.65	0.41	0.37	0.19	0.40	0.45	0.43	0.40	0.73	0.36
Dissolved Solids	mg/L	244	316	—	348	407	672	299	338	972	506	358	436	766	426
pH	SU	7.70	7.50	—	7.6	7.6	7.4	7.6	7.7	7.6	7.5	7.5	7.6	7.5	7.7
Sodium	mg/L	<1	25	—	25	20.0	40.0	25.0	<20.0	30.0	35.0	14	50.0	90.0	<20.0
Nitrite-Nitrate	mg/L	3.3	5.7	—	5.3	6.4	14.1	7.1	1.8	7.1	8.8	1.4	3.7	5.4	3.1
Iron	μg/L	110	<100	—	120	70	60	70	40	100	80	<50	160	<40	40
Manganese	μg/L	<20.0	<10.0	—	<20	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<10	<20.0	<20.0	<20.0
Silver	μg/L	2	<2	—	<2	2	3	2	<2	2	2	<2	3	3	2
Cadmium	μg/L	3	<1	—	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1
Chromium	μg/L	<5	<5	—	8	<5	<5	<5	<5	<5	<5	18	9	<5	<5
Copper	μg/L	15	6	—	6	23	6	11	1600	4	13	12	25	9	18
Lead	μg/L	25	20	—	14	28	25	19	13	54	52	10	52	15	20
Zinc	μg/L	1060	85	—	165	23	12	41	210	22	13	63	280	60	57
Barium	μg/L	856	400	—	357	50	50	450	200	<100	260	350	120	<100	300
Arsenic	μg/L	<1	2	—	3	1	<1	<1	3	6	3	2	6	4	7
Selenium	μg/L	<1	<1	—	<1	7	3	<1	3	1	<1	<1	3	3	1
Mercury	μg/L	<0.5	<0.5	—	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

(A) Serves Harper Co. Water Corp.

		MAJOR CO.						TEXAS CO.								
CITY		Ames	Cleo Springs	Fairview	Meno	Ringwood	RWS & SWD 1	Adams RWD 1	Goodwell	Guymon	Hardesty RWD 2	Hooker	Optima	Panhandle St. Univ.	Texhoma	Tyrone
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		10-78	10-78	2-79	10-78	12-78	9-77	12-78	12-78	12-78	12-78	1-78	12-79	12-78	12-78	1-78
PARAMETERS	UNIT															
Total Hardness	mg/L	335	227	268	399	286	232	259	220	311	243	289	311	220	263	223
Total Alkalinity	mg/L	210	210	238	258	281	130	212	196	228	190	165	205	196	217	194
Chloride	mg/L	387	53	50	151	37	45	14	12	14	20	14	11	13	17	15
Sulfate	mg/L	170	17	40	28	14	69	47	44	99	82	127	124	40	49	53
Fluoride	mg/L	0.34	0.23	0.29	0.42	0.36	0.30	1.6	1.89	2	1.77	0.91	0.89	1.89	1.57	0.66
Dissolved Solids	mg/L	1313	426	412	576	372	414	332	332	429	373	440	446	330	359	370
pH	SU	7.7	7.8	7.5	7.7	7.9	6.8	7.6	7.6	7.7	7.4	7.6	7.5	7.6	7.6	7.8
Sodium	mg/L	314	30	52	70	40	20	15	23	31	30	25	29	24	24	29
Nitrite-Nitrate	mg/L	1.3	8.4	5.5	4.3	3	2.9	3.1	3.4	2.6	2	3.5	2.2	3.4	3.3	3.4
Iron	μg/L	180	<100	320	<100	170	100	78	64	61	215	105	130	89	73	105
Manganese	μg/L	<20	<20	30	<20	<20	20.0	2	2	2	4	3.5	4	2	2	4.5
Silver	μg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	3	<2	<2	<2	2
Cadmium	μg/L	<2	<2	<2	<2	<2	1	1	1	1	2	<1	1	2	1	1
Chromium	μg/L	40	7	9	12	7	5	7	9	10	6	<5	6	7	6	<5
Copper	μg/L	6	100	43	17	580	34	13	20	8	260	33	22	5	8	22
Lead	μg/L	12	18	12	10	21	<5	<2	<2	9	9	7	<2	<2	9	7
Zinc	μg/L	110	645	83	195	300	100	120	19	80	500	100	270	395	95	135
Barium	μg/L	110	420	530	450	420	<100	<100	<100	<100	<100	100	<100	<100	<100	50
Arsenic	μg/L	9	62	<2	<2	<2	<1	3	4	3	3	<1	<1	5	3	<1
Selenium	μg/L	4	<1	<1	7	1	4	2	2	2	1	4	2	2	2	7
Mercury	μg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

WOODS CO.

CITY		Alva (A)	Avaro	Freedom (B)	Lookout	RWD 2 (C)	Waynoka RWD 3
SOURCE OF SUPPLY		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
DATE OF ANALYSIS		10-78	10-78	10-78	10-78	9-77	10-78
PARAMETERS	UNIT						
Total Hardness	mg/L	193	226	214	182	163	138
Total Alkalinity	mg/L	166	244	158	175	150	115
Chloride	mg/L	18	7	<1	7	19	47
Sulfate	mg/L	25	65	16	16	15	53
Fluoride	mg/L	0.24	0.28	0.26	0.27	0.25	0.32
Dissolved Solids	mg/L	299	349	239	332	229	379
pH	SU	7.1	7.7	7.2	7.6	7.2	7.5
Sodium	mg/L	20	20	27	13	15	30
Nitrite-Nitrate	mg/L	4.8	4.5	6.8	5.5	5.1	5.1
Iron	μg/L	140	<100	290	280	<100	480
Manganese	μg/L	<20	<20	<20	<20	10	20
Silver	μg/L	<2	<2	2	<2	<2	2
Cadmium	μg/L	<2	2	<2	<2	1	<1
Chromium	μg/L	7	<5	<5	6	<5	6
Copper	μg/L	270	6	9	56	13	18
Lead	μg/L	12	20	<5	14	5	11
Zinc	μg/L	62	67	11	210	460	250
Barium	μg/L	230	<100	220	430	100	200
Arsenic	μg/L	<2	<2	<2	<2	<1	<2
Selenium	μg/L	<1	<1	<1	<1	1	<1
Mercury	μg/L	1.2	<0.5	<0.5	<0.5	<0.5	<0.5

(A) Serves Capron RWD 1, RWD 3 & Hopetown.
(B) Purchases from RWD 1, Woodward County.
(C) Purchases from the state of Kansas.

WOODWARD CO.

CITY		Ft. Supply	Mooreland	Quinlan	RWD 1 (A)	RWD 2	Sharon	Western State Hospital	Woodward
SOURCE OF SUPPLY		Ft. Supply Lake	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ft. Supply Lake	Ground Water
DATE OF ANALYSIS		9-77	10-78	10-78	10-78	10-78	10-78	10-78	10-78
PARAMETERS	UNIT								
Total Hardness	mg/L	—	347	135	214	275	218	149	208
Total Alkalinity	mg/L	421	273	62	158	188	192	24	186
Chloride	mg/L	201	53	<1	<1	<1	5	124	9
Sulfate	mg/L	187	62	7	16	18	6	114	23
Fluoride	mg/L	0.80	0.27	0.31	0.26	0.37	0.33	0.48	0.23
Dissolved Solids	mg/L	1140	494	174	239	315	268	490	230
pH	SU	7.7	7.4	7.1	7.2	7.5	7.5	9.3	7.6
Sodium	mg/L	175	48	<10	27	12	12	130	23
Nitrite-Nitrate	mg/L	1.9	8.8	7.3	6.8	5.8	4.7	0.1	1.6
Iron	μg/L	350	120	230	290	330	<100	250	100
Manganese	μg/L	60	<20	<20	<20	<20	<20	<20	20
Silver	μg/L	<2	<2	<2	2	<2	<2	<2	<2
Cadmium	μg/L	3	<1	<2	<2	<2	<1	<2	<1
Chromium	μg/L	5	<5	<5	<5	<5	<5	<5	7
Copper	μg/L	4	480	9	9	37	20	<5	150
Lead	μg/L	11	39	<5	<5	15	15	5	12
Zinc	μg/L	530	190	825	11	21	1500	140	66
Barium	μg/L	<100	270	150	220	700	800	<100	170
Arsenic	μg/L	<1	<1	<2	<2	<2	<1	<2	<1
Selenium	μg/L	<1	2	1	<1	<1	<1	<1	<1
Mercury	μg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

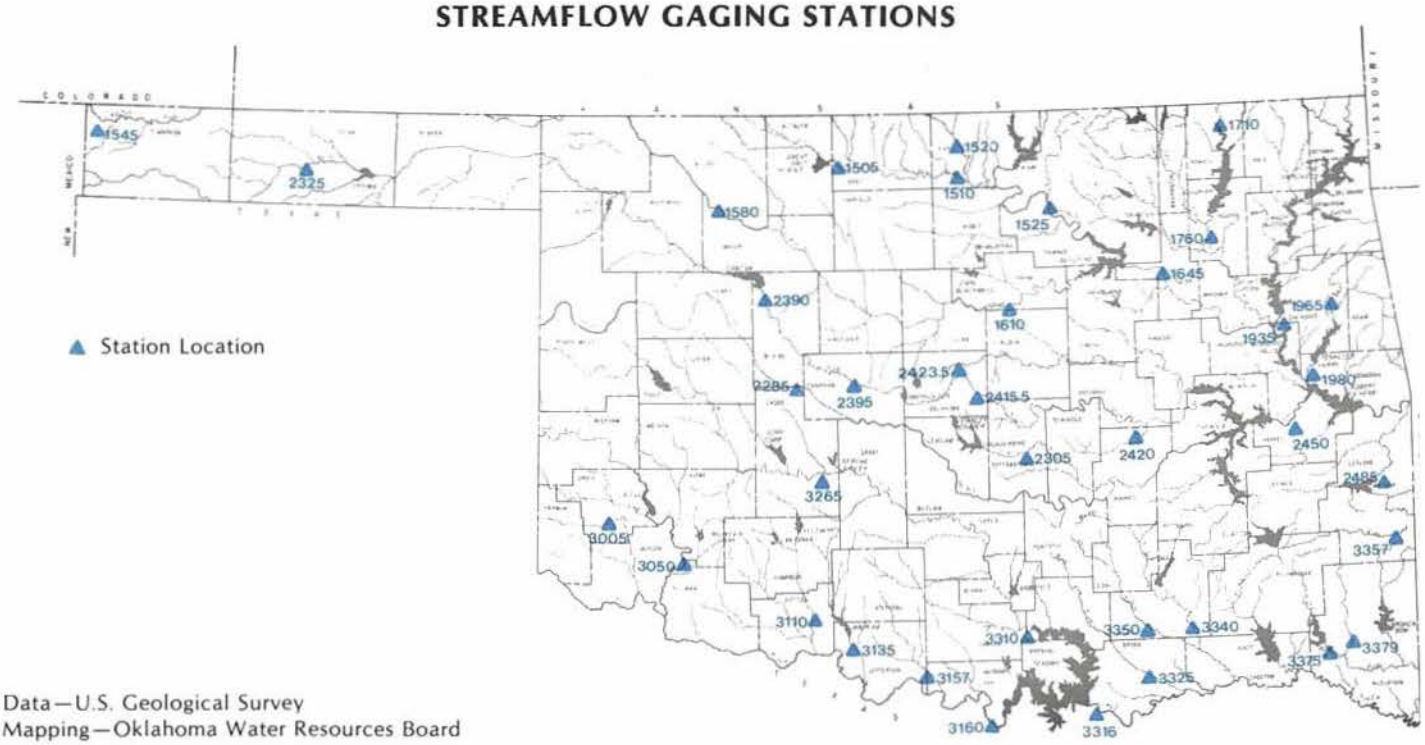
(A) Serves Freedom, Woods County.

APPENDIX B

FIGURE 2 STREAMFLOW SUMMARY FOR SELECTED USGS GAGING STATIONS

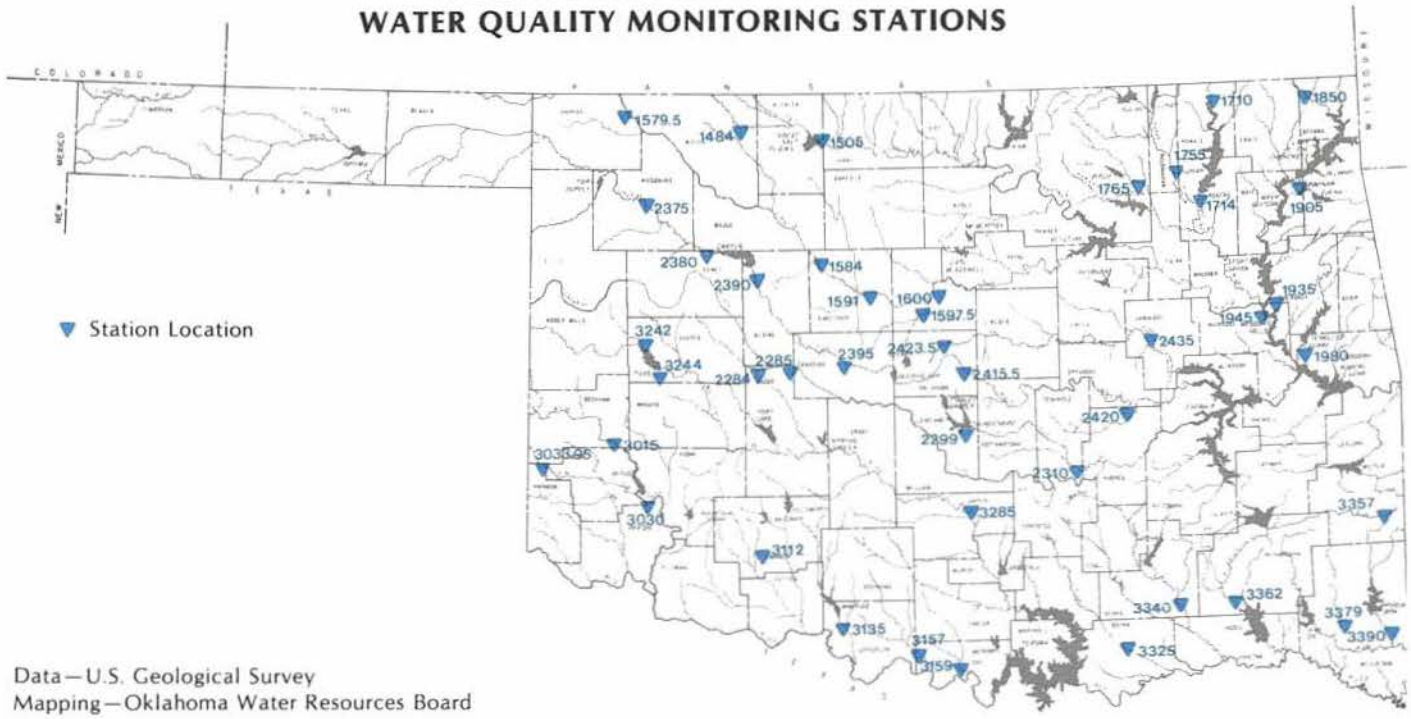
PLANNING REGION	STREAM	U.S.G.S. STATION	CONTRIBUTING DRAINAGE AREA (SQ. MI.)	AVERAGE ANNUAL FLOW (AF/YR)	OBSERVED FLOW (cfs) MAX.	MIN.	PERIOD OF RECORD
Southeast	Red River at Denison Dam near Denison, Tx.	3316	33,784	3,181,000	201,000	12	1923
	Blue River near Blue	3325	476	218,800	34,400	0	1936
	Muddy Boggy Creek near Farris	3340	1,087	657,800	61,900	0	1937
	Clear Boggy Creek near Caney	3350	720	358,600	52,800	0	1942
	Little River near Wright City	3375	645	743,300	78,200	0	1929-31, 44
	Glover Creek near Glover	3379	315	330,400	98,600	0	1961
Central	Little River near Tecumseh	2305	456	56,870	32,400	0	1943
	North Canadian River near El Reno	2395	8,143	144,200	15,000	0	1902-08, 37
	North Canadian River near Harrah	2415.5	8,602	205,000	6,920	23	1968
	Deep Fork near Arcadia	2423.5	105	46,080	14,300	14	1969
South Central	Beaver Creek near Waurika	3135	563	77,520	32,200	0	1953
	Mud Creek near Courtney	3157	572	83,320	33,400	0	1960
	Red River near Gainesville, Tx.	3160	24,846	1,992,000	168,000	48	1936
	Washita River near Durwood	3310	7,202	1,010,000	98,000	0	1928
	Red River at Denison Dam, near Denison, Tx.	3316	33,784	3,181,000	201,000	12	1923
Southwest	Salt Fork Red River at Mangum	3005	1,357	63,760	72,000	0	1905-06, 37
	North Fork Red River near Headrick	3050	3,845	198,500	35,000	0	1905-08, 37
	East Cache Creek near Walters	3110	675	121,000	28,200	0	1938-63, 69
	Washita River at Anadarko	3265	3,656	278,900	29,000	0	1902-08, 24-25, 35-38, 63
East Central	North Canadian River near Wetumka	2420	9,391	486,900	66,000	0	1937
	Canadian River near Whitefield	2450	37,876	4,185,000	281,000	0.4	1938
	Poteau River near Wister	2485	993	763,600	79,600	0	1938
	Kiamichi River near Big Cedar	3357	40	55,790	21,500	0	1965
Northeast	Arkansas River at Ralston	1525	46,850	3,496,000	211,000	14	1925
	Arkansas River at Tulsa	1645	62,074	5,175,000	246,000	27	1925
	Verdigris River near Lenapah	1710	3,639	1,964,000	137,000	0	1938
	Verdigris River near Claremore	1760	6,534	2,983,000	182,000	0	1935
	Neosho River below Ft. Gibson Lk, near Ft. Gibson	1935	12,495	5,644,000	223,000	12	1950
	Illinois River near Tahlequah	1965	959	652,800	150,000	0.1	1935
	Illinois River near Gore	1980	1,626	1,122,000	180,000	2	1924-26, 39
North Central	Salt Fork Arkansas River at Tonkawa	1510	4,520	534,700	97,300	0	1903-05, 35
	Chikaskia River near Blackwell	1520	1,859	350,700	85,000	0	1935
	Arkansas River at Ralston	1525	46,850	3,496,000	211,000	14	1925
	Cimarron River at Perkins	1610	12,926	856,400	149,000	0.8	1939
Northwest	Salt Fork Arkansas River near Jet	1505	3,194	268,800	25,900	0	1937
	Cimarron River near Kenton	1545	1,038	16,950	43,400	0	1904-05, 1950
	Cimarron River near Waynoka	1580	8,504	250,700	94,500	0	1903-05, 1937
	Canadian River at Bridgeport	2285	20,428	293,400	150,000	0	1944-69, 1969
	Beaver River near Guymon	2325	1,175	18,400	55,400	0	1937
	North Canadian River at Canton	2390	7,601	123,200	24,800	0	1937

FIGURE 3 LOCATIONS OF USGS STREAMFLOW GAGING STATIONS



Data—U.S. Geological Survey
Mapping—Oklahoma Water Resources Board

FIGURE 5 LOCATIONS OF USGS WATER QUALITY MONITORING STATIONS



Data—U.S. Geological Survey
Mapping—Oklahoma Water Resources Board

FIGURE 4 WATER QUALITY ANALYSES FOR SELECTED USGS MONITORING STATIONS

Station	Stream	Sulfate mg/L	Chloride mg/L	Nitrate Total mg/L	Solids, Residue at 180°	Hardness mg/L	Sodium	Specific Conductance Micromhos	pH
SOUTHEAST PLANNING REGION									
3325	Blue River near Blue								
	Mean	15.36	9.01	—	238.64	209.10	0.27	402.50	8.25
	Minimum	0.00	1.40	—	55.00	40.00	0.10	22.00	7.30
	Maximum	90.00	39.00	—	369.00	346.00	0.80	650.00	8.90
3340	Muddy Boggy Creek near Farris								
	Mean	14.08	20.36	—	131.83	61.87	0.89	212.99	7.24
	Minimum	0.00	2.50	—	29.00	8.00	0.10	39.00	3.20
	Maximum	161.00	139.00	—	513.00	219.00	7.00	1,140.00	8.60
3362	Kiamichi River near Big Cedar								
	Mean	13.26	10.24	—	70.00	28.24	0.80	71.69	7.33
	Minimum	0.00	1.00	—	70.00	12.00	0.80	28.00	6.20
	Maximum	44.00	42.00	—	70.00	88.00	0.80	125.00	8.70
3379	Glover River near Broken Bow								
	Mean	7.80	5.49	—	41.91	28.29	0.46	62.62	7.42
	Minimum	0.00	1.00	—	23.00	1.00	0.20	28.00	6.10
	Maximum	57.00	24.00	—	67.00	97.00	0.80	140.00	8.30
3390	Mountain Fork near Eagleton								
	Mean	4.65	3.65	—	38.36	14.25	0.49	48.57	7.25
	Minimum	0.00	0.80	—	15.00	6.00	0.10	26.00	6.10
	Maximum	51.00	18.00	—	68.00	27.00	1.00	750.00	8.30
CENTRAL PLANNING REGION									
2299	Lake Thunderbird near Norman								
	Mean	10.98	27.87	0.30	236.66	182.06	0.59	429.00	8.01
	Minimum	6.00	20.00	0.30	198.00	150.00	0.40	357.00	6.40
	Maximum	51.00	87.00	0.30	364.00	216.00	2.50	740.00	8.80
2395	North Canadian River near El Reno								
	Mean	188.96	134.79	—	621.10	320.35	2.20	1,134.03	8.00
	Minimum	13.00	6.60	—	120.00	80.00	0.40	187.00	7.00
	Maximum	1,013.00	394.00	—	1,210.00	727.00	4.10	2,200.00	9.40
2415.50	North Canadian River near Harrah								
	Mean	141.81	456.42	—	1,065.83	302.77	6.16	1,521.61	7.76
	Minimum	17.00	26.00	—	220.00	112.00	0.90	340.00	6.90
	Maximum	550.00	7,500.00	—	13,500.00	920.00	67.00	6,000.00	8.80
2423.50	Deep Fork near Arcadia								
	Mean	112.78	172.42	—	597.50	210.87	3.69	1,105.20	7.42
	Minimum	19.00	9.30	—	150.00	110.00	0.40	233.00	6.30
	Maximum	200.00	420.00	—	1,110.00	310.00	7.10	2,000.00	9.10
SOUTH CENTRAL PLANNING REGION									
3135	Beaver Creek near Waurika								
	Mean	168.71	101.16	—	641.94	370.55	1.53	980.49	8.04
	Minimum	7.80	4.50	—	115.00	58.00	0.20	153.00	6.50
	Maximum	400.00	450.00	—	1,360.00	680.00	6.10	2,080.00	8.70
3157	Mud Creek near Courtney								
	Mean	53.71	316.44	—	957.22	388.33	3.48	1,473.90	7.91
	Minimum	6.10	4.50	—	109.00	32.00	0.50	115.00	6.30
	Maximum	270.00	2,450.00	—	4,700.00	1,280.00	13.00	7,450.00	8.70
3159	Walnut Bayou near Burneyville								
	Mean	89.11	463.81	—	1,135.63	394.43	4.68	1,843.99	8.20
	Minimum	9.10	9.00	—	85.00	48.00	0.50	143.00	7.40
	Maximum	210.00	2,000.00	—	3,739.99	1,100.00	12.30	6,379.99	9.00
3285	Washita River near Pauls Valley								
	Mean	490.81	75.86	—	830.72	587.76	0.99	1,287.55	—
	Minimum	49.00	8.00	—	308.00	160.00	0.30	319.00	—
	Maximum	855.00	218.00	—	1,490.00	1,262.00	2.10	2,150.00	—

Station	Stream	Sulfate mg/L	Chloride mg/L	Nitrate Total mg/L	Solids, Residue at 180°	Hardness mg/L	Sodium	Specific Conductance Micromhos	pH
SOUTHWEST PLANNING REGION									
2284	Deer Creek at Hydro								
	Mean	488.74	17.17	—	914.82	607.91	0.55	1,173.32	7.93
	Minimum	58.00	0.30	—	203.00	140.00	0.00	290.00	7.00
	Maximum	1,060.00	38.00	—	1,660.00	1,060.00	3.40	1,890.00	8.50
3015	North Fork Red River near Carter								
	Mean	724.56	333.83	2.25	1,780.86	837.46	3.52	2,478.54	8.00
	Minimum	38.00	7.00	0.20	206.00	140.00	0.10	315.00	6.90
	Maximum	1,300.00	757.00	4.40	2,590.00	1,317.00	4.80	5,999.99	8.80
3030	North Fork Red River below Lake Altus near Lugert								
	Mean	575.65	999.20	—	1,300.00	902.28	2.75	4,893.86	8.12
	Minimum	405.00	196.00	—	1,200.00	200.00	2.60	1,290.00	7.40
	Maximum	773.00	5,328.99	—	1,420.00	1,964.00	2.90	17,999.96	8.40
3033.95	Elm Fork of North Fork Red River near Carl								
	Mean	1,684.44	2,906.01	—	7,480.91	2,051.67	14.08	9,987.46	7.73
	Minimum	510.00	46.00	—	1,130.00	630.00	0.40	1,360.00	7.00
	Maximum	3,499.99	49,999.91	—	87,199.81	7,699.98	149.00	103,999.75	8.90
3112	Blue Beaver Creek near Cache								
	Mean	16.68	7.63	0.20	106.27	52.37	0.75	190.52	7.43
	Minimum	7.20	3.40	0.10	58.00	26.00	0.50	89.00	6.40
	Maximum	90.00	24.00	0.40	187.00	81.00	1.40	2,500.00	8.60
3242	Washita River near Harmon								
	Mean	793.74	32.51	—	1,412.37	913.17	0.86	1,675.42	8.02
	Minimum	25.00	1.00	—	0.90	120.00	0.20	270.00	6.60
	Maximum	2,100.00	256.00	—	3,169.99	2,200.00	1.90	3,179.99	8.80
3244	Washita River near Foss								
	Mean	511.19	23.24	5.21	999.83	660.83	0.91	1,320.57	8.06
	Minimum	10.00	1.00	0.40	112.00	91.00	0.20	152.00	7.00
	Maximum	1,500.00	180.00	14.00	2,540.00	1,700.00	1.40	4,670.00	8.80
EAST CENTRAL PLANNING REGION									
1980	Illinois River near Gore								
	Mean	8.53	10.38	2.30	114.13	84.30	0.29	198.83	7.68
	Minimum	3.00	1.20	1.20	40.00	33.00	0.10	85.50	6.30
	Maximum	130.00	300.00	3.10	740.00	300.00	4.20	1,620.00	8.50
2310	Little River near Sasakwa								
	Mean	33.35	3,031.61	1.57	4,858.56	1,306.78	12.08	7,541.67	8.10
	Minimum	0.00	16.00	0.00	106.00	48.00	0.60	142.00	4.00
	Maximum	410.00	73,100.00	2.90	129,000.00	24,400.00	101.00	130,000.00	112.00
2420	North Canadian River near Wetumka								
	Mean	130.73	283.43	—	848.57	305.27	4.46	1,594.75	7.83
	Minimum	26.00	40.00	—	210.00	76.00	1.00	418.00	6.70
	Maximum	280.00	640.00	—	1,650.00	540.00	8.50	9,400.00	9.60
3357	Kiamichi River near Big Cedar								
	Mean	3.58	2.49	0.00	23.90	7.24	0.38	26.51	7.00
	Minimum	0.80	1.00	0.00	10.00	1.00	0.10	15.00	5.20
	Maximum	9.30	9.60	0.00	45.00	17.00	1.00	63.00	9.00
NORTHEAST PLANNING REGION									
1710	Verdigris River near Lenapah								
	Mean	39.57	96.45	0.15	387.77	196.09	2.02	646.83	7.92
	Minimum	5.60	7.00	0.15	114.00	48.00	0.40	124.00	6.40
	Maximum	150.00	375.00	0.15	937.00	370.00	5.60	1,560.00	9.50
1714	Verdigris River near Oologah								
	Mean	51.50	60.05	—	334.13	178.09	1.06	510.83	7.74
	Minimum	8.40	0.00	—	109.00	74.00	0.40	185.00	6.40
	Maximum	730.00	280.00	—	1,510.00	810.00	2.80	1,970.00	9.70

(Continued)

Station	Stream	Sulfate mg/L	Chloride mg/L	Nitrate Total mg/L	Solids, Residue at 180°	Hardness mg/L	Sodium	Specific Conductance Micromhos	pH
NORTHEAST PLANNING REGION (Continued)									
1755	Caney River near Ramona								
	Mean	31.95	118.75	—	401.85	193.28	1.72	686.18	7.97
	Minimum	2.10	8.30	—	76.00	41.00	0.30	127.00	3.00
	Maximum	112.00	610.00	—	1,380.00	490.00	5.70	5,170.00	9.90
1765	Bird Creek at Avant								
	Mean	21.27	52.82	—	233.30	140.75	0.98	413.71	7.94
	Minimum	1.00	1.00	—	68.00	28.00	0.60	112.00	7.10
	Maximum	49.00	116.00	—	340.00	212.00	1.50	700.00	12.40
1850	Neosho River near Commerce								
	Mean	76.33	25.87	—	306.10	20.323	0.80	476.88	7.88
	Minimum	12.00	1.00	—	102.00	51.00	0.10	130.00	6.20
	Maximum	238.00	158.00	—	690.00	535.00	2.90	1,080.00	9.00
1905	Neosho River near Langley								
	Mean	37.83	12.26	—	182.90	128.73	0.38	292.79	7.49
	Minimum	7.00	1.00	—	128.00	78.00	0.10	188.00	6.70
	Maximum	53.00	85.00	—	293.00	227.00	1.20	508.00	8.70
1935	Neosho River below Fort Gibson Lake near Fort Gibson								
	Mean	38.99	11.67	2.50	181.23	127.66	0.39	294.28	7.78
	Minimum	7.70	2.00	2.50	102.00	59.00	0.10	25.70	6.20
	Maximum	65.00	23.00	2.50	272.00	190.00	0.70	2,570.00	8.70
1945	Arkansas River near Muskogee								
	Mean	54.71	187.03	—	—	170.77	—	874.44	8.04
	Minimum	21.00	10.00	—	—	88.00	—	240.00	7.00
	Maximum	109.00	751.00	—	—	308.00	—	2,080.00	9.00
2435	Deep Fork near Beggs								
	Mean	77.19	158.21	—	537.03	216.13	3.15	936.09	7.88
	Minimum	13.00	37.00	—	148.00	47.00	1.00	250.00	7.00
	Maximum	170.00	270.00	—	865.00	340.00	5.30	1,750.00	9.00
NORTH CENTRAL PLANNING REGION									
1584	Salt Creek near Okeene								
	Mean	935.48	4,905.07	—	9,724.13	1,150.23	37.90	14,618.84	7.84
	Minimum	41.00	120.00	—	226.00	82.00	2.40	373.00	6.80
	Maximum	1,700.00	21,000.00	—	35,600.00	2,700.00	112.00	51,600.00	8.50
1591	Cimarron River near Dover								
	Mean	517.82	4,429.12	—	8,245.57	743.24	44.23	13,404.15	7.92
	Minimum	43.00	220.00	—	651.00	140.00	4.70	1,130.00	7.00
	Maximum	870.00	13,000.00	—	21,300.00	1,300.00	103.00	33,100.00	9.20
1597.5	Cottonwood Creek at Seward								
	Mean	157.86	107.81	—	636.50	312.31	2.37	1,077.14	7.72
	Minimum	9.10	16.00	—	49.00	55.00	0.70	127.00	6.70
	Maximum	290.00	200.00	—	1,030.00	550.00	4.60	9,000.00	9.30
1600	Cimarron River near Guthrie								
	Mean	498.93	3,043.28	—	4,880.58	715.54	27.15	9,685.48	8.09
	Minimum	70.00	190.00	—	611.00	86.00	4.80	1,080.00	6.80
	Maximum	1,020.00	7,178.99	—	11,300.00	1,238.00	63.00	18,799.96	8.70
NORTHWEST PLANNING REGION									
1484	Salt Fork Arkansas River near Alva								
	Mean	728.40	172.84	—	1,528.63	821.46	2.28	1,937.72	7.84
	Minimum	25.00	23.00	—	429.00	164.00	1.40	627.00	6.90
	Maximum	1,300.00	360.00	—	2,370.00	1,470.00	3.30	4,000.00	8.60
1505	Salt Fork Arkansas River near Jet								
	Mean	503.34	3,569.11	—	6,247.91	721.80	34.15	10,974.65	8.04
	Minimum	44.00	150.00	—	1,050.00	120.00	2.30	1,170.00	6.40
	Maximum	1,800.00	19,000.00	—	34,600.00	12,899.97	125.00	49,000.00	135.00

(Continued)

Station	Stream	Sulfate mg/L	Chloride mg/L	Nitrate Total mg/L	Solids, Residue at 180°	Hardness mg/L	Sodium	Specific Conductance Micromhos	pH
NORTHWEST PLANNING REGION (Continued)									
1579.5	Cimarron River near Buffalo								
	Mean	380.06	3,421.55	0.30	6,620.01	583.75	36.55	10,274.55	8.09
	Minimum	16.00	140.00	0.30	512.00	140.00	1.38	860.00	6.90
	Maximum	2,400.00	29,000.00	0.30	49,200.00	1,600.00	218.00	67,000.00	8.90
2285	Canadian River at Bridgeport								
	Mean	288.70	121.60	0.20	815.48	412.63	2.32	1,224.26	8.08
	Minimum	23.00	3.50	0.20	170.00	110.00	0.20	226.00	6.80
	Maximum	790.00	825.00	0.20	2,450.00	920.00	11.00	4,000.00	9.70
2375	North Canadian River at Woodward								
	Mean	343.96	309.17	—	1,316.94	516.94	4.39	1,990.52	8.32
	Minimum	75.00	100.00	—	400.00	172.00	2.10	693.00	7.30
	Maximum	930.00	600.00	—	3,110.00	970.00	8.30	3,539.99	9.40
2380	North Canadian River near Seiling								
	Mean	326.99	215.30	—	1,206.38	487.85	3.15	1,661.57	8.12
	Minimum	36.00	20.00	—	276.00	57.00	0.50	465.00	6.30
	Maximum	935.00	455.00	—	2,750.00	1,590.00	5.30	3,849.99	8.80
2390	North Canadian River at Canton								
	Mean	198.40	5,128.16	—	556.74	346.48	2.28	1,208.68	7.98
	Minimum	20.00	16.00	—	314.00	174.00	1.20	533.00	7.10
	Maximum	735.00	83,939.81	—	861.00	794.00	4.00	1,950.00	8.80

APPENDIX C
OKLAHOMA WATER RESOURCES MANAGEMENT STRUCTURE

FIGURE 6
STATE AGENCIES, BOARDS AND COMMISSIONS

NAME OF AGENCY	WATER MANAGEMENT ACTIVITY: PLANNING	REGULATION	DATA COLLECTION RESEARCH	ASSISTANCE	COORDINATION	DEVELOPMENT	WATER-RELATED RESPONSIBILITIES / DEFINITION
OKLAHOMA WATER RESOURCES BOARD	X	X	X	X	X	X	Prepares and updates the Oklahoma Comprehensive Water Plan. Administers the water laws of the state through the issuance of ground and stream water permits; makes ground and stream water investigations; promulgates and enforces water quality standards for the state; reviews and certifies Section 404 permits (P.L. 92-500); issues waste disposal permits to industries; drafts and certifies National Pollutant Discharge Elimination System (NPDES) permits; certifies laboratories dealing with water resources; assists and improves organization of irrigation districts throughout the state. Approves design and engineering of all nonfederal water works projects; compiles and indexes all available data concerning the water resources of the state; inspects water works projects to insure their safety; administers the Weather Modification Act; licenses water well drillers; coordinates the National Flood Insurance Program; negotiates and administers four interstate stream compacts. Administers a state financial assistance program for water development projects created by 82 O.S. 1979, Section 1085.31, et. seq. (SB 215 of the First Session of the 37th Legislature).
DEPARTMENT OF HEALTH		X	X	X			Has responsibility for the prevention, control and abatement of water pollution associated with the discharge of municipal and other domestic waste and related public health and nuisance problems; has responsibility for the quality of public water supplies and public bathing places; administers EPA grants for construction of waste treatment facilities; has primary enforcement responsibilities under the Safe Drinking Water Act; develops and enforces standards for the disposal of solid wastes and controlled industrial waste, both surface (landfills) and underground.
DEPARTMENT OF WILDLIFE CONSERVATION		X	X			X	Maintains certain pollution enforcement powers; is responsible for the investigation of fish kills and the assessment of damages to fish and wildlife from pollution; has responsibility for the construction and maintenance of 17 department lakes throughout the state.
OKLAHOMA CONSERVATION COMMISSION	X			X	X	X	Coordinates and provides technical assistance to the 88 conservation districts throughout the state for the establishment of best management practices concerning renewable natural resources through conservation and erosion control plans.
ATTORNEY GENERAL		X					Aids in the interpretation and enforcement of water-related legislation and regulations affecting Oklahoma Water Resources Board. Approves all investment certificates issued by the Board to finance the loan program under SB 215.
UNIVERSITY OF OKLAHOMA							
Bureau of Water and Environmental Resources Research			X				State and federally funded department at the University of Oklahoma for water research and education programs.
Center for Economic and Management Research	X		X				Research arm of the College of Business Administration. Prime contracting agency with Oklahoma Water Resources Board to conduct a statewide economic impact study of the proposed water transfer system. Also under subcontract to perform the Energy Production Impact assessment for the State of Oklahoma in the High Plains Study.
National Severe Storms Laboratory			X		X		Investigates the application of weather radar to measure rainfall. Current and future efforts are directed toward the use of weather radar for streamflow and runoff studies.
State Climatologist	X		X				Responsible for the accumulation and dissemination of climatological data collected throughout the state and determines state policy regarding climate-related issues.

FIGURE 6
STATE AGENCIES, BOARDS AND COMMISSIONS (Continued)

NAME OF AGENCY	WATER MANAGEMENT ACTIVITY: PLANNING	REGULATION	DATA COLLECTION RESEARCH	ASSISTANCE	COORDINATION	DEVELOPMENT	WATER-RELATED RESPONSIBILITIES / DEFINITION
OKLAHOMA STATE UNIVERSITY							
College of Business Administration	X		X				Assists Oklahoma University in the statewide Economic Impact Study of the proposed water conveyance system in Oklahoma.
Department of Agricultural Economics	X		X				Assists in the statewide Economic Impact Study and conducts the State Agricultural and Farm-Level Research Element of the High Plains Study.
Agricultural Extension Service			X		X		Transfers experimental results and findings in economic and scientific agricultural research to the public. County agents at the field level advise laypersons of local irrigation conditions, trends and problems.
Water Resources Research Institute			X				Conducts scientific and political research studies on water-related problems and issues. Principal recipient of funding grants from the U.S. Office of Water Research and Technology.
SUBSTATE PLANNING DISTRICTS	X		X	X	X		Regional public entities funded by the federal government through DECA to serve as the local coordinating agency encouraging social and economic development.
DEPARTMENT OF CIVIL DEFENSE	X			X	X		Prepares, implements and coordinates disaster plans and operations related to droughts, floods, storms, etc.
DEPARTMENT OF TRANSPORTATION	X		X	X	X	X	Has responsibility for the planning, construction, operation, maintenance and coordination of the state transportation systems. Participates in cooperative mapping program with OWRB and USGS. Coordinates with OWRB in the design of roads and bridges near potential dam sites.
TOURISM AND RECREATION DEPARTMENT	X					X	Promotes tourism and recreation through publicity and dissemination of information; develops, operates and maintains state parks, recreation areas and lodges. Has responsibility for the State Comprehensive Outdoor Recreation Plan (SCORP).
GRAND RIVER DAM AUTHORITY	X	X	X			X	Public corporation and agency of the State of Oklahoma created to control the water of the Grand River and its tributaries. Financed solely by revenues generated from the sale of water and power.
STATE DEPARTMENT OF AGRICULTURE		X	X				Has responsibilities in the areas of pesticide application, regulation and analysis, and in the control of water pollution from animal feed yards.
CORPORATION COMMISSION		X					Makes and enforces rules governing and regulating pollution control related to the exploration, drilling, production and transportation of oil or gas products.
SCHOOL LAND COMMISSION		X					Has responsibility for the effective management of state-owned land.
DEPARTMENT OF MINES		X					Has responsibility for the enforcement of standards related to mining activities, including the reclamation of strip mining lands.
OFFICE OF THE GOVERNOR DEPARTMENT OF INDUSTRIAL DEVELOPMENT			X	X			Supports and assists efforts of industries to locate in Oklahoma. Assistance includes dissemination of information necessary for environmental decisionmaking.
POLLUTION CONTROL COORDINATING BOARD	X		X		X		Has responsibility for coordinating efforts of seven state agencies working in the field of environmental pollution: Oklahoma Water Resources Board; Oklahoma State Health Department; Oklahoma Conservation Commission; Corporation Commission; Industrial Development; Department of Wildlife Conservation; and Department of Agriculture.
DEPARTMENT OF ECONOMIC AND COMMUNITY AFFAIRS				X	X		Administers federal funds for planning assistance to state agencies, substate planning districts and local communities.
EMPLOYMENT SECURITY COMMISSION	X		X		X		Compiles and publishes extensive data on the Oklahoma economy. Provides population forecasts for the state.
DEPARTMENT OF ENERGY			X	X			Coordinates, promotes and develops effective statewide energy programs.

FIGURE 7
FEDERAL AGENCIES, BOARDS AND COMMISSIONS

NAME OF AGENCY	WATER MANAGEMENT ACTIVITY: PLANNING	REGULATION	DATA COLLECTION RESEARCH	ASSISTANCE	COORDINATION	DEVELOPMENT	WATER-RELATED RESPONSIBILITIES / DEFINITION
DEPARTMENT OF AGRICULTURE							
Soil Conservation Service	X		X	X		X	Provides technical and financial assistance to state and local entities for small watershed projects. Administers Rural Development Act of 1972 which authorizes Resource Conservation and Development Districts.
Agricultural Research Service			X				Studies water needs with emphasis on agricultural research.
Agricultural Stabilization and Conservation Service				X			Administers federal cost-sharing program primarily for land treatment practices on individual farmlands.
Farmers Home Administration				X			Provides loans and grants to farmers and local entities of government for irrigation and drainage systems, watershed protection and flood prevention projects, community waste disposal systems and rural water supply systems, including rural communities up to 10,000 population.
WATER RESOURCES COUNCIL	X			X	X		Coordinates federal involvement in water resources activities; administers matching grants to states to help finance state water planning activities; promulgates principles and standards and procedures for planning federal water resource projects. Has primary responsbility for preparation of periodic National Water Assessment.
NUCLEAR REGULATORY COMMISSION		X					Has responsibility for overseeing nuclear activities on a national basis.
ENVIRONMENTAL PROTECTION AGENCY	X	X	X	X	X		Administers the National Environmental Protection Program which includes the planning and implementation of programs for clean water. Programs include: state grants for the development of integrated wastewater management programs; Section 106 wastewater management program; Section 208 area-wide planning grants for developing water quality improvement plans; grants to cities for waste treatment facilities; implementation of the Safe Drinking Water Act; implementation of the underground injection control program and the Toxic Substance Control Act; the Kerr Lab, located in Ada, Oklahoma, serves as a major ground water and pollution control laboratory and research station.
DEPARTMENT OF ENERGY							
Federal Energy Regulatory Commission		X		X			Provides technical assistance and review of water resource development projects in which hydroelectric power generation is among the project purposes.
Southwest Power Administration		X		X			Provides electrical power to Southwestern region.
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT				X			Makes grants and loans to local public agencies to finance water and sewer facilities under its community development block grant program.
FEDERAL EMERGENCY MANAGEMENT AGENCY					X		Administers National Flood Insurance Act of 1968 which provides insurance protection in flood-prone areas and encourages states and communities to make land use adjustments to prevent unwise use of the floodplain. OWRB is the state coordinator of this program.
DEPARTMENT OF COMMERCE							
Census Bureau			X				Provides basic statistics about population and the nation's economy, including data necessary to water resources planning and development.
Small Business Administration				X			Provides disaster loan assistance.
Economic Development Administration				X			Provides financial assistance, technical planning, and research assistance for areas designated as redevelopment areas. Provides financial assistance in the form of public works and loans for water facilities to redevelop areas experiencing water shortages.
National Oceanic and Atmospheric Administration			X				Provides meteorological activities, hydrologic forecasts and climatological services through the National Weather Service.

FIGURE 7
FEDERAL AGENCIES, BOARDS AND COMMISSIONS (Continued)

NAME OF AGENCY	WATER MANAGEMENT ACTIVITY: PLANNING	REGULATION	DATA COLLECTION RESEARCH	ASSISTANCE	COORDINATION	DEVELOPMENT	WATER-RELATED RESPONSIBILITIES / DEFINITION
DEPARTMENT OF TRANSPORTATION		X					Has coast guard type function of "policing" reservoirs and navigable waters; provides funding to interstate highways system; and has concern for highway drainage and flooding problems.
DEPARTMENT OF INTERIOR							
Bureau of Reclamation	X		X	X		X	Has major responsiblities in irrigation and the planning and development of multipurpose water projects. Administers the Small Reclamation Projects Act of 1906, which provides loans and grants for water projects in which irrigation is a primary purpose.
Fish and Wildlife Service	X		X	X			Assists states in planning and develoment of projects for restoration and management of fish and wildlife resources.
U.S. Geological Survey			X	X			Maintains through cooperative agreements (matching funds) stream gaging stations throughout the state; conducts ground water investigations.
Bureau of Land Management			X	X			Distributes in lieu of tax payments to counties where the federal government has purchased lands for water projects; provides for the leasing of federally owned mineral deposits.
Bureau of Indian Affairs		X		X			Represents Indian water right interests.
National Park Service	X			X			Provides planning and technical assistance to recreation areas related to water projects and water-related portions of national parks.
Heritage Conservation and Recreation Service (Bureau of Outdoor Recreation)				X	X		Coordinates state and federal programs for outdoor recreation; assists in evaluation of areas for possible wild and scenic river status; participates in planning, coordination and establishment of uniform policies relating to recreation, fish and wildlife benefits and costs of federal multipurpose water resource projects.
Office of Water Research Technology			X	X			Supports water research through Water Resources Research Institute at universities. A primary involvement is in the area of technological advancement of desalting processes.
DEPARTMENT OF THE ARMY							
Corps of Engineers	X	X	X	X		X	Has major responsibilities in flood protection, navigation and the planning and development of multipurpose water projects; regulates the disposal of dredge and fill material in navigable waters (Section 404-P.L. 92-500). The OWRB assists the Corps in the review and certification process. Lead agency in the National Safety of Dams Program.

FIGURE 8
MULTISTATE ORGANIZATIONS

NAME OF AGENCY	PLANNING	REGULATION	DATA COLLECTION RESEARCH	ASSISTANCE	COORDINATION	DEVELOPMENT	WATER-RELATED RESPONSIBILITIES / DEFINITION
HIGH PLAINS STUDY COUNCIL	X				X		Administrative body composed of representatives of the Six High Plains States and the U.S. Dept. of Commerce (EDA). Organized to monitor and coordinate the $6 million study of the declining Ogallala ground water formation in the High Plains. The study will consider plans to increase water supplies in the area.
ARKANSAS RIVER COORDINATING COMMITTEE					X		Committee members include representatives from Oklahoma, Kansas, and Arkansas. Primarily an advisory group to the Corps of Engineers with respect to reservoir and navigation operation on the Arkansas River.
ARKANSAS-WHITE-RED BASIN INTER-AGENCY COMMITTEE	X		X		X		Interstate committee concerned with water development in the Arkansas, White and Red River basins. Primarily a regional planning body made up of eight states, plus six federal agencies.

FIGURE 8 MULTISTATE ORGANIZATIONS (Continued)

NAME OF AGENCY	WATER MANAGEMENT ACTIVITY: PLANNING	REGULATION	DATA COLLECTION RESEARCH	ASSISTANCE	COORDINATION	DEVELOPMENT	WATER-RELATED RESPONSIBILITIES / DEFINITION
ARKANSAS BASIN DEVELOPMENT ASSOCIATION					X		Organization involving the States of Arkansas, Colorado, Kansas, Oklahoma and Missouri to promote the development of the Arkansas River basin.
RED RIVER VALLEY ASSOCIATION					X		Organization involving the States of Oklahoma, Texas, Arkansas and Louisiana to promote the timely and orderly development of the land and water resources of the Red River Basin.
OZARKS REGIONAL COMMISSION				X			Provides grants to local entities for water development projects to assist in the economic development of the States of Kansas, Missouri, Arkansas and Oklahoma.
RIVER BASIN COMMISSIONS & INTERSTATE COMPACTS Arkansas River Compact-Okla & Ark Arkansas River Compact-Okla & Kan Canadian River Compact-Okla, Tex & N Mex Red River Compact-Okla, Tex, Ark & La	X	X			X		Commissions promote comity between participating states by cooperating in the equitable apportionment and development of the water in specific river basins as provided by the Interstate Compact agreements. Oklahoma's role is fulfilled administratively by OWRB.

FIGURE 9 LOCAL AND SPECIAL PURPOSE DISTRICTS

NAME OF AGENCY	PLANNING	REGULATION	DATA COLLECTION RESEARCH	ASSISTANCE	COORDINATION	DEVELOPMENT	WATER-RELATED RESPONSIBILITIES / DEFINITION
MASTER CONSERVANCY DISTRICTS			X		X		Created under Title 82 O.S. 1971 §531 et seq. for the purposes of preventing floods, regulating streamflows, reclaiming wetlands, diverting water, and developing and providing water for beneficial purposes. There are eight master conservancy districts in the state.
IRRIGATION DISTRICTS					X		Two irrigation districts currently operate in the state, and three others have petitioned OWRB to organize.
WEATHER MODIFICATION DISTRICTS					X		Title 2 O.S. Supp. 1973, §1403 et seq. created these districts, allowing districts to hold elections and assess themselves for cost of contracting weather modification projects, with the contracts to be filed with and approved by OWRB. At this time, no such districts exist in Oklahoma.
RURAL WATER DISTRICTS					X	X	Created by Title 82 O.S. Supp. 1975 §1324 to provide for water distribution facilities in areas lying outside the corporate limits of any municipal corporation or, if the municipality has a population less than 10,000 persons, may include said municipality. There are over 400 districts statewide.
SCENIC RIVER COMMISSIONS		X				X	Created to ensure the state's scenic rivers are properly managed and their pristine environment is maintained.
PORT AUTHORITIES	X				X	X	Has responsibility for the development, operation and expansion of ports in Oklahoma. City of Tulsa-Rogers Co. Muskogee City-County Sallisaw
OTTAWA RECLAMATION AUTHORITY		X		X			Has responsibility for the reclamation of hazardous mining land within the district.

INDEX TO FIGURES

Figure		Page
CHAPTER I DEVELOPMENT OF THE OKLAHOMA COMPREHENSIVE WATER PLAN		
1	Oklahoma Water Resources Board Stream Systems	6
2	Interstate Stream Compacts	9
3	Stream Water Availability	10
CHAPTER III WATER CONSERVATION IN OKLAHOMA		
4	Typical Water Consumption in the Home	38
5	Rate Structures for Water Pricing	42
CHAPTER IV STATEWIDE APPRAISAL		
6	Climatological Summary	47
7	Mean Annual Temperature	48
8	Average Annual Precipitation	48
9	Average Annual Lake Evaporation	49
10	Oklahoma Population Projections	51
11	Major Industries	52
12	Geologic Time Scale	53
13	Acres Irrigated in Oklahoma	53
14	Generalized Geology	54
15	Major Agricultural Land Uses	54
16	Oklahoma Land Inventory Summary	55
17	Soil Associations	54A
18	Generalized Oil and Gas Resources	54B
19	Mineral Resources	54C
20	Average Annual Runoff	56
21	Average Discharge of Principal Rivers	57
22	Generalized Water Quality	58
23	Storage Space in a Typical Multipurpose Reservoir	59
24	Water Resources Development Projects	60
25	Water Resources Development	60A

26 Soil Conservation Service Watershed Protection Program 60B

27 Existing Hydroelectric Projects 62

28 Major Ground Water Basins 62A

29 Total Ground Water Estimated Recoverable from Storage 63

30 Ground Water Basin Studies 65

31 Statewide Present and Projected Water Requirements 67

32 Land Suitable for Project-Type Irrigation 68

33 Water Level Hydrograph 73

PLANNING REGION ANALYSES

34 Planning Regions 76

35 Summary of Costs Proposed Plans of Development 76

SOUTHEAST PLANNING REGION

36 Stream Water Development 80

37 Stream Water Rights 83

38 Ground Water Rights 84

39 Present and Projected Water Requirements 84

40 Surplus Water Availability 85

41 Proposed Plan of Development 86

42 Supply and Demand Analysis Proposed Plan of Development 87

43 Summary of Costs Proposed Plan of Development 87

CENTRAL PLANNING REGION

44 Stream Water Development 92

45 Stream Water Rights 93

46 Ground Water Rights 94

47 Present and Projected Water Requirements 94

48 Supply and Demand Analysis Proposed Plan of Development 95

49 Summary of Costs Proposed Plan of Development 95

50 Proposed Plan of Development 96

SOUTH CENTRAL PLANNING REGION

51 Stream Water Development 100

52 Stream Water Rights 101

53 Ground Water Rights 102

54 Present and Projected Water Requirements 103

55 Supply and Demand Analysis Proposed Plan of Development 104

56 Proposed Plan of Development 104

57 Summary of Costs Proposed Plan of Development 105

SOUTHWEST PLANNING REGION

58 Stream Water Development 109

59 Stream Water Rights 111

60 Ground Water Rights 112

61 Present and Projected Water Requirements 113

62 Supply and Demand Analysis Proposed Plan of Development 113

63 Proposed Plan of Development 114

64 Summary of Costs Proposed Plan of Development 115

EAST CENTRAL PLANNING REGION

65 Stream Water Development 119

66 Stream Water Rights 121

67 Ground Water Rights 122

68 Present and Projected Water Requirements 122

69 Supply and Demand Analysis Proposed Plan of Development 123

70 Proposed Plan of Development 124

71 Summary of Costs Proposed Plan of Development 125

72 Surplus Water Availability 125

NORTHEAST PLANNING REGION

73 Stream Water Development 129

74 Stream Water Rights 133

75 Present and Projected Water Requirements 134

76 Ground Water Rights 134

77 Surplus Water Availability 135

78 Summary of Costs Proposed Plan of Development 136

79 Supply and Demand Analysis Proposed Plan of Development 136

80 Proposed Plan of Development 137

NORTH CENTRAL PLANNING REGION

81 Stream Water Development 142

82 Stream Water Rights 143

83 Ground Water Rights 144

84 Present and Projected Water Requirements 145

85 Supply and Demand Analysis Proposed Plan of Development 146

86 Proposed Plan of Development 146

87 Summary of Costs Proposed Plan of Development 147

NORTHWEST PLANNING REGION

88 Stream Water Development 152

89 Stream Water Rights 153

90 High Capacity Well Development in Panhandle Counties 154

91 Ground Water Rights 154

92 Present and Projected Water Requirements 155

93 Supply and Demand Analysis Proposed Plan of Development 155

94 Proposed Plan of Development 156

95 Summary of Costs Proposed Plan of Development 156

CHAPTER VI STATEWIDE WATER CONVEYANCE SYSTEM

96 Year 2040 Statewide Water Resources and Requirements 158

97 Statewide Water Conveyance System Including Proposed Local Projects 158A

98 Statewide Water Conveyance System Summary of Costs 160

99 Mitigation/Compensation Costs 161

100 Northern Water Conveyance System Source Component Alternatives 1A, 1B, 2A, 2B 169

101 Northern Water Conveyance System Source Component Alternatives 3A, 4A 170

102 Northern Water Conveyance System Source Component Alternatives 5A, 6A, 5B, 6B 171

103 Northern Water Conveyance System Source Component Alternatives 7A, 8A, 7B, 8B 172

104 Alternative Plans Summary of Project Costs 173

105 Northern Water Conveyance System Pertinent Data 174

106 Northern Water Conveyance System Allocation of Terminal Reservoirs 175

107 Northern Water Conveyance System Pumping Plant Pertinent Data 176

108 Northern Water Conveyance System Construction Staging 177

109 Northern Water Conveyance System Summary of Project Costs 178

110 Southern Water Conveyance System Pertinent Data 180

111 Southern Water Conveyance System Pumping Plant Pertinent Data 181

112 Southern Water Conveyance System Construction Staging 181

113 Southern Water Conveyance System Allocation of Terminal Reservoirs 182

114 Southern Water Conveyance System Summary of Project Costs 183

115 Red River Alternative with Chloride Control 184

CHAPTER VII EASTERN OKLAHOMA WATER SUPPLY STUDIES

116 Eastern Oklahoma Study Area Year 2040 Projected Water Requirements 189

117 Eastern Oklahoma Municipal and Industrial Water Supply System 190

118 Eastern Oklahoma Water Supply System Year 2040 Supply and Demand Analysis Lincoln and Pottawatomie Counties 191

119 Eastern Oklahoma Water Supply System Year 2040 Supply and Demand Analysis Northeast Planning Region 192

120 Eastern Oklahoma Water Supply System Summary of Costs 192

121 Eastern Oklahoma Water Supply System Year 2040 Supply and Demand Analysis Southeast Planning Region 193

122 Eastern Oklahoma Water Supply System Year 2040 Supply and Demand Analysis East Central Planning Region 194

123 Eastern Oklahoma Irrigation Water Supply System 195

124 Eastern Oklahoma Water Supply System Water Availability 196

125 Eastern Oklahoma Water Availability Based on Regional Plans of Development 196

CHAPTER VIII CONSIDERATIONS RELATED TO FUTURE DEVELOPMENT

126 Study Area Six-State High Plains-Ogallala Aquifer Area Study 202

APPENDIX A CHEMICAL ANALYSES OF PUBLIC WATER SUPPLIES

1 Chemical Analyses of Public Water Supplies 208

APPENDIX B STREAMFLOW AND WATER QUALITY SUMMARIES FOR U.S. GEOLOGICAL SURVEY GAGING STATIONS

2 Streamflow Summary for Selected USGS Gaging Stations 229

3 Locations of USGS Streamflow Gaging Stations 230

4 Water Quality Analyses for Selected USGS Monitoring Stations 231

5 Locations of USGS Water Quality Monitoring Stations 230

APPENDIX C OKLAHOMA WATER RESOURCES MANAGEMENT STRUCTURE

6 State Agencies, Boards and Commissions 235

7 Federal Agencies, Boards and Commissions 237

8 Multistate Organizations 238

9 Local and Special-Purpose Districts 239

BIBLIOGRAPHY

Annual Report, Oklahoma Water Resources Board. Oklahoma Water Resources Board. 1977, 1978, 1979.

Appraisal of Saline Water in Oklahoma and Its Future Development Through Desalting. Oklahoma Water Resources Board. Publication 51. May, 1974.

Appraisal of the Water and Related Land Resources of Oklahoma. 12 Regions. Oklahoma Water Resources Board. Regions I-III, 1968; Regions IV, V-VI, 1969; Region VII, 1970; Regions VIII, IX, 1971; Region X, 1972; Regions XI, XII, 1973.

Chloride Control; Arkansas-Red River Basin, Texas, Oklahoma and Kansas, Arkansas River Basin. Design Memorandum No. 32, Areas I, II, III & IV, General Design Phase I - Plan Formulation . Vols. I-V Draft. Department of the Army, Corps of Engineers, Tulsa District. 1978.

Climatography of the United States No. 20,Climatological Summary of Oklahoma Stations. National Oceanic and Atmospheric Administration, U.S. Department of Commerce. August, 1977.

Climatography of the United States No. 60, Climate of Oklahoma. National Oceanic and Atmospheric Administration, U.S. Department of Commerce. June, 1977.

Climatography of the United States No. 81, Monthly Normals of Temperature, Precipitation, and Heating and Cooling Degree Days 1941-70 Oklahoma. National Oceanic and Atmospheric Administration, U. S. Department of Commerce. July, 1973.

Climatography of the United States No. 85, Monthy Averages of Temperature and Precipitation for State Climatic Divisions 1941-70 Oklahoma. National Oceanic and Atmospheric Administration, U.S. Department of Commerce. July, 1973.

Commitments, Priorities and Organizational Options for Water Resource Planning in Oklahoma. Joseph W. Westphal and James J. Lawler. Oklahoma Water Resources Research Institute, Oklahoma State University. August, 1979.

County Employment and Wage Data, Oklahoma 1977. Oklahoma Employment Security Commission. November, 1978.

Federal-State Relations in Water Law. Frank J. Trelease. National Water Commission. Legal Study No. 5. September 7, 1971.

Geology and Earth Resources of Oklahoma: An Atlas of Maps and Cross Sections. Kenneth S. Johnson, et al. Oklahoma Geological Survey. 1972.

Ground Water Resources of the Rush Springs Sandstone of Southwest Oklahoma. Oklahoma Water Resources Board. Publication 72. 1976.

Ground Water Resources of the Southern Part of the Garber-Wellington Ground Water Basin in Cleveland and Southern Oklahoma Counties and Parts of Pottawatomie County, Oklahoma. Ginia Wickersham. Oklahoma Water Resources Board. Publication 86. 1979.

Ground Water Resources of the Tillman Terrace Deposits, Tillman County, Oklahoma. Oklahoma Water Resources Board. Publication 58. 1974.

History of the Conflict Between Riparian and Appropriate Rights in the Western States. Wells A. Hutchins, LL.B.. Presented at Water Law Conference on Riparian and Appropriate Rights, University of Texas, School of Law,Austin, Texas. June 11-12, 1974.

Interim Report — Oklahoma Comprehensive Water Plan. Oklahoma Water Resources Board. Publication 83. September, 1977.

Loans Under the Small Reclamation Projects Act of 1956. Bureau of Reclamation, U.S. Department of the Interior. March, 1976.

Mathematical Water Demand Models for Oklahoma. Osama E. El-Messidi. Research Associate, Bureau of Water and Enviromental Resources Research, University of Oklahoma. December, 1978.

Minerals in the Economy of Oklahoma. Bureau of Mines, U.S. Department of the Interior in cooperation with Oklahoma Geological Survey. October, 1978.

Oklahoma Agricultural Statistics. Oklahoma Crop and Livestock Reporting Service, Oklahoma Department of Agriculture. Annual Report. 1976-1978.

Oklahoma Directory of Manufacturers and Products. Oklahoma Industrial Development Department. 1974, 1976, 1978.

Oklahoma Irrigation Survey. Delbert Schwab. Extension Irrigation Specialist, Oklahoma State University. Biannual Report 1967-1977.

Oklahoma Land Inventory. U.S. Department of Agriculture, Soil Conservation Service, Stillwater, Oklahoma. January, 1978.

The Oklahoma Law of Water Rights. Wells A. Hutchins, LL.B.. Production Economics Research Branch, Agricultural Research Service, U.S. Department of Agriculture. 1955. Reprinted, 1960.

Oklahoma Population Estimates. July 1977 Data for State, SMSA's, Counties and Selected Cities. Oklahoma Employment Security Commission. January, 1979.

Oklahoma Water Resources Board Rules, Regulations and Modes of Procedure, 1979 Revision. Oklahoma Water Resources Board. 1979.

Oklahoma's Water Atlas — 1976. Oklahoma Water Resources Board. Publication 76. 1976.

Oklahoma's Water Quality Standards. Oklahoma Water Resources Board. Publication 79. 1979.

Phase I - Oklahoma Comprehensive Water Plan. Oklahoma Water Resources Board. Publication 60. September, 1975.

Regional Water System Study for Kaw Reservoir Authority. Briesch Engineering Company, Inc. January, 1977.

Reported Water Use in Oklahoma. Oklahoma Water Resources Board. Annual Reports. 1967-1977.

Soils of Oklahoma. Fenton Gray and H.M. Galloway. Department of Agriculture, Oklahoma State University. July, 1959. Revised 1969.

Statistical Abstract of Oklahoma 1978. Center for Economic and Mangement Research, College of Business Administration, University of Oklahoma. March, 1978.

Statistical Summaries of Streamflow Records, Oklahoma Through 1974. U.S. Geological Survey. October, 1975.

Summary Recommendations on Eleven Issues of Concern Related to Water Resources Development. Economic Resources Development Association of Oklahoma. August 29, 1978.

Tulsa, Oklahoma Urban Study, Draft, Stage II-Water Supply Report. U.S. Army Corps of Engineers, Tulsa District. January 22, 1979.

Water Resources Appraisal for Hydroelectric Licensing, Lower Arkansas River Basin -Arkansas, Colorado, Kansas, New Mexico, Oklahoma and Texas, Planning Status Report. Federal Energy Regulatory Commission. 1979.

Water Resources Data for Oklahoma, Water Year 1976, 77 and 78, Vol. I-Arkansas River Basin, Vol. II - Red River Basin. U.S. Geological Survey. Annual Reports 1976-78.

Water Resources Development by the Corps of Engineers in Oklahoma. U.S. Army Corps of Engineers. January, 1979.

Water Rights Laws in the Nineteen Western States, Vol. I. Wells A. Hutchins, Harold H. Ellis and J. Peter DeBraal. U.S. Department of Agriculture. 1971.

Water: The Key to Oklahoma's Future, Interim Appraisal of Oklahoma Basins Projects, Oklahoma. U.S. Department of the Interior, Bureau of Reclamation. October, 1966. Revised February, 1967.

ACKNOWLEDGEMENTS

The Oklahoma Water Resources Board gratefully acknowledges hundreds of individuals representing scores of state, federal and private organizations who graciously contributed information used in formulating the Oklahoma Comprehensive Water Plan.

Arkansas Basin Development Association, Inc.

Association of Central Oklahoma Governments

Association of South Central Oklahoma Governments

Bureau of Water and Environmental Resources Research, O.U.

Center for Economic and Management Research, O.U.

Central Oklahoma Economic Development District

Department of Economic and Community Affairs

Eastern Oklahoma Development District

Economic Resources Development Association

Grand River Dam Authority

Federal Energy Regulatory Commission

Indian Nations Council of Governments

Kerr Foundation, Inc.

Kiamichi Economic Development District of Oklahoma

National Oceanic and Atmospheric Administration

Northeastern Counties of Oklahoma

Northern Oklahoma Development Association

Office of the Governor, Department of Industrial Development

Oklahoma Archaeological Survey

Oklahoma Conservation Commission

Oklahoma Corporation Commission

Oklahoma Crop and Livestock Reporting Service

Oklahoma Department of Wildlife Conservation

Oklahoma Economic Development Association

Oklahoma Employment Security Commission

Oklahoma Farm Bureau

Oklahoma Farmers Union

Oklahoma Gas and Electric Company

Oklahoma Geological Survey

Oklahoma Rural Water Association

Oklahoma State Climatological Survey

Oklahoma State Department of Agriculture

Oklahoma State Department of Health

Oklahoma State University

Oklahoma Tourism and Recreation Department

Oklahoma Water, Inc.

Oklahoma Water Resources Research Institute, O.S.U.

Public Service Company of Oklahoma

Soil Conservation Service

Southern Oklahoma Development Association

South Western Oklahoma Development Authority

U.S. Army Corps of Engineers

U.S. Fish and Wildlife Department

U.S. Geological Survey

U.S. Water Resources Council

University of Oklahoma

Water and Power Resources Service (Formerly Bureau of Reclamation)

Western Farmers Electric Cooperative

The Oklahoma Water Resources Board also is deeply indebted to the numerous staff members without whose effort and dedication the Oklahoma Comprehensive Water Plan would not have been completed.