REPORT ON THE THIRD SAMPLING OF THE ELDORADO, PINE BLUFF, AND LONOKE PROTOTYPES

ARKANSAS PROTOTYPE MONITORING PROGRAM

Arkansas Department of Pollution Control & Ecology
October, 1994

REPORT ON THE THIRD SAMPLING OF THE ELDORADO, PINE BLUFF, AND LONOKE PROTOTYPES

ARKANSAS PROTOTYPE MONITORING PROGRAM

By

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REPORT ON THE THIRD SAMPLING OF THE EL DORADO, PINE BLUFF, AND LONOKE PROTOTYPES

INTRODUCTION

The third ground water quality sampling was completed during the summer of 1994 for three monitoring prototypes. These included the El Dorado, Pine Bluff, and Lonoke prototypes, respectively. Modifications were made in all prototypes, most notably, for the two located in El Dorado and Pine Bluff. Additional wells were utilized to replace inoperative wells and to enhance the "ambient" nature of the monitoring program.

Ground water quality data along with complete well descriptions have been placed in EPA's STORET data storage and retrieval system. This information is available to all interested parties with access to STORET. Copies of the laboratory analyses have been sent to all interested well owners whether domestic, industrial, or public.

Please refer to the document entitled "Status Report For The Arkansas Prototype Monitoring Program" (April, 1994) for a review of the geology and methodology used in the statewide monitoring program. A brief summary is included for the three prototypes sampled during FY94. Location and description of wells and results of the first three sampling periods for each of the prototypes are listed in the tables at the back of this report. A list of public water supply wells (with correct PWS well numbers) is listed in the appendix.

EL DORADO PROTOTYPE

Eighteen wells were sampled for ground water quality during May 16-17, 1994. Eleven of these wells were being sampled for the first time. Figure 1 shows the location of wells sampled for water quality during the first two sampling periods. Figure 2 shows the location of wells sampled during the most recent sampling. The more recent map shows the wells to be less concentrated in one area, and also includes additional wells located in the El Dorado aquifer (Lower Sparta).

This prototype was originally chosen because it lies within the Bayou D'Loutre drainage basin which could potentially be affected by municipal and industrial discharges. Most of the wells sampled during the first two periods were located in the shallow Cockfield aquifer - the one most likely to be affected by surface contamination. Another reason for the selection of this prototype was due to the development of a cone of depression causing a localized reversal in ground water flow in the deeper El Dorado aquifer. This situation created a problem with saltwater contamination where the source of the saltwater was a graben located just to the south and east of the cone of depression (and the city) as theorized by Broom and others (1984). The first two sampling periods utilized only two deep wells in the El Dorado aquifer - both located near the center of the cone of depression. The third sampling period included an additional four wells in the El Dorado aquifer and located to the north, east, and south of the two original wells.

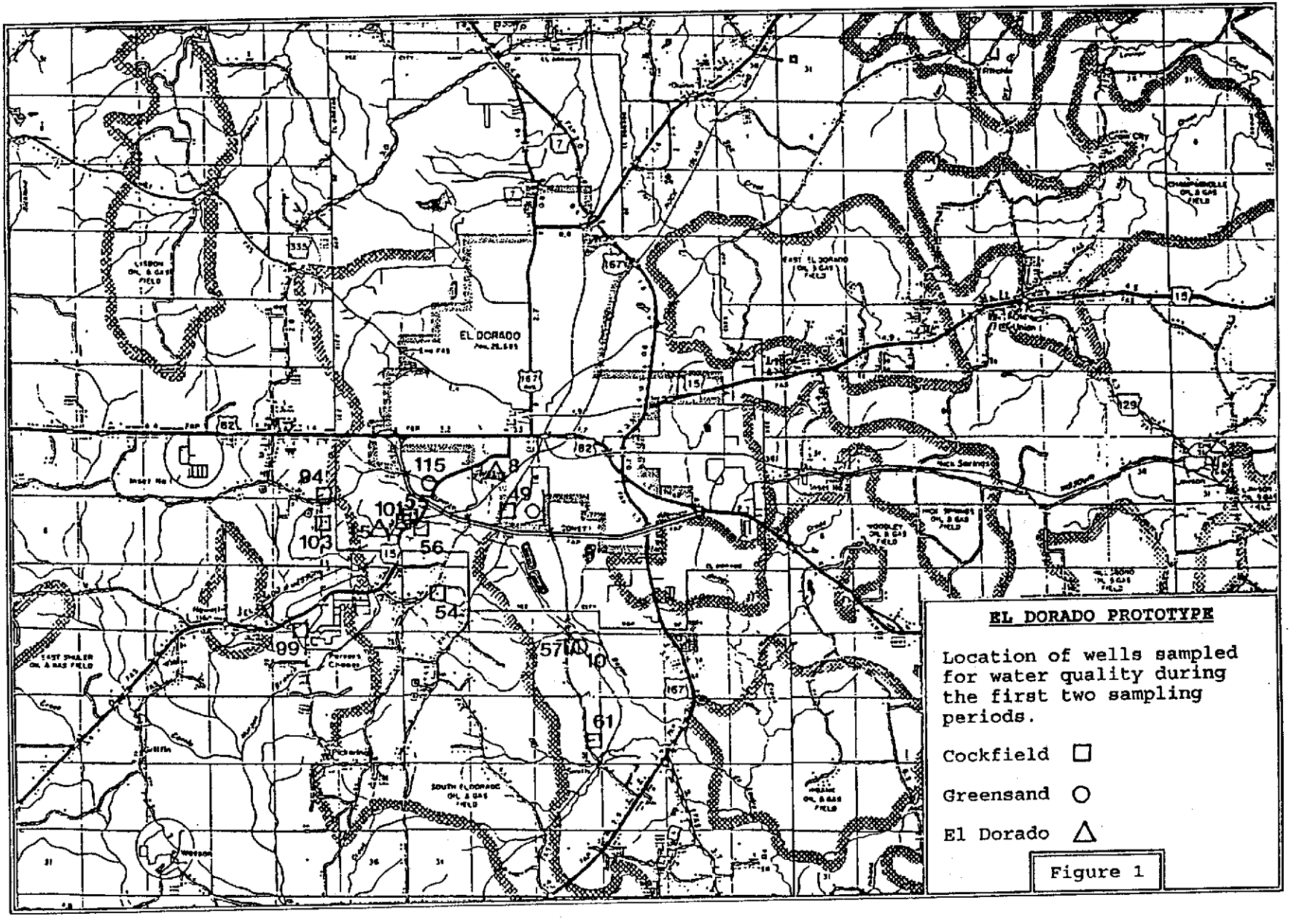
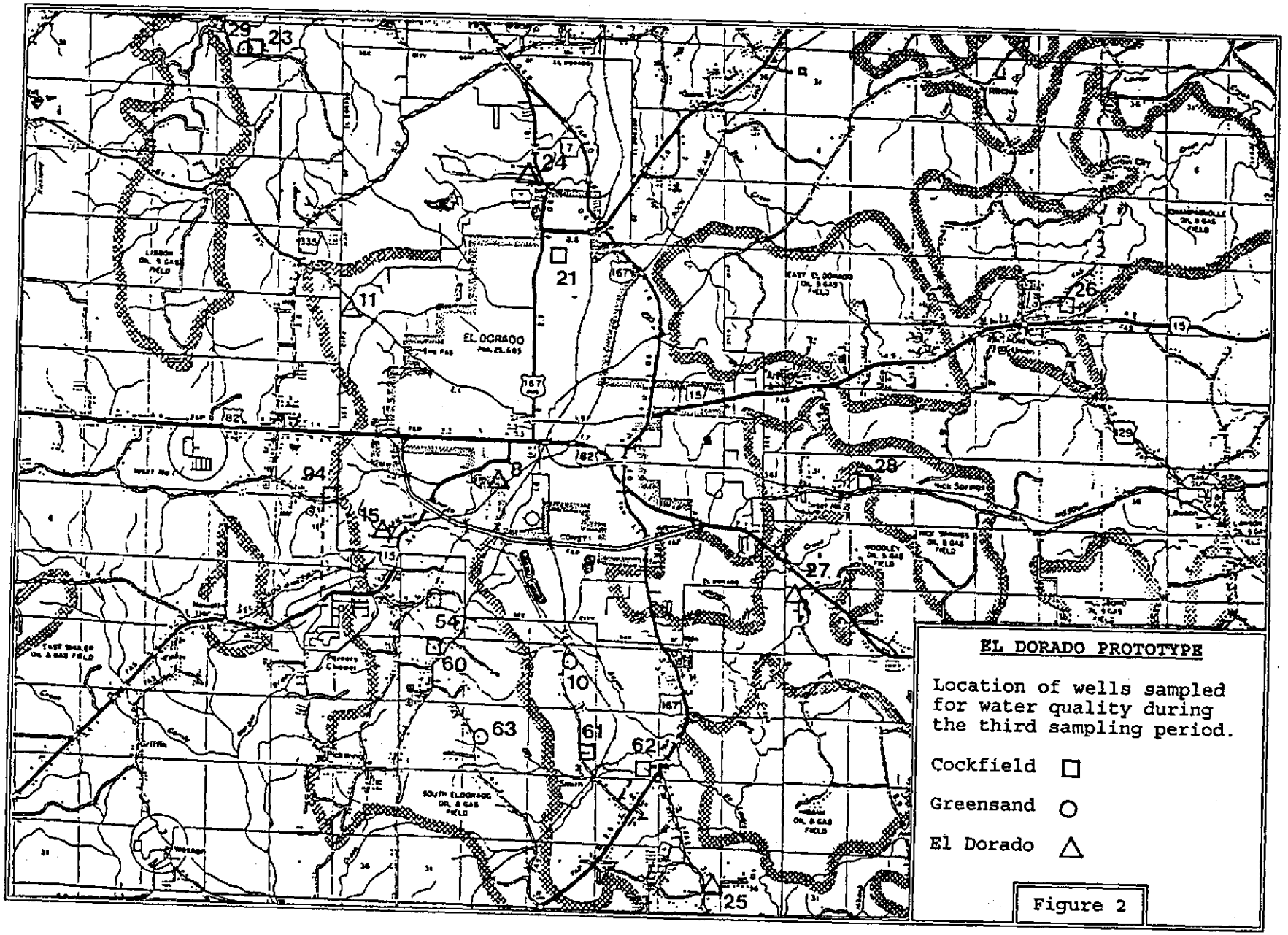

EL DORADO
94
115
8
49
101
103
56
54
99
57
10
61
EL DORADO PROTOTYPE
Location of wells sampled for water quality during the first two sampling periods.
Cockfield □
Greensand ○
El Dorado △

Figure 1


EL DORADO PROTOTYPE
Location of wells sampled for water quality during the third sampling period.
Cockfield
Greensand
El Dorado
Figure 2

The location and description of wells sampled during the third sampling period period are shown in Table 1. The wells which were initially sampled during the first two periods but not sampled during the latest period are listed in Table 2. Results of the three sampling periods are given in Table 3 with the most recent sampling shown at the bottom of each box following the format used in the Status Report (1994). There was no evidence of saltwater contamination in the shallow Cockfield aquifer or in the Greensand aquifer (Upper Sparta). In addition to the common water quality constituents and metals shown in the tables, VOCS and pesticides were run on all wells screened in the Cockfield aquifer. The USEPA primary and secondary maximum contaminant levels for drinking water were not exceeded in any of the wells sampled.

There does appear to be a gradual increase in Na, Cl, and TDS in the El Dorado aquifer in a southward direction (note shaded areas - Table 3). This does not support or refute the theory presented by Broom and others (1984), but does suggest that there is a regional increase in Na, Cl, and TDS downdip. There were no deep wells located in the graben or at the mouth of the graben to validate the theory. A report by Payne (1968) states that there is a regional change in the ground water chemistry of the Sparta sand from a bicarbonate water province toward a chloride water province to the southeast of El Dorado (near Strong, Arkansas). This would add credibility to the idea that the chloride concentration as well as the TDS should naturally increase to the southeast.

An attempt will be made to maintain the current eighteen wells for future ground water sampling. There may be value for additional wells to the south of the current sites to verify regional trends.

PINE BLUFF PROTOTYPE

Twelve wells were sampled during June 6-7, 1994. Five of these wells were sampled for the first time. Three of the original wells sampled during the first and second period were not functioning at the time of the third sampling. Figure 3 shows the locations of the wells sampled during the first two sampling periods. Figure 4 shows the location of wells sampled during the recent sampling. Figure 4 also shows that two additional wells from the deeper Sparta sand were sampled near the center of the cone of depression developed in this aquifer (refer to Status Report, 1994).

This prototype was originally chosen because it represented the largest community in Arkansas using ground water to meet all its needs. Also, a large cone of depression had developed within the Sparta sand just east of the city of Pine Bluff due to large scale drawdown caused by heavy use of industrial wells.

The location and description of wells sampled during the third sampling period are shown in Table 4 with the location and description of wells sampled during the first two sampling periods, but not during the last period, shown in Table 5. Results of the three sampling periods are given in Table 6.

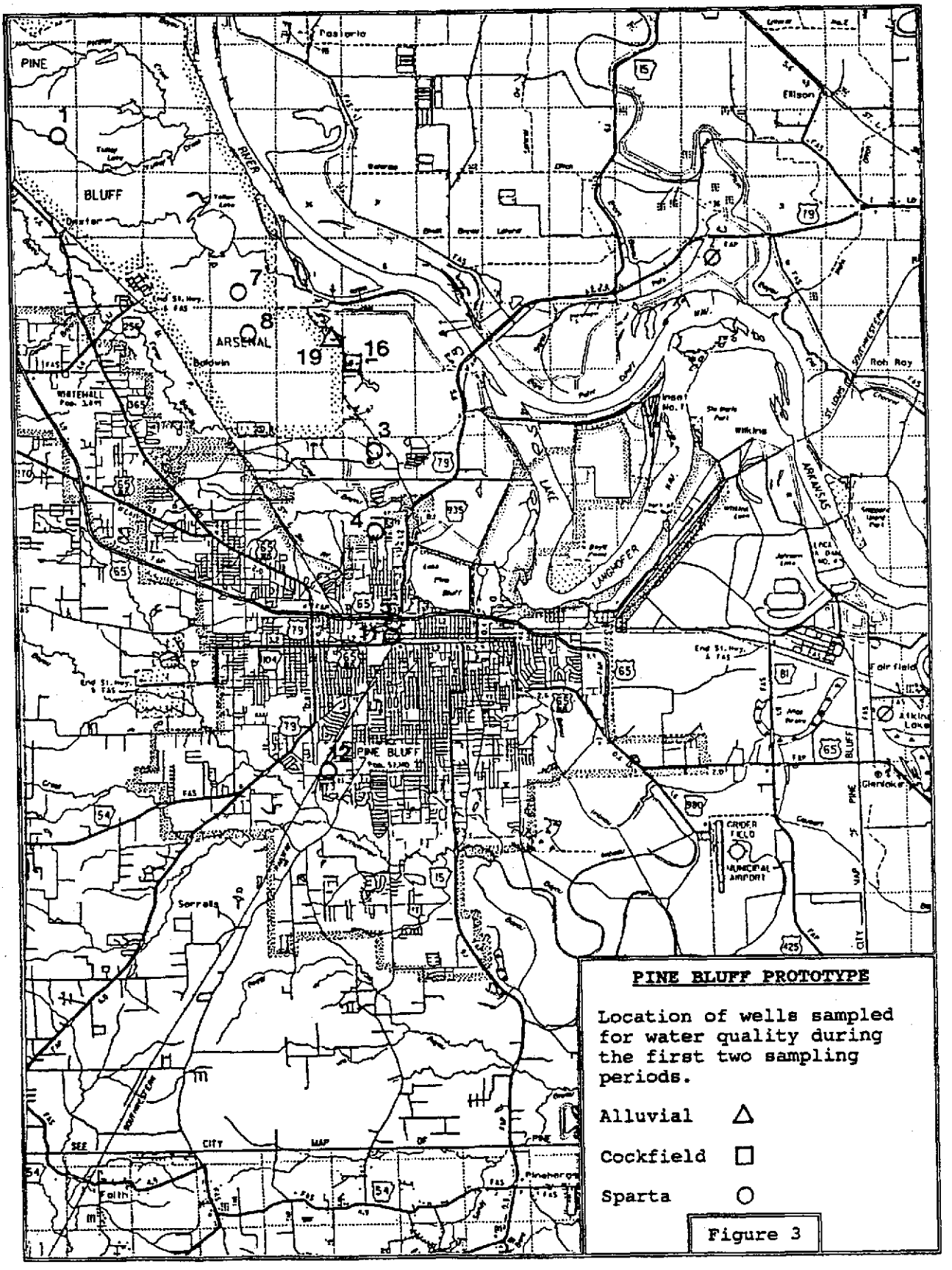
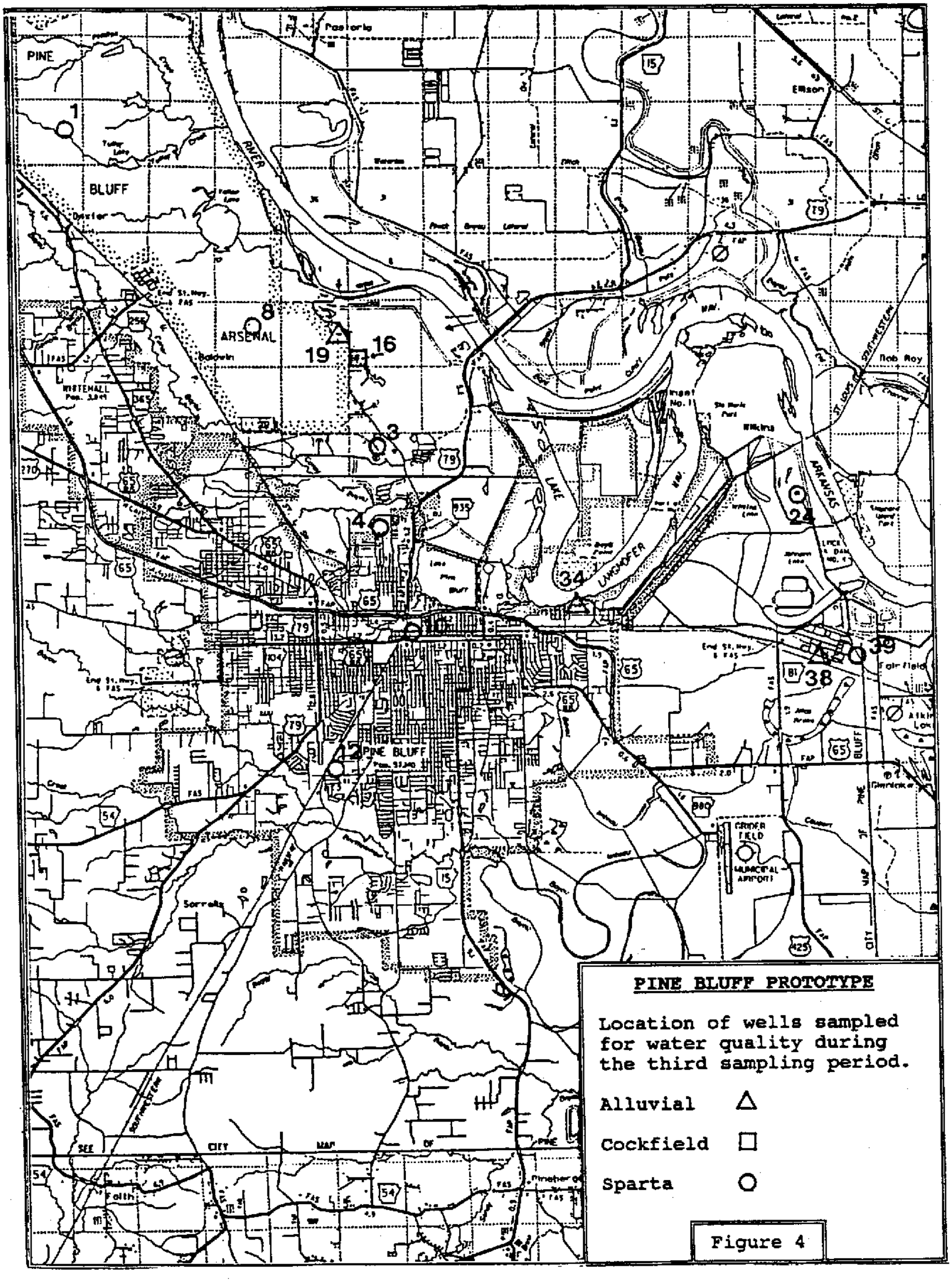

PINE BLUFF PROTOTYPE
Location of wells sampled for water quality during the first two sampling periods.
Alluvial △
Cockfield □
Sparta ○

Figure 3


PINE
BLUFF
ARSENAL
PINE BLUFF
Sorrells
Faith
Ellison
Rob Roy
Fairfield
ARKANSAS
LAKE
LANGHOFER
RIVER
GRIDER FIELD
MUNICIPAL AIRPORT
1
8
19
16
3
4
24
34
10
2
39
38
PINE BLUFF PROTOTYPE
Location of wells sampled for water quality during the third sampling period.
Alluvial △
Cockfield □
Sparta ○
Figure 4

There was little indication of contamination in the wells sampled with the exception of well #19 and well #3. Well #19 (alluvial) had a relatively high arsenic concentration (37 μg/l) during the third sampling. This well had an arsenic level of 44 μg/l reported during the first sampling, but below detection limits during the second sampling. These elevated levels are still below the maximum contaminant level established for arsenic by the SDWA regulations. Chloride levels for this well were also somewhat elevated (196 mg/l). The well owner is on city water and only uses the well water for watering purposes. Well #3 (Sparta), which showed an anomalously high Na concentration (945 mg/l) as well as high total phosphorous (1036 mg/l), SO4 (1672 mg/l), and TDS (4390 mg/l), was resampled. The owner (industry) had a phosphorous line connected to the main intake line from the wellhead and the sample was taken downstream from the phosphorous line. The analysis of the subsequent sample indicated normal concentrations for the constituents previously mentioned (Table 6).

Well #24 (Sparta) and well #39 (Sparta) were sampled for the first time because of their proximity to the center of the cone of depression developed within the Sparta aquifer (See Status Report For The Arkansas Prototype Monitoring Program, April 1994) There were no elevated Na or Cl levels in these wells such as evidenced in El Dorado near the center of the cone of depression within the Sparta aquifer.

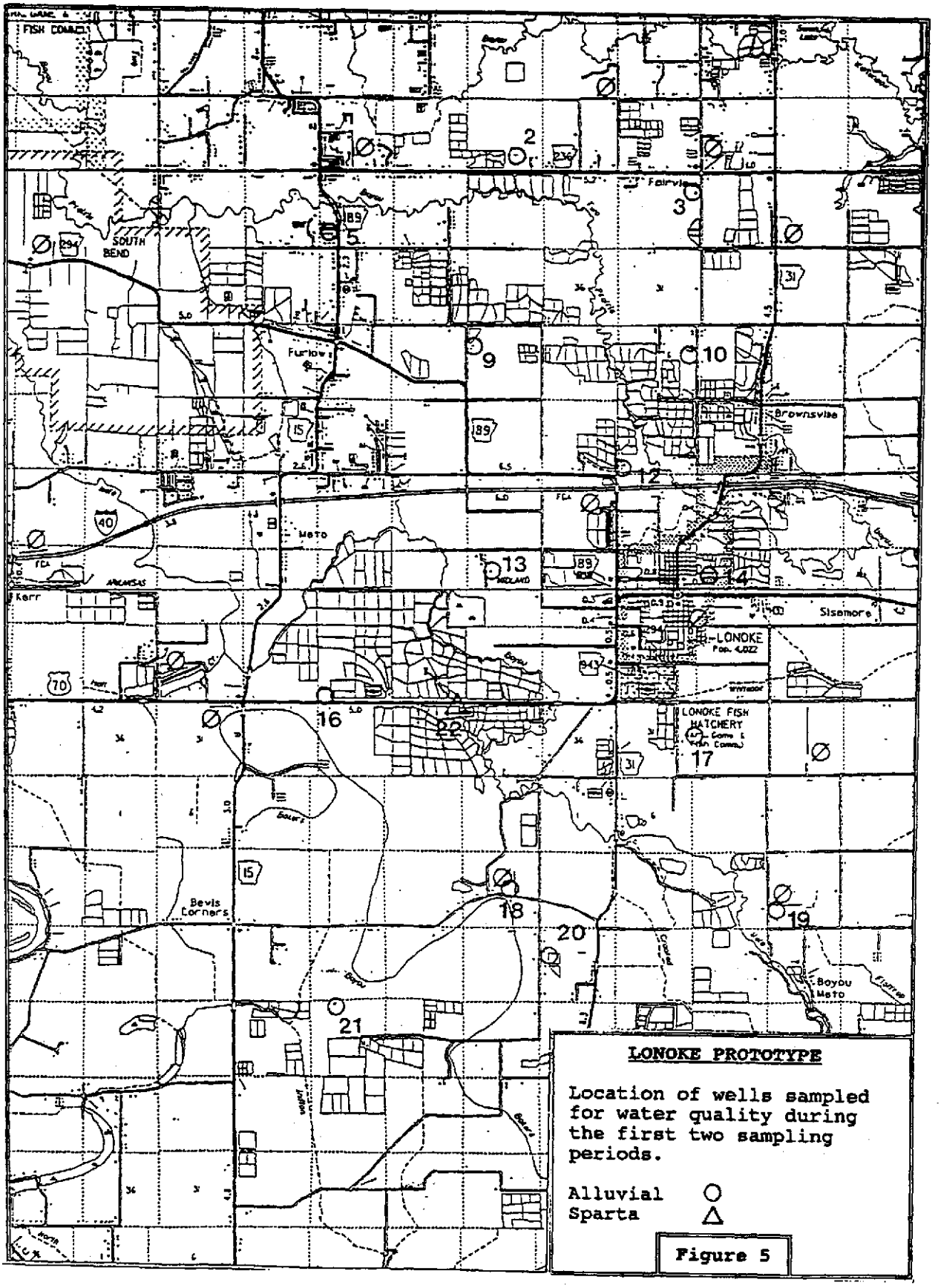
The number of wells utilized for this prototype will probably be kept at the current level. The additional wells used in the 1994 sampling appear to be sufficient to gather background data in this area and also detect any trends in ground water quality, such as near the cone of depression within the Sparta aquifer.

LONOKE PROTOTYPE

Nine wells were sampled during August 23-24, 1994. Four of these wells were sampled for the first time because the original wells were inoperative at the time. Figure 5 shows the locations of the wells sampled during the first two sampling periods. Figure 6 shows the location of wells sampled during the recent sampling.

This prototype was originally selected because it represented an agricultural community in the Mississippi Delta where pesticide and fertilizer use increased the possibility of ground water contamination in the alluvial aquifer. Sampling categories of chemical constituents included major inorganic constituents, trace inorganic constituents, nutrients, total organic carbon, total phosphorous, total alkalinity, and selected pesticides.

The location and description of wells sampled during the third sampling period are shown in Table 7. The location and description of wells sampled during the first two sampling periods, but not during the last period, shown in Table 8. Results of the three sampling periods are given in Table 9. Table 10 lists the pesticides for which analyses were conducted. There was no evidence of ground water contamination in any of the wells by pesticides or from any other source. This has been the case since the inception of the program. The program will not likely be expanded due to the protective nature of the overlying surficial clays and the lack of any historical data to suggest that there has been pesticide contamination found in the alluvial aquifer in the immediate vicinity.

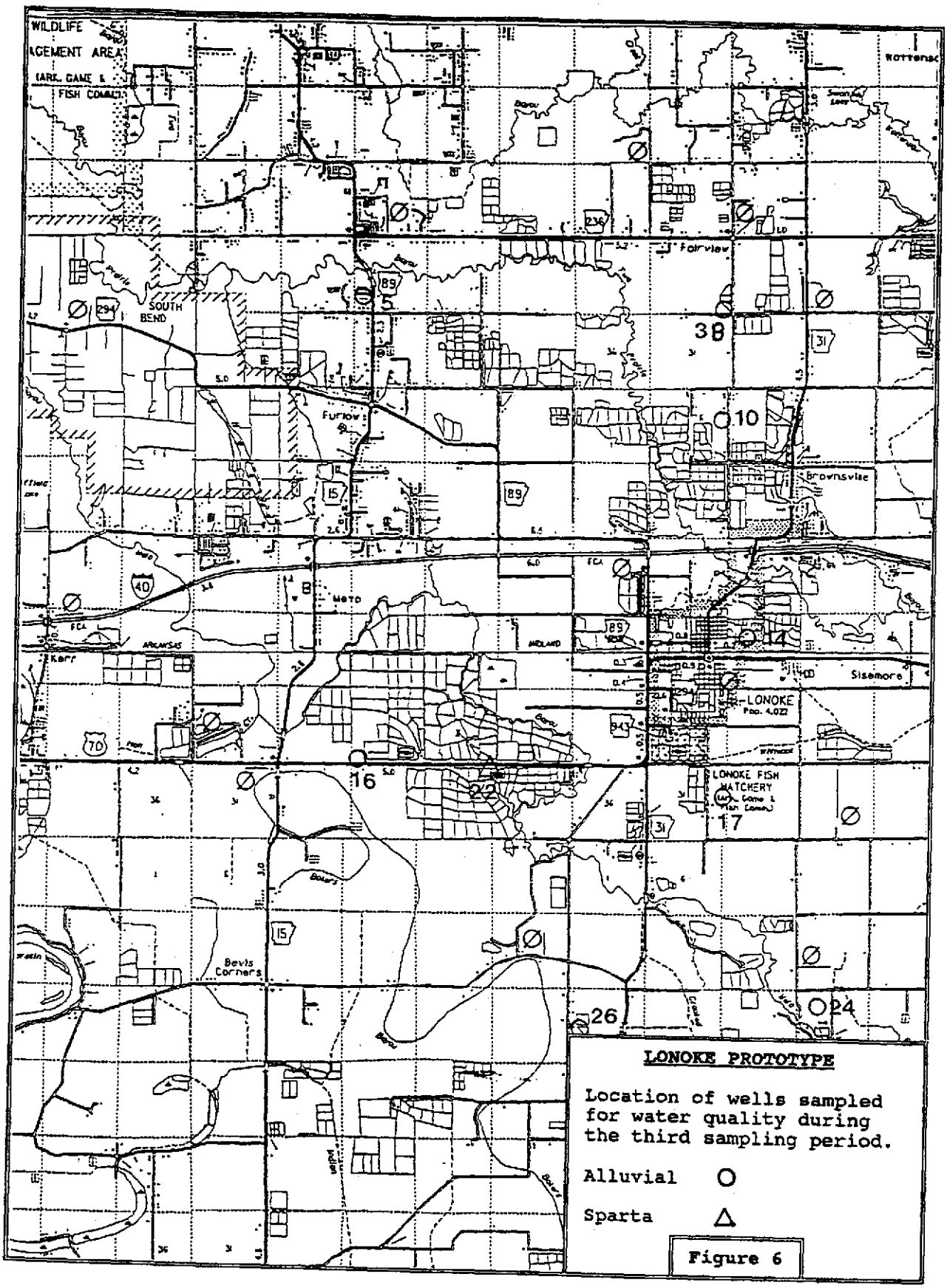


LONOKE PROTOTYPE

Location of wells sampled for water quality during the first two sampling periods.

Alluvial ○
Sparta △

Figure 5



LONOKE PROTOTYPE

Location of wells sampled for water quality during the third sampling period.

Alluvial ○

Sparta △

Figure 6

REFERENCES

Anon, Status Report, Arkansas Prototype Monitoring Program, 1994, 59p.

Broom, M.E., Kraemer, T.F., and Bush, W.V., 1984. A Reconnaisance Study of Saltwater Contamination in the El Dorado Aquifer, Union County, Arkansas. U.S. Geological Survey Water-Resources Investigations Report 84-4012, 47 p., 13 pl.

Payne, J.N., 1968. Hydrologic Significance of the Lithofacies of the Sparta Sand in Arkansas, Louisiana, Mississippi, and Texas. U.S. Geological Survey Professional Paper 569-A, 17 p., 10 pl.

EL DORADO PROTOTYPE

TABLES

Table 1. EL DORADO PROTOTYPE - LOCATION AND DESCRIPTION OF WELLS - THIRD SAMPLING PERIOD

SAMPLE DATE	LOCAL NUMBER	SAMPLE LOCATION NO.	LATITUDE-LONGITUDE	DEPTH	AQFR	USE
5-16-94	17S15W09BBB1	#24	33 15 55.0 92 39 54.5	550'	El Dor	C
5-16-94	18S16W01DBC1	#15	33 11 02.0 92 42 25.5	770'	El Dor	C
5-16-94	17S15W32BDD1	#8	33 11 42.0 92 40 47.0	712'	El Dor	C
5-16-94	18S15W35DAC1	#25	33 06 35.0 92 37 05.0	770'	El Dor	P
5-16-94	18S15W22DCC1	#62	33 08 10.0 92 38 21.0	75'	Cckf	C
5-16-94	17S16W24BBC1	#11	33 14 02.5 92 42 58.5	704'	El Dor	P
5-16-94	18S14W07BBA1	#27	33 10 37.0 92 35 16.0	783'	El Dor	P
5-16-94	18S15W16ACB1	#10	33 09 37.0 92 39 22.5	295'	Grnsd	D
5-16-94	18S15W21DAC1	#61	33 08 23.0 92 39 08.0	40'	Cckf	D

Uses: C = Commercial; P = Public; D = Domestic
AQFR = Aquifer; Cckf = Cockfield; Grnsd = Greensand (Upper Sparta); El Dor = El Dorado (Lower Sparta)

- continued -

Table 1. EL DORADO PROTOTYPE - LOCATION AND DESCRIPTION OF WELLS - THIRD SAMPLING PERIOD

SAMPLE DATE	LOCAL NUMBER	SAMPLE LOCATION NO.	LATITUDE-LONGITUDE	DEPTH	AQFR	USE
5-16-94	18S16W02AAA1	#94	33 11 35.5 92 43 04.5	43'	Cckf	D
5-17-94	17S15W16BBA1	#21	33 15 01.5 92 39 44.5	37'	Cckf	C
5-17-94	17S14W14DBC1	#26	33 14 17.0 92 31 03.0	49'	Cckf	D
5-17-94	17S14W32CBB1	#28	33 11 53.0 92 34 28.5	120'	Cckf	D
5-17-94	18S15W18ABA1	#60	33 09 48.5 92 41 18.0	75'	Cckf	D
5-17-94	18S15W20BDC1	#63	33 08 37.0 92 40 44.5	320'	Grnsd	D
5-17-94	16S16W34BDD1	#23	33 17 21.5 92 44 38.0	56'	Cckf	D
5-17-94	16S16W34BDD2	#29	33 17 19.5 92 44 43.5	300'	Grnsd	D
5-17-94	18S15W07BDA1	#54	33 10 28.0 92 41 35.0	100'	Cckf	D

Uses: D = Domestic; C = Commercial;
AQFR = Aquifer; Cckf = Cockfield; Grnsd = Greensand (Upper Sparta); El Dor = El Dorado (Lower Sparta)

Table 2. EL DORADO PROTOTYPE - LOCATION AND DESCRIPTION OF WELLS NOT SAMPLED DURING THIRD SAMPLING PERIOD

LAST SAMPLED	LOCAL NUMBER	SAMPLE LOCATION NO.	LATITUDE-LONGITUDE	DEPTH	AQFR	USE
1st	18S15W06BDB2	#55	33 11 20.0 92 41 47.0	30'	Cckf	U
1st	18S15W06BDB3	#101	33 11 20.0 92 41 47.0	31'	Cckf	U
1st	18S15W06BDB1	#56	33 11 18.5 92 41 42.0	12'	Cckf	U
2nd	18S16W11CDD1	#99	33 09 53.5 92 43 36.5	70'	Cckf	D
1st	18S16W02ACA3	#103	33 11 20.0 92 43 16.0	27'	Cckf	U
1st	17S15W31DCB1	#115	33 11 47.0 92 41 28.0	300'	Grnsd	U
1st	18S15W05BBC1	#49	33 11 24.0 92 40 56.0	75'	Cckf	U

Uses: U = Unused or abandoned; D = Domestic
AQFR = Aquifer; Cckf = Cockfield; Grnsd = Greensand (Upper Sparta); El Dor = El Dorado (Lower Sparta)

Table 3. EL DORADO PROTOTYPE

Results of the first three sampling periods initiated 12/87, 12/90, and 5/94. "K" indicates actual value is known to be less than value given.

WELL NO.	#8	#10	#15	#61	#54	#55	#56	#57	#101	#94	#99	#49	#103	#115
AQFR.	El Dor	Grnsd	El Dor	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Grnsd
DEPTH	648'	295'	770'	40'	100'	30'	12'	24'	31'	43'	70'	75'	27'	300'
Alk. Total mg/l	189 - 189	119 - 149	200 - 195	31.0 - 52.0	19.0 - 52.0	33.0 - -	18.0 - -	20.0 - -	5.0 - -	33.0 - 29.0	5K - -	51.0 - -	68.0 - -	109 - -
As T. Rec. µg/l	5K - 10K	5K 10K 10K	5K 10K 10K	5K 30.0 10K	5K 30.0 10K	5K - -	5K - -	5K - -	5K - -	5K - 10K	5K - -	5K - -	5K - -	5K - -
Ba T. Rec. µg/l	1K - 10K	1K - 77.0	1K - 10K	1K - 52.0	1K - 73.0	1K - -	1K - -	1K - -	1K - -	1K - 48.0	1K - -	1K - -	1K - -	1K - -
Br T. Rec. mg/l	.65 - -	.5K - -	.89 - -	.5K - -	1.2 - -	2.1 - -	3.2 - -	.5K - -	2.1 - -	2.4 - -	.5K - -	- - -	- - -	- - -
Cd T. Rec. µg/l	.5K - .5K	.5K .5K .5K	.5K .5K .5K	.5K - .5K	.5K .5K .5K	.5K - -	1.0 - -	.5K - -	.5K - -	.80 - .5K	.5K - -	1.0 - -	.5K - -	.5K - -
Ca T. Rec. mg/l	1.5 - 2.0	7.4 - 6.6	1.4 - .1K	2.1 - 7.3	4.4 - 8.7	29.0 - -	14.1 - -	5.5 - -	9.4 - -	1.2 - 1.0	1K - -	2.0 - -	50.0 - -	48.0 - -
Carbon Org. Total mg/l	3.9 - 1K	4.8 - 1.1	5.3 - 1.1	3.4 - 2.1	2.2 - 2.1	1.8 - -	1.5 - -	1.5 - -	.80 - -	13.3 - 8.3	1.2 - -	5.8 - -	7.8 - -	12.3 - -

AQFR = Aquifer; Cckf = Cockfield; Grnsd = Greensand (Upper Sparta); El Dor = El Dorado (Lower Sparta); T. Rec. = Total Recoverable

EL DORADO PROTOTYPE- continued

WELL NO.	#8	#10	#15	#61	#54	#55	#56	#57	#101	#94	#99	#49	#103	#115
AQFR.	El Dor	Grnsd	El Dor	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Grnsd
DEPTH	648'	295'	770'	40'	100'	30'	12'	24'	31'	43'	70'	75'	27'	300'
Cl	33.0	2.0	44.0	12.0	80.0	94.0	85.0	16.0	100	39.0	4.0	12.0	18.0	18.0
Total	-	4.0	41.0	5.0	75.0	-	-	-	-	43.0	5.0	-	-	-
mg/l	58.8	2.7	44.5	2.61	82.3	-	-	-	-	45.5	-	-	-	-
Cr	1K	1K	1K	1K	1K	1K	1.0	1K	10.0	1K	1K	18.0	1K	3.0
T. Rec.	-	1K	1K	-	7.0	-	-	-	-	-	-	-	-	-
µg/l	1K	1K	1K	1K	1K	-	-	-	-	1.5	-	-	-	-
Cu	15K	15K	15K	15K	15K	-	29.0	31.0	29.0	-	-	287	15K	15K
T. Rec.	-	25K	25K	-	51.0	-	-	-	-	-	-	-	-	-
µg/l	4K	4K	4K	4K	-	-	-	-	-	34.0	-	-	-	-
F	.35	.08	.29	.07	.05K	.05K	.05K	.05	.05K	.09	.05K	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-
mg/l	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fe	100	100	100	200	2300	1800	500	200	10500	200K	200K	30600	1000K	1000K
T. Rec.	-	100	100K	-	4800	-	-	-	-	-	-	-	-	-
µg/l	100K	100K	100K	100K	6500	-	-	-	-	100K	-	-	-	-
Hard.	-	34.0	-	-	80.0	130	102	40.0	108	52.0	14.0	56.0	190	88.0
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-
mg/l	11.1	30.9	5K	52.8	96.0	-	-	-	-	50.4	-	-	-	-
Hg	.5K	.5K	.5K	.5K	.5K	.5K	.5K	.5K	.5K	.5K	.5K	.5K	.5K	.5K
T. Rec.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
µg/l	.5K	.5K	.5K	.5K	.5K	-	-	-	-	.5K	-	-	-	-

EL DORADO PROTOTYPE- continued

WELL NO.	#8	#10	#15	#61	#54	#55	#56	#57	#101	#94	#99	#49	#103	#115
AQFR.	El Dor	Grnsd	El Dor	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Grnsd
DEPTH	648'	295'	770'	40'	100'	30'	12'	24'	31'	43'	70'	75'	27'	300'
Mn	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T. Rec.	-	40K	40K	-	60.0	-	-	-	-	-	-	-	-	-
µg/l	10K	10K	10K	10K	-	-	-	-	-	10K	-	-	-	-
Na	98.0	47.0	128	10.0	21.0	-	15.0	7.0	14.0	-	-	89.0	8.2	8.3
T. Rec.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
mg/l	100	50.0	99.0	8.2	30.0	-	-	-	-	39.0	-	-	-	-
NH3-N	.500	.710	.510	.070	.130	.070	.030	.010	.120	.060	.070	.130	.020	.210
Total	-	-	-	.050	-	-	-	-	-	.050	.05K	-	-	-
mg/l	.502	.660	.457	.055	.083	-	-	-	-	.05K	-	-	-	-
Ni	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T. Rec.	-	-	-	-	-	-	-	-	-	-	-	-	-	-
µg/l	-	-	-	5K	5.7	-	-	-	-	-	-	-	-	-
NO3-N	.01	.01K	.01K	.20	.01K	.51	.17	.05	.04	.06	1.50	.01	46.0	.03
Total	-	.02K	.02K	.13	.02K	-	-	-	-	2.50	2.33	-	-	-
mg/l	.02K	.035	.028	.237	.038	-	-	-	-	.033	-	-	-	-
Pb	3.0	1K	2.0	1.0	2.0	2.0	1K	-	1K	-	5.0	80.0	1K	3.0
T. Rec.	-	2K	2K	-	2.0	-	-	-	-	-	-	-	-	-
µg/l	2K	2K	2.3	2K	3.1	-	-	-	-	2.5	-	-	-	-
Phos.-T	.230	.130	.220	.040	.050	.01K	-	-	-	.190	.010	.01K	.190	.080
Ortho	-	-	.230	.040	.03K	-	-	-	-	.720	.03K	-	-	-
mg/l	.187	.086	.197	.03K	.03K	-	-	-	-	.139	-	-	-	-

EL DORADO PROTOTYPE- continued

WELL NO.	#8	#10	#15	#61	#54	#55	#56	#57	#101	#94	#99	#49	#103	#115
AQFR.	El Dor	Grnsd	El Dor	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Grnsd
DEPTH	648'	295'	770'	40'	100'	30'	12'	24'	31'	43'	70'	75'	27'	300'
Phos.- Total mg/l	.220 - .197	.120 - .095	.210 - .197	.050 - .03K	.050 - .0341	.050 - -	.050 - -	.010 - -	.090 - -	.190 - .125	.01K - -	- - -	- - -	- - -
Se T. Rec. µg/l	5K - -	5K - -	5K - -	5K - -	5K - -	5K - -	5K - -	5K - -	5K - -	5K - -	5K - -	5K - -	5K - -	5K - -
SO4 Total mg/l	6.0 - 3.7	5.0 4.0 4.8	15.0 18.0 19.5	6.0 7.0 5.9	8.0 9.0 10.9	4.0 - -	7.0 - -	11.0 - -	2.0 - -	55.0 33.0 54.8	1.0 1K -	1.0 - -	46.0 - -	3.0 - -
TDS mg/l	- - 304	- - 170	- - 314	- - 110	- - 281	- - -	- - -	- - -	- - -	- - 298	- - -	- - -	- - -	- - -
V T. Rec. µg/l	- - -	- - -	- - -	- - 10K	- - 10K	- - -	- - -	- - -	- - -	- - 10K	- - -	- - -	- - -	- - -
Zn T. Rec. µg/l	- - 8K	- 15.0 36.0	- 8K 11.0	- - 1.054	- 302 347	- - -	- - -	- - -	- - -	- - 342	- - -	- - -	- - -	- - -

EL DORADO PROTOTYPE- continued

WELL NO.	#23	#26	#28	#21	#60	#62	#29	#63	#24	#11	#27	#25
AQFR.	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Grnsd	Grnsd	El Dor	El Dor	El Dor	El Dor
DEPTH	56'	49'	120'	37'	75'	75'	300'	320'	550'	704'	783'	770'
Alk. Total mg/l	34.0	39.0	35.0	22.0	48.0	7.0	172	148	196	192	210	207
As T. Rec. µg/l	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K	10K
Ba T. Rec. µg/l	56.0	28.0	10K	77.0	72.0	16.0	107	47.0	13.0	10K	10K	10K
Br T. Rec. mg/l	-	-	-	-	-	-	-	-	-	-	-	-
Cd T. Rec. µg/l	.5K	.5K	5K	.5K	.5K	.5K	.5K	.5K	.5K	.5K	.5K	.5K
Ca T. Rec. mg/l	6.3	7.7	2.1	2.3	2.7	.1K	1.7	5.6	.1K	1.2	2.1	.100
Carbon Org. Total mg/l	6.6	2.1	1.2	1.5	1.4	1K	1.4	1K	1K	1K	1.6	1.6

EL DORADO PROTOTYPE- continued

WELL NO.	#23	#26	#28	#21	#60	#62	#29	#63	#24	#11	#27	#25
AQFR.	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Grnsd	Grnsd	El Dor	El Dor	El Dor	El Dor
DEPTH	56'	49'	120'	37'	75'	75'	300'	320'	550'	704'	783'	770'
Cl Total mg/l	- - 5.36	- - 2.4	- - 14.4	- - 8.49	- - 9.6	- - 3.35	- - 2.14	- - 2.7	- - 22.5	- - 23.8	- - 81.7	- - 104
Cr T. Rec. µg/l	- - 1K	- - 1K	- - 1K	- - 2.7	- - 1K	- - 1K	- - 1K	- - 1K	- - 1K	- - 1K	- - 1K	- - 1K
Cu T. Rec. µg/l	- - -	- - -	- - -	- - -	- - -	- - 4K	- - -	- - -	- - 4K	- - 24.0	- - 4K	- - 4K
F Total mg/l	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
Fe T. Rec. µg/l	- - 100	- - 100K	- - 100K	- - 100K	- - 310	- - 100K	- - 100K	- - 100K	- - 100K	- - 100K	- - 100K	- - 100K
Hard. Total mg/l	- - 39.6	- - 47.7	- - 5K	- - 29.4	- - 30.9	- - 9.0	- - 50.4	- - 27.6	- - 5K	- - 5K	- - 5K	- - 5K
Hg T. Rec. µg/l	- - .5K	- - .5K	- - .5K	- - .5K	- - .5K	- - .5K	- - .5K	- - .5K	- - .5K	- - .5K	- - .5K	- - .5K

EL DORADO PROTOTYPE- continued

WELL NO.	#23	#26	#28	#21	#60	#62	#29	#63	#24	#11	#27	#25
AQFR.	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Grnsd	Grnsd	El Dor	El Dor	El Dor	El Dor
DEPTH	56'	49'	120'	37'	75'	75'	300'	320'	550'	704'	783'	770'
Mn T. Rec. µg/l	- - 10K	- - 10K	- - 10K	- - 10K	- - 10K	- - 10K	- - 10K	- - 10K	- - 10K	- - 10K	- - 10K	- - 10K
Na Total mg/l	- - 9.9	- - 4.9	- - 28.0	- - 98.0	- - 12.0	- - 3.4	- - 51.0	- - 52.0	- - 92.0	- - 97.0	- - 184	- - 134
NH3-N Total mg/l	- - .05K	- - .05K	- - .05K	- - .05K	- - .137	- - .05K	- - .440	- - .862	- - .404	- - .361	- - .495	- - .471
Ni T. Rec. µg/l	- - 5K	- - 5K	- - 5K	- - 5K	- - 5K	- - 5K	- - -	- - -	- - -	- - -	- - -	- - -
NO3-N Total mg/l	- - .432	- - .148	- - .024	- - .264	- - .028	- - .974	- - .027	- - .027	- - .028	- - .031	- - .023	- - .023
Pb T. Rec. µg/l	- - 3.3	- - 2K	- - 2K	- - 2K	- - 2K	- - 2K	- - 2K	- - 2K	- - 2.5	- - 2.5	- - 2.0	- - 2K
Phos.-T Ortho mg/l	- - .062	- - .03K	- - .192	- - .03K	- - .164	- - .03K	- - .032	- - .167	- - .192	- - .242	- - .161	- - .235

EL DORADO PROTOTYPE- continued

WELL NO.	#23	#26	#28	#21	#60	#62	#29	#63	#24	#11	#27	#25
AQFR.	Cckf	Cckf	Cckf	Cckf	Cckf	Cckf	Grnsd	Grnsd	El Dor	El Dor	El Dor	El Dor
DEPTH	56'	120'	37'	37'	75'	75'	300'	320'	550'	704'	783'	770'
Phos.- Total mg/l	- - .0849	- - .03K	- - .186	- - .03K	- - .176	- - .03K	- - .0341	- - .176	- - .186	- - .237	- - .176	- - .237
Se T. Rec. µg/l	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
SO4 Total mg/l	- - 8.0	- - 4.8	- - 5.9	- - 21.9	- - 5.9	- - 2.6	- - 1.3	- - 3.7	- - 2.6	- - 1.3	- - 34.1	- - 5.9
TDS mg/l	- - 104	- - 97.0	- - 126	- - 98.0	- - 129	- - 36.0	- - 189	- - 170	- - 254	- - 255	- - 417	- - 408
V T. Rec. µg/l	- - 10K	- - 10K	- - 10K	- - 10K	- - 10K	- - 10K	- - -	- - -	- - -	- - -	- - -	- - -
Zn T.Rec. µg/l	- - 104	- - 117	- - 8K	- - 24.0	- - 189	- - 25.0	- - 46.0	- - 31.0	- - 8K	- - 13.0	- - 12.0	- - 11K

PINE BLUFF PROTOTYPE

TABLES

Table 4. PINE BLUFF PROTOTYPE - LOCATION AND DESCRIPTION OF WELLS - THIRD SAMPLING PERIOD

SAMPLE DATE	LOCAL NUMBER	SAMPLE LOCATION NO.	LATITUDE-LONGITUDE	DEPTH	AQFR	USE
6-6-94	5S9W30DBA1	#4	34 15 06.0 92 01 29.0	792'	Sparta	I
6-6-94	5S10W11ACA1	#8	34 17 40.0 92 03 24.0	992'	Sparta	P
6-6-94	4S10W29ADC1	#1	34 20 23.0 92 06 22.0	651'	Sparta	P
11-3-94	5S9W19BAA1	#3	34 16 08.0 92 01 29.0	1,275'	Sparta	C
6-6-94	5S9W07CCC1	#16	34 17 05.0 92 01 58.0	265'	Cckf	D
6-6-94	5S10W12ADD1	#19	34 17 32.0 92 02 00.0	54'	Alvm	D
6-6-94	6S9W04BAB2	#10	34 13 30.5 92 01 06.0	865'	Sparta	P
6-6-94	6S9W17CCC1	#12	34 11 49.0 92 02 29.0	848'	Sparta	P
6-7-94	6S8W10CAA1	#39	34 12 59.0 91 53 44.0	1,020	Sparta	C

Uses: C = Commercial; P = Public; D = Domestic; I = Irrigation
AQFR = Aquifer; Alvm = Alluvium (Alluvial aquifer); Cckf = Cockfield

- continued -

Table 4. PINE BLUFF PROTOTYPE - LOCATION AND DESCRIPTION OF WELLS - THIRD SAMPLING PERIOD

SAMPLE DATE	LOCAL NUMBER	SAMPLE LOCATION NO.	LATITUDE-LONGITUDE	DEPTH	AQFR	USE
6-7-94	6S8W09ACC1	#38	34 13 05.0 91 54 38.0	165'	Alvm	C
6-7-94	5S8W30AAB1	#24	34 15 07.5 91 54 46.0	±900'	Sparta	C
6-7-94	5S9W34CAB1	#34	34 13 54.0 91 58 25.0	102'	Alvm	C

Table 5. PINE BLUFF PROTOTYPE - LOCATION AND DESCRIPTION OF WELLS NOT SAMPLED DURING THIRD SAMPLING PERIOD

LAST SAMPLED	LOCAL NUMBER	SAMPLE LOCATION NO.	LATITUDE-LONGITUDE	DEPTH	AQFR	USE
2nd	5S9W31DCA1	#5	34 13 42.0 92 01 10.0	859'	Sparta	P
2nd	5S10W02CDD1	#7	34 18 07.0 92 03 34.0	1,085'	Sparta	P
2nd	6S9W04BAB1	#11	34 13 30.5 92 01 10.0	864'	Sparta	P

Uses: C = Commercial; P = Public
AQFR = Aquifer; Alvm = Alluvium (Alluvial aquifer)

Table 6. PINE BLUFF PROTOTYPE

Results of the first three sampling periods initiated 12/87, 12/90, and 6/94. "K" indicates actual value is known to be less than value given.

WELL NO.	#12	#11	#3	#5	#4	#16	#19	#1	#7	#8	#10	#39	#38	#24	#34
AQFR.	Sparta	Sparta	Sparta	Sparta	Sparta	Cckf	Alvm	Sparta	Sparta	Sparta	Sparta	Sparta	Alvm	Sparta	Alvm
Depth	848'	864'	1,275'	859'	792'	265'	54'	651'	1,085'	992'	865'	1,020'	165'	900'	102'
Alk.	68.0	56.0	60.0	56.0	59.0	250	104	39.0	52.0	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
mg/l	72.0	-	60.0	-	74.0	200	115	56.0	-	60.0	62.0	77.0	73.0	73.0	292
As	5K	5K	5K	5K	5K	5K	44.0	5K	5K	-	-	-	-	-	-
T. Rec.	-	-	-	-	-	-	10K	-	-	-	-	-	-	-	-
µg/l	10K	-	10K	-	10K	10K	37.0	10K	-	10K	10K	10K	10K	10K	10K
Ba	1K	1K	1K	1K	1K	1K	1K	1K	1K	-	-	-	-	-	-
T. Rec.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
µg/l	92.0	-	119	-	127	50.0	101	128	-	126	126	93.0	497	116	375
Cd	.5K	.5K	.5K	.5K	.5K	.5K	.5K	.5K	.5K	-	-	-	-	-	-
T. Rec.	-	-	-	-	-	-	.5K	-	.5K	-	-	-	-	-	-
µg/l	.5K	-	1.6K	-	.5K	.5K	.5K	.5K	-	.5K	.5K	.5K	.5K	.5K	.5K
Ca	3.6	2.3	5.4	2.4	4.7	7.7	24.0	1.5	3.6	-	-	-	-	-	-
T. Rec.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
mg/l	7.5	-	9.8	-	4.0	16.0	44.0	7.4	-	6.3	6.6	7.5	136	7.0	7.9
Carb.	1.8	3.1	2.6	3.6	3.0	1.6	7.9	.40	3.0	-	-	-	-	-	-
Org.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	0.5	-	1K	4.9	3.0	1K	-	1K	-	-	-	-	-
mg/l															

AQFR = Aquifer; Alvm = Alluvium (Alluvial aquifer); Cckf = Cockfield
T. Rec. = Total Recoverable

PINE BLUFF PROTOTYPE- continued

WELL NO.	#12	#11	#3	#5	#4	#16	#19	#1	#7	#8	#10	#39	#38	#24	#34
AQFR.	Sparta	Sparta	Sparta	Sparta	Sparta	Cckf	Alvm	Sparta	Sparta	Sparta	Sparta	Sparta	Alvm	Sparta	Alvm
Depth	848'	864'	1,275'	859'	792'	265'	54'	651'	1,085'	992'	865'	1,020'	165'	900'	102'
Cl	2.0	2.0	2.0	3.0	2.0	13.0	145	3.0	3.0	-	-	-	-	-	-
Total	3.0	4.0	-	3.0	-	-	148	6.0	6.0	-	-	-	-	-	-
mg/l	2.62	-	2.78	-	4.2	18.8	196	4.07	-	3.28	2.92	2.22	103	3.25	13.6
Cr	1K	1K	1.0	1K	1.0	1K	1.0	1.0	1K	-	-	-	-	-	-
T. Rec.	-	-	-	-	-	-	1K	-	1K	-	-	-	-	-	-
µg/l	1K	-	2.6K	-	1K	1K	1K	1K	-	1K	1K	1K	1K	1K	1K
Cu	15K	22.0	15K	15K	30.0	15K	15K	165	15K	-	-	-	-	-	-
T. Rec.	-	-	-	-	-	-	25K	-	25K	-	-	-	-	-	-
µg/l	4K	-	2K	-	4K	4K	6.7	162	-	11.0	4K	4K	4K	4K	4K
Fe	2100	2100	2300	2200	3400	400	8600	2300	2200	-	-	-	-	-	-
T. Rec.	-	-	-	-	-	-	2100	3700	2100	-	-	-	-	-	-
µg/l	2000	-	2005	-	16200	2900	19700	2900	-	33400	2400	1700	16400	2900	12300
Hard.	32.0	24.0	36.0	26.0	26.0	30.0	182	18.0	22.0	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
mg/l	26.7	-	33.0	-	13.2	59.1	194	28.5	-	22.5	20.4	26.7	440	18.0	273
Hg	.5K	.5K	.5K	.5K	.5K	.5K	.5K	.5K	.5K	-	-	-	-	-	-
T. Rec.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
µg/l	-	-	.025K	-	-	-	-	-	-	-	-	-	-	-	-

PINE BLUFF PROTOTYPE- continued

WELL NO.	#12	#11	#3	#5	#4	#16	#19	#1	#7	#8	#10	#39	#38	#24	#34
AQFR.	Sparta	Sparta	Sparta	Sparta	Sparta	Cckf	Alvm	Sparta	Sparta	Sparta	Sparta	Sparta	Alvm	Sparta	Alvm
Depth	848'	864'	1,275'	859'	792'	265'	54'	651'	1,085'	992'	865'	1,020'	165'	900'	102'
Mn	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T. Rec.	-	-	-	-	-	-	40K	70.0	50.0	-	-	-	-	-	-
µg/l	74.0	-	33.8	-	187	352	1500	59.0	-	63.0	63.0	51.0	1100	54.0	268
Na	18.0	16.8	12.0	13.5	11.0	128	65.0	7.0	9.0	-	-	-	-	-	-
T. Rec.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
mg/l	16.1	-	11.0	-	16.1	66.0	58.0	21.9	-	11.8	13.1	20.8	103	20.0	14.3
NH3-N	.240	.230	.190	.240	.290	.710	.020	.170	.170	-	-	-	-	-	-
Total	-	-	-	-	-	-	.05K	.100	.190	-	-	-	-	-	-
mg/l	-	-	.082	-	.392	.481	.096	.306	-	.250	-	-	-	-	-
Ni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T. Rec.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
µg/l	-	-	2K	-	-	-	10K	-	-	-	10K	10K	10K	10K	10K
NO3-N	.020	.010	.01K	.010	.01	.040	1.70	.10K	.01K	-	-	-	-	-	-
Total	.020	.02K	-	.02K	-	-	1.54	.02K	.02K	-	-	-	-	-	-
mg/l	.023	-	.054	-	.036	.028	1.13	.021	-	.028	.02K	.023	.025	.026	.034
Pb	1.0	12.0	1K	7.0	9.0	1K	1K	1.0	1K	-	-	-	-	-	-
T. Rec.	-	-	-	-	-	-	2K	-	2K	-	-	-	-	-	-
µg/l	2K	-	2K	-	2K	2K	2K	2K	-	2K	2K	2K	2K	2K	2K
Phos.T	.070	.080	.060	.080	.090	.170	.010	.060	.020	-	-	-	-	-	-
Ortho	.140	.080	-	.150	-	-	.050	.030	.030	-	-	-	-	-	-
mg/l	-	-	.110	-	.088	.244	.03K	.03K	-	.058	-	-	-	-	-

PINE BLUFF PROTOTYPE- continued

WELL NO.	#12	#11	#3	#5	#4	#16	#19	#1	#7	#8	#10	#39	#38	#24	#34
AQFR.	Sparta	Sparta	Sparta	Sparta	Sparta	Cckf	Alvm	Sparta	Sparta	Sparta	Sparta	Sparta	Alvm	Sparta	Alvm
Depth	848'	864'	1,275'	859'	792'	265'	54'	651'	1,085'	992'	865'	1,020'	165'	900'	102'
Phos.- Total mg/l	.140 - .181	.110 - -	.130 - .128	.100 - -	.100 - .061	.130 - .719	.460 - .101	.030 - .041	.020 - -	- - .091	- - .101	- - .151	- - 1.04	- - .171	- - .889
Se T. Rec. µg/l	5K - 10K	5K - -	5K - 27K	5K - -	5K - 10K	5K - 10K	5K - 10K	5K - 10K	5K - -	- - 10K	- - 10K	- - 10K	- - 10K	- - 10K	- - 10K
SO4 Total mg/l	2.0 4.0 3.9	3.0 5.0 -	4.0 - 5.5	4.0 5.0 -	5.0 - 1.9	52.0 - 14.0	8.0 8.0 5.9	6.0 3.0 22.9	4.0 3.0 -	- - 2.9	- - 3.9	- - 5.9	- - 27.5	- - 8.7	- - 19.7
TDS mg/l	- - 99.0	- - -	- - 84.0	- - -	- - 94.0	- - 305	- - 557	- - 16.0	- - -	- - 80.0	- - 87.0	- - 108	- - 747	- - 108	- - 390
V T. Rec. µg/l	- - 6K	- - -	- - -	- - -	- - 6K	- - 6K	- - 6K	- - 6K	- - -	- - 6K	- - 6K	- - 6K	- - 6K	- - 6K	- - 6K
Zn T. Rec. µg/l	- - 8K	- - -	- - 2K	- - -	- - 8K	- - 46.0	- 170 960	- - 8K	- 8K -	- - 8K	- - 43.0	- - 8K	- - 8K	- - 8K	- - 9.0

LONOKE PROTOTYPE

TABLES

Table 7. LONOKE PROTOTYPE - LOCATION AND DESCRIPTION OF WELLS - THIRD SAMPLING PERIOD

SAMPLE DATE	LOCAL NUMBER	SAMPLE LOCATION NO.	LATITUDE-LONGITUDE	DEPTH	AQUIFER
8-23-94	02N08W06ADA1	#10	34 49 47.5 91 53 39.0	128'	Alluvial
8-23-94	03N09W28CCA1	#5	34 51 09.7 91 58 48.7	104'	Alluvial
8-23-94	03N08W30DDD1	#3B	34 50 59.2 91 53 39.7	@160'	Alluvial
8-23-94	02N08W31ADD1	#17	34 45 17.8 91 53 44.5	195'	Alluvial
8-24-94	02N08W20BCD1	#14	34 47 09.3 91 53 28.9	164'	Alluvial
8-24-94	01N08W16BAC1	#24	34 42 56.3 91 52 32.4	@150'	Alluvial
8-24-94	02N09W34AAA1	#22	34 45 43.5 91 57 07.8	354'	Sparta
8-24-94	02N09W28CCC1	#16	34 45 49.3 91 59 08.2	122'	Alluvial
8-24-94	01N09W13CBB1	#26	34 42 41.0 91 56 00.6	@160'	Alluvial

Table 8. LONOKE PROTOTYPE - LOCATION AND DESCRIPTION OF WELLS NOT SAMPLED DURING THIRD SAMPLING PERIOD

LAST SAMPLED	LOCAL NUMBER	SAMPLE LOCATION NO.	LATITUDE-LONGITUDE	DEPTH	AQUIFER
2nd	02N09W02BBC1	#9	34 49 57.0 91 56 55.0	157'	Alluvial
1st	02N08W07CCC1	#12	34 48 30.0 91 54 50.0	100'	Alluvial
1st	03N09W23DCA1	#2	34 52 04.0 91 56 07.0	135'	Alluvial
2nd	01N09W13BCB1	#20	34 42 51.0 91 55 02.0	125'	Alluvial
1st	01N09W21BAB1	#21	34 42 19.0 91 59 02.0	100'	Alluvial
1st	01N08W09CBC1	#19	34 43 19.0 91 52 46.0	150'	Alluvial
1st	03N08W30AAD1	#3	34 51 39.0 91 53 37.0	135'	Alluvial
2nd	02N09W23BAC1	#13	34 47 18.0 91 56 44.0	150'	Alluvial
2nd	01N09W11DBA1	#18	34 43 33.0 91 56 24.0	105'	Alluvial

Table 9. LONOKE PROTOTYPE

Results of the first three sampling periods initiated 6/88, 6/91, and 8/94. "K" indicates actual value is known to be less than the value given.

WELL NUMBER	#10	#5	#3B	#17	#14	#24	#22	#16	#26
AQUIFER	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Sparta	Alluvial	Alluvial
DEPTH	128'	104'	160'	195'	164'	150'	354'	122'	160'
Alkalinity Total mg/l	111 - 119	144 - 121	- - 72.0	243 - 252	144 - 158	- - 294	192 - 201	307 - 306	- - 250
As µg/l	11.0 - 10K	5K - 10K	- - 10K	5K - 10K	5K - 10K	- - 10K	5K - 10K	11.0 - 22.0	- - 10K
Ba mg/l	- - .150	- - .130	- - .090	- - .270	- - .170	- - .390	- - .310	- - .430	- - .150
Cd µg/l	.5K - .5K	.5K - .5K	- - .5K	.5K - 1.3	.5K - .5K	- - .5K	.5K - .5K	.5K - .5K	- - .5K
Ca mg/l	14.0 - 24.4	3.0 - 25.8	- - 10.1	62.0 - 67.0	24.0 - 31.2	- - 75.0	28.0 - 36.3	91.0 - 85.1	- - 108
Carbon Organic Total mg/l	2.9 - 1.6	3.3 - 1.1	- - 1.1	1.8 - 1.3	3.0 - 2.9	- - 3.4	2.0 - 3.5	3.4 - 3.6	- - 3.0

LONOKE PROTOTYPE- continued

WELL NUMBER	#10	#5	#3B	#17	#14	#24	#22	#16	#26
AQUIFER	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Sparta	Alluvial	Alluvial
DEPTH	128'	104'	160'	195'	164'	150'	354'	122'	160'
Cl mg/l	8.0 - 12.1	17.0 - 37.6	- - 5.05	9.0 13.0 14.5	18.0 - 20.1	- - 17.2	6.0 6.0 7.28	.500 17.0 13.4	- - 12.4
Cr µg/l	1K - 1K	1K - 1K	- - 1K	14.0 - 1K	1K - 1K	- - 1K	1K - 1K	1K - 1K	- - 1K
Cu µg/l	15K - 4K	15K - 50.0	- - 4K	15K - 4K	15K - 13.0	- - 4K	15K - 4K	15K - 4K	- - 4K
Fe µg/l	3800 - 4300	1000 - 2950	- - 3680	2600 - 2700	2000 - 2400	- - 2600	3400 - 4000	- - 11800	- - 18800
Hardness Total mg/l	106 - 95.4	- - 122	- - 46.2	- - 281	- - 116	- - 284	- - 166	- - 389	- - 472
Hg µg/l	1K - -	- - .03K	- - .03K	1K - .03K	- - .03K	- - .03K	1K - .03K	- - .03K	- - .03K
K mg/l	1.0 - .940	.300 - 1.4	- - .730	5.0 - 1.1	1.0 - .880	- - 1.5	4.0 - 2.0	6.0 - 1.4	- - 1.6
Mg mg/l	- - 6.5	- - 9.3	- - 3.1	- - 14.7	- - 9.4	- - 14.3	- - 9.8	- - 16.0	- - 20.0

LONOKE PROTOTYPE- continued

WELL NUMBER	#10	#5	#3B	#17	#14	#24	#22	#16	#26
AQUIFER	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Sparta	Alluvial	Alluvial
DEPTH	128'	104'	160'	195'	164'	150'	354'	122'	160'
Mn µg/l	810 - 790	100K - 8.4	- - 950	610 - 490	380 - 339	- - 379	250 - 221	350 - 285	- - 812
Na mg/l	15.0 - 15.6	30.0 - 30.6	- - 9.2	14.0 - 13.4	19.0 - 17.3	- - 21.6	24.0 - 22.3	20.0 - 15.7	- - 14.8
NH3+ NH4 mg/l	.110 - .05K	.130 - .05K	- - .05K	.240 .280 .091	.120 - .05K	- - .259	.210 .120 .089	.730 .740 .378	- - .367
Ni µg/l	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
NO2+ NO3 mg/l	.01K - .024	.010 - .045	- - .034	.010 .02K .033	.010 - .037	- - .040	.010 .050 .051	.010 .02K .034	- - .031
Pb µg/l	1K - 2K	1.0 - 2.8	- - 2K	1K - 6.3	6.0 - 2K	- - 2.4	1K - 2K	1K - 2K	- - 2K
Phosphorous-Ortho mg/l	- - .135	.080 .030K .064	- - .263	.170 .090 .052	.100 - .248	- - .204	.180 .030K .093	.360 .060 .156	- - .383

LONOKE PROTOTYPE- continued

WELL NUMBER	#10	#5	#3B	#17	#14	#24	#22	#16	#26
AQUIFER	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Sparta	Alluvial	Alluvial
DEPTH	128'	104'	160'	195'	164'	150'	354'	122'	160'
Phosphorous Total mg/l	- - .309	- - .087	- - .350	- - .178	- - .299	- - .360	- 3.0 .238	- - .501	- - .501
Se µg/l	5K - 10K	5K - 10K	- - 10K	5K - 10K	5K - 10K	- - 10K	5K - 10K	5K - 10K	- - 10K
SO4 mg/l	3.0 - 7.3	3.0 - 19.6	- - 4.4	- 25.0 33.0	3.0 - 7.3	- - 25.6	- 3.0 3.4	- 90.0 87.0	- - 190
TDS mg/l	- - 169	- - 216	- - 110	- - 343	- - 211	- - 372	- - 220	- - 468	- - 590
V µg/l	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
Zn µg/l	10.0 - 8K	27.0 - 28.0	- - 8K	338 - 8K	17.0 - 8K	- - 8K	13.0 - 8K	10.0 - 8K	- - 8K

LONOKE PROTOTYPE- continued

WELL NUMBER	#9	#12	#2	#20	#21	#19	#3	#13	#18
AQUIFER	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
DEPTH	157'	100'	135'	125'	100'	150'	135'	150'	105'
Alkalinity Total mg/l	98.0 - -	135 - -	680 - -	175 - -	300 - -	284 - -	70.0 - -	296 - -	180 - -
As µg/l	5K - -	5K - -	5K - -	5K - -	5K - -	9.0 - -	5K - -	5K - -	5K - -
Ba mg/l	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
Cd µg/l	.5K - -	.5K - -	.5K - -	.5K - -	- - -	.5K - -	.5K - -	.5K - -	.5K - -
Ca µg/l	14.0 - -	19.0 - -	6.0 - -	76.0 - -	76.0 - -	72.0 - -	6.0 - -	34.0 - -	80.0 - -
Carbon Organic Total mg/l	3.7 - -	4.1 - -	2.9 - -	7.5 - -	9.2 - -	9.6 - -	2.4 - -	8.3 - -	4.4 - -

LONOKE PROTOTYPE- continued

WELL NUMBER	#9	#12	#2	#20	#21	#19	#3	#13	#18
AQUIFER	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
DEPTH	157'	100'	135'	125'	100'	150'	135'	150'	105'
Cl mg/l	13.0 12.0 -	8.0 - -	6.0 - -	10.0 - -	33.0 - -	34.0 - -	9.0 - -	10.0 15.0 -	19.0 13.0 -
Cr µg/l	1K - -	60.0 - -	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -
Cu µg/l	15K - -	15K - -	15K - -	15K - -	40.0 - -	15K - -	15K - -	15K - -	24.0 - -
Fe µg/l	1800 - -	2800 - -	200K - -	2100 - -	8000 - -	2200 - -	200K - -	1400 - -	20000 - -
Hardness Total mg/l	- - -	110 - -	106 - -	- - -	- - -	- - -	66.0 - -	380 - -	172 - -
Hg µg/l	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -
K mg/l	2.0 - -	2.0 - -	.900 - -	6.0 - -	5.0 - -	5.0 - -	1.0 - -	3.0 - -	8.0 - -
Mg mg/l	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -

LONOKE PROTOTYPE- continued

WELL NUMBER	#9	#12	#2	#20	#21	#19	#3	#13	#18
AQUIFER	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
DEPTH	157'	100'	135'	125'	100'	150'	135'	150'	105'
Mn µg/l	410 - -	1380 - -	100K - -	820 - -	770 - -	480 - -	100K - -	1100 - -	720 - -
Na mg/l	14.0 - -	17.0 - -	11.0 - -	13.0 - -	26.0 - -	43.0 - -	13.0 - -	15.0 - -	16.0 - -
NH3+ NH4 mg/l	.080 .110 -	.030 - -	.010K - -	.520 - -	.500 - -	.830 - -	.040 - -	.410 .009 -	.260 - -
Ni µg/l	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
NO2+ NO3 mg/l	.010 .02K -	.01K - -	.210 - -	.020 - -	.010 - -	.020 - -	- - -	- .02K -	- - -
Pb µg/l	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -
Phosphorous-Ortho mg/l	.080 .100 -	- - -	- - -	- - -	- - -	- - -	.180 - -	.010K .110 -	.100 .030K -

LONOKE PROTOTYPE- continued

WELL NUMBER	#9	#12	#2	#20	#21	#19	#3	#13	#18
AQUIFER	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
DEPTH	157'	100'	135'	125'	100'	150'	135'	150'	105'
Phosphorous Total mg/l	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
Se µg/l	5K - -	5K - -	5K - -	5K - -	5K - -	5K - -	5K - -	5K - -	5K - -
SO4 mg/l	14.0 13.0 -	5.0 - -	7.0 - -	189 - -	36.0 - -	39.0 - -	8.0 - -	146 7.0 -	6.0 8.0
TDS mg/l	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
V µg/l	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
Zn µg/l	8.0 - -	1122 - -	3K - -	5.0 - -	11.0 - -	3K - -	3K - -	3K - -	21.0 - -

Table 7. LONOKE PROTOTYPE - LOCATION AND DESCRIPTION OF WELLS - THIRD SAMPLING PERIOD

SAMPLE DATE	LOCAL NUMBER	SAMPLE LOCATION NO.	LATITUDE-LONGITUDE	DEPTH	AQFR	USE
8-23-94	02N08W06ADA1	#10	34 49 47.5 91 53 39.0	128'	Alvm	I
8-23-94	03N09W28CCA1	#5	34 51 09.7 91 58 48.7	104'	Alvm	D
8-23-94	03N08W30DDD1	#3B	34 50 59.2 91 53 39.7	±160'	Alvm	A
8-23-94	02N08W31ADD1	#17	34 45 17.8 91 53 44.5	195'	Alvm	I
8-24-94	02N08W20BCD1	#14	34 47 09.3 91 53 28.9	164'	Alvm	P
8-24-94	01N08W16BAC1	#24	34 42 56.3 91 52 32.4	±150'	Alvm	I
8-24-94	02N09W34AAA1	#22	34 45 43.5 91 57 07.8	354'	Sparta	A
8-24-94	02N09W28CCC1	#16	34 45 49.3 91 59 08.2	122'	Alvm	I
8-24-94	01N09W13CBB1	#26	34 42 41.0 91 56 00.6	±160'	Alvm	I

Uses: A = Aquaculture; D = Domestic; I = Irrigation; P = Public
AQFR = Aquifer; Alvm = Alluvium (Alluvial aquifer)

Table 8. LONOKE PROTOTYPE - LOCATION AND DESCRIPTION OF WELLS NOT SAMPLED DURING THIRD SAMPLING PERIOD

LAST SAMPLED	LOCAL NUMBER	SAMPLE LOCATION NO.	LATITUDE-LONGITUDE	DEPTH	AQFR	USE
2nd	02N09W02BBC1	#9	34 49 57.0 91 56 55.0	157'	Alvm	I
1st	02N08W07CCC1	#12	34 48 30.0 91 54 50.0	100'	Alvm	D
1st	03N09W23DCA1	#2	34 52 04.0 91 56 07.0	135'	Alvm	I
2nd	01N09W13BCB1	#20	34 42 51.0 91 55 02.0	125'	Alvm	I
1st	01N09W21BAB1	#21	34 42 19.0 91 59 02.0	100'	Alvm	I
1st	01N08W09CBC1	#19	34 43 19.0 91 52 46.0	150'	Alvm	I
1st	03N08W30AAD1	#3	34 51 39.0 91 53 37.0	135'	Alvm	I
2nd	02N09W23BAC1	#13	34 47 18.0 91 56 44.0	150'	Alvm	I
2nd	01N09W11DBA1	#18	34 43 33.0 91 56 24.0	105'	Alvm	I

Uses: D = Domestic; I = Irrigation
Alvm = Alluvium (Alluvial aquifer)

Table 9. LONOKE PROTOTYPE

Results of the first three sampling periods initiated 6/88, 6/91, and 8/94. "K" indicates actual value is known to be less than the value given.

WELL NUMBER	#10	#5	#3B	#17	#14	#24	#22	#16	#26
AQUIFER	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Sparta	Alluvial	Alluvial
DEPTH	128'	104'	160'	195'	164'	150'	354'	122' -	160'
Alkalinity Total mg/l	111 - 119	144 - 121	- - 72.0	243 - 252	144 - 158	- - 294	192 - 201	307 - 306	- - 250
As T. Rec. µg/l	11.0 - 10K	5K - 10K	- - 10K	5K - 10K	5K - 10K	- - 10K	5K - 10K	11.0 - 22.0	- - 10K
Ba T. Rec. mg/l	- - .150	- - .130	- - .090	- - .270	- - .170	- - .390	- - .310	- - .430	- - .150
Cd T. Rec. µg/l	.5K - .5K	.5K - .5K	- - .5K	.5K - 1.3	.5K - .5K	- - .5K	.5K - .5K	.5K - .5K	- - .5K
Ca T Rec. mg/l	14.0 - 24.4	3.0 - 25.8	- - 10.1	62.0 - 67.0	24.0 - 31.2	- - 75.0	28.0 - 36.3	91.0 - 85.1	- - 108
Carbon Organic Total mg/l	2.9 - 1.6	3.3 - 1.1	- - 1.1	1.8 - 1.3	3.0 - 2.9	- - 3.4	2.0 - 3.5	3.4 - 3.6	- - 3.0

T. Rec. = Total Recoverable

LONOKE PROTOTYPE- continued

WELL NUMBER	#10	#5	#3B	#17	#14	#24	#22	#16	#26
AQUIFER	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Sparta	Alluvial	Alluvial
DEPTH	128'	104'	160'	195'	164'	150'	354'	122'	160'
Cl	8.0	17.0	-	9.0	18.0	-	6.0	.500	-
Total	-	-	-	13.0	-	-	6.0	17.0	-
mg/l	12.1	37.6	5.05	14.5	20.1	17.2	7.28	13.4	12.4
Cr	1K	1K	-	14.0	1K	-	1K	1K	-
T. Rec.	-	-	-	-	-	-	-	-	-
µg/l	1K	1K	1K	1K	1K	1K	1K	1K	1K
Cu	15K	15K	-	15K	15K	-	15K	15K	-
T. Rec.	-	-	-	-	-	-	-	-	-
µg/l	4K	50.0	4K	4K	13.0	4K	4K	4K	4K
Fe	3800	1000	-	2600	2000	-	3400	-	-
T. Rec.	-	-	-	-	-	-	-	-	-
µg/l	4300	2950	3680	2700	2400	2600	4000	11800	18800
Hardness	106	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-
mg/l	95.4	122	46.2	281	116	284	166	389	472
Hg	1K	-	-	1K	-	-	1K	-	-
T. Rec.	-	-	-	-	-	-	-	-	-
µg/l	-	.03K	.03K	.03K	.03K	.03K	.03K	.03K	.03K
K	1.0	.300	-	5.0	1.0	-	4.0	6.0	-
T. Rec.	-	-	-	-	-	-	-	-	-
mg/l	.940	1.4	.730	1.1	.880	1.5	2.0	1.4	1.6
Mg	-	-	-	-	-	-	-	-	-
T. Rec.	-	-	-	-	-	-	-	-	-
mg/l	6.5	9.3	3.1	14.7	9.4	14.3	9.8	16.0	20.0

LONOKE PROTOTYPE- continued

WELL NUMBER	#10	#5	#3B	#17	#14	#24	#22	#16	#26
AQUIFER	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Sparta	Alluvial	Alluvial
DEPTH	128'	104'	160'	195'	164'	150'	354'	122'	160'
Mn	810	100K	-	610	380	-	250	350	-
T. Rec.	-	-	-	-	-	-	-	-	-
µg/l	790	8.4	950	490	339	379	221	285	812
Na	15.0	30.0	-	14.0	19.0	-	24.0	20.0	-
T. Rec.	-	-	-	-	-	-	-	-	-
mg/l	15.6	30.6	9.2	13.4	17.3	21.6	22.3	15.7	14.8
NH3-N	.110	.130	-	.240	.120	-	.210	.730	-
Total	-	-	-	.280	-	-	.120	.740	-
mg/l	.05K	.05K	.05K	.091	.05K	.259	.089	.378	.367
Ni	-	-	-	-	-	-	-	-	-
T. Rec.	-	-	-	-	-	-	-	-	-
µg/l	-	-	-	-	-	-	-	-	-
NO-N	.01K	.010	-	.010	.010	-	.010	.010	-
Total	-	-	-	.02K	-	-	.050	.02K	-
mg/l	.024	.045	.034	.033	.037	.040	.051	.034	.031
Pb	1K	1.0	-	1K	6.0	-	1K	1K	-
T. Rec.	-	-	-	-	-	-	-	-	-
µg/l	2K	2.8	2K	6.3	2K	2.4	2K	2K	2K
Phos.- Total	-	.080	-	.170	.100	-	.180	.360	-
Ortho	-	.030K	-	.090	-	-	.030K	.060	-
mg/l	.135	.064	.263	.052	.248	.204	.093	.156	.383

LONOKE PROTOTYPE- continued

WELL NUMBER	#10	#5	#3B	#17	#14	#24	#22	#16	#26
AQUIFER	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Sparta	Alluvial	Alluvial
DEPTH	128'	104'	160'	195'	164'	150'	354'	122'	160'
Phosphorous Total mg/l	- - .309	- - .087	- - .350	- - .178	- - .299	- - .360	- 3.0 .238	- - .501	- - .501
Se T. Rec. µg/l	5K - 10K	5K - 10K	- - 10K	5K - 10K	5K - 10K	- - 10K	5K - 10K	5K - 10K	- - 10K
SO4 Total mg/l	3.0 - 7.3	3.0 - 19.6	- - 4.4	- 25.0 33.0	3.0 - 7.3	- - 25.6	- 3.0 3.4	- 90.0 87.0	- - 190
TDS mg/l	- - 169	- - 216	- - 110	- - 343	- - 211	- - 372	- - 220	- - 468	- - 590
V T. Rec. µg/l	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
Zn T. Rec. µg/l	10.0 - 8K	27.0 - 28.0	- - 8K	338 - 8K	17.0 - 8K	- - 8K	13.0 - 8K	10.0 - 8K	- - 8K

LONOKE PROTOTYPE- continued

WELL NUMBER	#9	#12	#2	#20	#21	#19	#3	#13	#18
AQUIFER	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
DEPTH	157'	100'	135'	125'	100'	150'	135'	150'	105'
Alkalinity Total mg/l	98.0 - -	135 - -	680 - -	175 - -	300 - -	284 - -	70.0 - -	296 - -	180 - -
As T. Rec. µg/l	5K - -	5K - -	5K - -	5K - -	5K - -	9.0 - -	5K - -	5K - -	5K - -
Ba T. Rec. mg/l	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
Cd T. Rec. µg/l	.5K - -	.5K - -	.5K - -	.5K - -	- - -	.5K - -	.5K - -	.5K - -	.5K - -
Ca T. Rec. µg/l	14.0 - -	19.0 - -	6.0 - -	76.0 - -	76.0 - -	72.0 - -	6.0 - -	34.0 - -	80.0 - -
Carbon Organic Total mg/l	3.7 - -	4.1 - -	2.9 - -	7.5 - -	9.2 - -	9.6 - -	2.4 - -	8.3 - -	4.4 - -

LONOKE PROTOTYPE- continued

WELL NUMBER	#9	#12	#2	#20	#21	#19	#3	#13	#18
AQUIFER	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
DEPTH	157'	100'	135'	125'	100'	150'	135'	150'	105'
Cl Total mg/l	13.0 12.0 -	8.0 - -	6.0 - -	10.0 - -	33.0 - -	34.0 - -	9.0 - -	10.0 15.0 -	19.0 13.0 -
Cr T. Rec. µg/l	1K - -	60.0 - -	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -
Cu T. Rec. µg/l	15K - -	15K - -	15K - -	15K - -	40.0 - -	15K - -	15K - -	15K - -	24.0 - -
Fe T. Rec. µg/l	1800 - -	2800 - -	200K - -	2100 - -	8000 - -	2200 - -	200K - -	1400 - -	20000 - -
Hardness Total mg/l	- - -	110 - -	106 - -	- - -	- - -	- - -	66.0 - -	380 - -	172 - -
Hg T Rec. µg/l	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -
K T. Rec. mg/l	2.0 - -	2.0 - -	.900 - -	6.0 - -	5.0 - -	5.0 - -	1.0 - -	3.0 - -	8.0 - -
Mg T. Rec. mg/l	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -

LONOKE PROTOTYPE- continued

WELL NUMBER	#9	#12	#2	#20	#21	#19	#3	#13	#18
AQUIFER	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
DEPTH	157'	100'	135'	125'	100'	150'	135'	150'	105'
Mn T. Rec. µg/l	410 - -	1380 - -	100K - -	820 - -	770 - -	480 - -	100K - -	1100 - -	720 - -
Na T. Rec. mg/l	14.0 - -	17.0 - -	11.0 - -	13.0 - -	26.0 - -	43.0 - -	13.0 - -	15.0 - -	16.0 - -
NH3-N Total mg/l	.080 .110 -	.030 - -	.010K - -	.520 - -	.500 - -	.830 - -	.040 - -	.410 .009 -	.260 - -
Ni T. Rec. µg/l	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
NO3-N Total mg/l	.010 .02K -	.01K - -	.210 - -	.020 - -	.010 - -	.020 - -	- - -	- .02K -	- - -
Pb T. Rec. µg/l	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -	1K - -
Phos.- Total Ortho mg/l	.080 .100 -	- - -	- - -	- - -	- - -	- - -	.180 - -	.010K .110 -	.100 .030K -

LONOKE PROTOTYPE- continued

WELL NUMBER	#9	#12	#2	#20	#21	#19	#3	#13	#18
AQUIFER	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
DEPTH	157'	100'	135'	125'	100'	150'	135'	150'	105'
Phosphorous Total mg/l	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
Se T. Rec. µg/l	5K - -	5K - -	5K - -	5K - -	5K - -	5K - -	5K - -	5K - -	5K - -
SO4 Total mg/l	14.0 13.0 -	5.0 - -	7.0 - -	189 - -	36.0 - -	39.0 - -	8.0 - -	146 7.0 -	6.0 8.0
TDS mg/l	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
V T. Rec. µg/l	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
Zn T. Rec. µg/l	8.0 - -	1122 - -	3K - -	5.0 - -	11.0 - -	3K - -	3K - -	3K - -	21.0 - -

Table 10. LONOKE PROTOTYPE PESTICIDE ANALYSES

Analyses for the pesticides shown below for all wells indicated no detections.

PARAMETER	DATA	UNITS		PARAMETER	DATA	UNITS
PROPACHLOR	< .005	PPB		TRIFLURALIN	< .003	PPB
ALPHA-BHC	< .003	PPB		ATRATON	< .012	PPB
PROMETON	< .029	PPB		SIMAZINE	< .009	PPB
ATRAZINE	< .003	PPB		PROPAZINE	< .003	PPB
BETA-BHC	< .004	PPB		GAMMA-BHC	< .003	PPB
TERBUTHYLAZINE	< .015	PPB		DIAZINON	< .005	PPB
FONOFOS	< .003	PPB		DELTA-BHC	< .002	PPB
CYPRAZINE	< .005	PPB		METRIBUZIN	< .006	PPB
METHYL PARATHION	< .006	PPB		ALACHLOR	< .006	PPB
AMETRYN	< .011	PPB		PROMETRYN	< .005	PPB
HEPTACHLOR	< .001	PPB		TERBUTRYN	< .020	PPB
MALATHION	< .010	PPB		DIPROPETRYN	< .004	PPB
CHLORPYRIFOS	< .003	PPB		CYANAZINE	< .044	PPB
ALDRIN	< .003	PPB		PENDIMETHALIN	< .003	PPB
HEPTACHLOR EPOXIDE	< .003	PPB		ENDOSULFAN	< .042	PPB
P-P' DDE	< .001	PPB		DIELDRIN	< .006	PPB
ENDRIN	< .220	PPB		ENDOSULFAN II	< .073	PPB
P-P' DDD	< .001	PPB		P-P' DDT	< .002	PPB
HEXAZINONE	< .025	PPB		METHOXYCHLOR	< .002	PPB

APPENDIX

List Of Public Water Supply Wells

El Dorado Prototype

Well #11 - El Dorado Utilities Well #18
Well #25 - Faircrest Water Association Well #2
Well #27 - Johnson Township Water Association Well #1

Pine Bluff Prototype

Well #1 - Pine Bluff Arsenal Well #9
Well #5 - General Waterworks Corporation Well #22
Well #7 - Pine Bluff Arsenal Well #1
Well #8 - Pine Bluff Arsenal Well #3
Well #10 - General Waterworks Corporation Well #20
Well #11 - General Waterworks Corporation Well #15
Well #12 - General Waterworks Corporation Well #19

Lonoke Prototype

Well #14 - Lonoke Waterworks Well #2