

VI. DESIGN CURVES

SYSTEM CURVE CALCULATIONS 1. SINGLE PUMP OPERATION

Q (GPM)	DIP DYNAMIC HEAD (FT)	V (FPS)	PE DYNAMIC HEAD (FT)	V (FPS)	PVC DYNAMIC HEAD (FT)	V (FPS)	TOTAL DYNAMIC HEAD (FT)	STATIC HEAD (FT)	TOTAL HEAD (FT)
2500	1.1	7.26	12.0	7.26	7.0	1.16	20.0	39.0	59.0
2600	1.1	7.55	12.9	7.55	7.5	1.21	21.6	39.0	60.6
2700	1.2	7.84	13.9	7.84	8.0	1.25	23.1	39.0	62.1
2800	1.3	8.13	14.8	8.13	8.6	1.30	24.7	39.0	63.7
2900	1.4	8.42	15.8	8.42	9.2	1.35	26.4	39.0	65.4
3000	1.5	8.71	16.9	8.71	9.8	1.39	28.1	39.0	67.1
3100	1.6	9.00	17.9	9.00	10.4	1.44	29.9	39.0	68.9
3200	1.7	9.29	19.0	9.29	11.0	1.49	31.7	39.0	70.7
3300	1.8	9.58	20.1	9.58	11.7	1.53	33.5	39.0	72.5
3400	1.9	9.87	21.2	9.87	12.3	1.58	35.4	39.0	74.4
3500	2.0	10.16	22.4	10.16	13.0	1.63	37.4	39.0	76.4
DESIGN POINT-	2083	6.05	8.6	6.05	5.0	0.97	14.3	39.0	53.3

II. DUPLEX PUMP OPERATION- SINGLE PUMP CURVE

Q (GPM) E.A. PUMP	DIP DYNAMIC HEAD (FT)	V (FPS)	PE * DYNAMIC HEAD (FT)	V (FPS)	PVC * DYNAMIC HEAD (FT)	V (FPS)	TOTAL DYNAMIC HEAD (FT)	STATIC HEAD (FT)	TOTAL HEAD (FT)
4800	3.5	13.93	145.3	27.87	84.2	4.46	233.0	39.0	272.0
4900	3.7	14.22	150.9	28.45	87.5	4.55	242.1	39.0	281.1
5000	3.8	14.51	156.7	29.03	90.8	4.64	251.3	39.0	290.3
5100	4.0	14.80	162.5	29.61	94.2	4.74	260.7	39.0	299.7
5200	4.1	15.10	168.5	30.19	97.6	4.83	270.2	39.0	309.2
5300	4.2	15.39	174.5	30.77	101.1	4.92	279.9	39.0	318.9
5400	4.4	15.68	180.7	31.35	104.7	5.02	289.8	39.0	328.8
5500	4.5	15.97	186.9	31.93	108.3	5.11	299.8	39.0	338.8
5600	4.7	16.26	193.3	32.51	112.0	5.20	310.0	39.0	349.0
5700	4.9	16.55	199.7	33.09	115.7	5.29	320.3	39.0	359.3
5900	5.2	17.13	212.9	34.25	123.4	5.48	341.4	39.0	380.4
DESIGN POINT-	2083	6.05	31.0	12.09	17.9	1.93	49.6	39.0	88.6

III. TRIPLEX PUMP OPERATION- SINGLE PUMP CURVE

EA PUMP	Q (GPM)	DIP		PE *		PVC *		V (FPS)	TOTAL DYNAMIC HEAD	STATIC HEAD (FT)	TOTAL HEAD (FT)
		DYNAMIC HEAD (FT)	V (FPS)	DYNAMIC HEAD (FT)	V (FPS)	DYNAMIC HEAD (FT)	V (FPS)				
	5900	5.2	17.13	212.9	34.25	123.4	5.48		341.4	39.0	380.4
	6000	5.3	17.42	219.6	34.83	127.3	5.57		352.2	39.0	391.2
	6100	5.5	17.71	226.4	35.42	131.2	5.67		363.2	39.0	402.2
	6200	5.7	18.00	233.4	36.00	135.2	5.76		374.3	39.0	413.3
	6300	5.8	18.29	240.4	36.58	139.3	5.85		385.5	39.0	424.5
	6400	6.0	18.58	247.5	37.16	143.4	5.95		397.0	39.0	436.0
	6500	6.2	18.87	254.7	37.74	147.6	6.04		408.5	39.0	447.5
	6600	6.4	19.16	262.0	38.32	151.8	6.13		420.2	39.0	459.2
	6700	6.6	19.45	269.4	38.90	156.1	6.22		432.1	39.0	471.1
	6800	6.7	19.74	276.9	39.48	160.5	6.32		444.1	39.0	483.1
	6900	6.9	20.03	284.5	40.06	164.9	6.41		456.3	39.0	495.3
DESIGN POINT-	2083	0.8	6.05	31.0	12.09	17.9	1.93		49.6	39.0	88.6

* - COMMON FORCE MAIN. FOR TWO PUMP OPERATION TOTAL FLOW APPROXIMATELY DOUBLED.

CONTRACT NUMBER: Franklin Farms Mega-Site
TITLE: Rayville Water
RECORD NUMBER:

CALCULATED BY- CLINTON C. PATRICK, E.I.
DATE- 20-Feb-13

TOTAL DYNAMIC & STATIC HEAD CALCULATIONS

I. PUMP STATION DESIGN FLOW DATA

A AVERAGE DAILY FLOW- (GPD)	1,000,000
B AVE. FLOW /1440- (GPM)	694.4
C PUMP RATE	2,083.3
D STORAGE CAP. (MIN)	6,944.4

300 %

10

II. ROUGHNESS COEFFICIENT

100 -C DIP 150 -C PVC
8 -ID DIP 24 -ID PVC

$f=0.2083/((100/C)^{1.85})^{1.85}*(Q^{1.852}/(D_{inside}^{4.8655}))$ EQ. 83 PVC PIPEHANDBOOK 2nd ED.

III. HEAD LOSS(FT)= f*PIPE LENGTH(R)/100

IV. EQUIVALENT LENGTHS - MINOR LOSSES

DIP(FT)	(Suction Piping)	DIP(FT)	(Discharge Piping)	PVC (FT)	(Common Force Main Piping)
1 90 DEG EL	9.8	1 REDUCING ELL	9.0	6 90 DEG EL	168.00
1 REDUCER	9.0	1 GATE VALV	2.7	2 GATE VALV	6.00
		1 CHCK VALV	74.0		
		1 TEE	20.0		
		1 90 DEG EL	9.8		
PIPE LENGTH	22.00	PIPE LENGTH	20.00	PIPE LENGTH	55,300
	40.80		126.50		55,474.00

V. STATIC HEAD

- A. HIGH POINT IN SYSTEM-
B. LOW POINT IN SYSTEM-

83.41 Elevation in Force Main
72.52 Low Elevation in Force Main

TOTAL STATIC HEAD

10.89

VI. DESIGN CURVES

SYSTEM CURVE CALCULATIONS 1. SINGLE PUMP OPERATION

Q (GPM)	DIP		PE		PVC		V (FPS)	TOTAL DYNAMIC HEAD	STATIC HEAD (FT)	TOTAL HEAD (FT)
	DYNAMIC HEAD (FT)	V (FPS)	DYNAMIC HEAD (FT)	V (FPS)	DYNAMIC HEAD (FT)	V (FPS)				
2500	6.7	16.33	20.9	16.33	20.6	1.81	48.3	10.9	59.1	
2600	7.2	16.98	22.5	16.98	22.2	1.89	51.9	10.9	62.8	
2700	7.8	17.64	24.1	17.64	23.8	1.96	55.6	10.9	66.5	
2800	8.3	18.29	25.8	18.29	25.5	2.03	59.5	10.9	70.4	
2900	8.9	18.94	27.5	18.94	27.2	2.10	63.5	10.9	74.4	
3000	9.4	19.59	29.3	19.59	28.9	2.18	67.6	10.9	78.5	
3100	10.0	20.25	31.1	20.25	30.7	2.25	71.9	10.9	82.8	
3200	10.6	20.90	33.0	20.90	32.6	2.32	76.2	10.9	87.1	
3300	11.3	21.55	34.9	21.55	34.5	2.39	80.7	10.9	91.6	
3400	11.9	22.21	36.9	22.21	36.5	2.47	85.3	10.9	96.2	
3500	12.6	22.86	38.9	22.86	38.5	2.54	90.0	10.9	100.9	
DESIGN POINT-										
	2100	4.9	13.72	15.1	13.72	14.9	1.52	34.9	10.9	45.8

CONTRACT NUMBER: Franklin Farms Mega-Site
TITLE: Rayville Water
RECORD NUMBER:

CALCULATED BY- CLINTON C. PATRICK, E.I.
DATE- 20-Feb-13

TOTAL DYNAMIC & STATIC HEAD CALCULATIONS

I. PUMP STATION DESIGN FLOW DATA
A. AVERAGE DAILY FLOW- (GPD) 2,000,000
B. AVE. FLOW /1440- (GPM) 1,388.9
C. PUMP RATE 300 % 4,166.7
D. STORAGE CAP. (MIN) 10 13,888.9

II. ROUGHNESS COEFFICIENT
100 =C DIP 150 =C PVC
12 "ID DIP 24 "ID PVC
 $f=0.2083((100/C)^{1.85})^{*}(Q^{*1.852})/(D_{inside}^{*4.8655})$ EQ. 83 PVC PIPEHANDBOOK 2nd ED.

III. HEAD LOSS(FT)= f*PIPE LENGTH(R)/100

IV. EQUIVALENT LENGTHS - MINOR LOSSES

DIP(FT)		(Suction Piping)		DIP(FT)		(Discharge Piping)		PVC (FT)		(Common Force Main Piping)	
1	90 DEG EL	15.0	15.00	1	REDUCING ELL	9.0	9.00	6	90 DEG EL	28.0	168.00
1	REDUCER	9.0	9.00	1	GATE VALV	2.9	2.90	2	GATE VALV	3.0	6.00
				1	CHCK VALV	120.0	120.00				
				1	TEE	30.0	30.00				
				1	90 DEG EL	15.0	15.00				
	PIPE LENGTH		22.00		PIPE LENGTH		20.00				55,300
			46.00				187.90				55,474.00

V. STATIC HEAD

- A. HIGH POINT IN SYSTEM-
B. LOW POINT IN SYSTEM-

83.41 Elevation in Force Main
72.52 Low Elevation in Force Main

TOTAL STATIC HEAD

10.89

VI. DESIGN CURVES

SYSTEM CURVE CALCULATIONS 1. SINGLE PUMP OPERATION

Q (GPM)	DIP DYNAMIC HEAD (FT)	V (FPS)	PE DYNAMIC HEAD (FT)	V (FPS)	PVC DYNAMIC I (FT)	V (FPS)	TOTAL DYNAMIC HEAD	STATIC HEAD (FT)	TOTAL HEAD (FT)
2500	1.1	7.26	4.3	7.26	20.6	1.81	26.0	10.9	36.9
2600	1.1	7.55	4.6	7.55	22.2	1.89	28.0	10.9	38.9
2700	1.2	7.84	5.0	7.84	23.8	1.96	30.0	10.9	40.9
2800	1.3	8.13	5.3	8.13	25.5	2.03	32.1	10.9	43.0
2900	1.4	8.42	5.7	8.42	27.2	2.10	34.2	10.9	45.1
3000	1.5	8.71	6.0	8.71	28.9	2.18	36.4	10.9	47.3
3100	1.6	9.00	6.4	9.00	30.7	2.25	38.7	10.9	49.6
3200	1.7	9.29	6.8	9.29	32.6	2.32	41.1	10.9	52.0
3300	1.8	9.58	7.2	9.58	34.5	2.39	43.5	10.9	54.4
3400	1.9	9.87	7.6	9.87	36.5	2.47	46.0	10.9	56.8
3500	2.0	10.16	8.0	10.16	38.5	2.54	48.5	10.9	59.4
DESIGN POINT-	2.8	12.19	11.3	12.19	53.9	3.05	68.0	10.9	78.9

CONTRACT NUMBER: Franklin Farms Mega-Site
TITLE: Rayville Water
RECORD NUMBER:

CALCULATED BY:- CLINTON C. PATRICK, E.I.
DATE- 20-Feb-13

TOTAL DYNAMIC & STATIC HEAD CALCULATIONS

I. PUMP STATION DESIGN FLOW DATA		
A AVERAGE DAILY FLOW- (GPD)		3,000,000
B AVE. FLOW /1440- (GPM)		2,083.3
C PUMP RATE	300 %	6,250.0
D STORAGE CAP. (MIN)	10	20,833.3

II. ROUGHNESS COEFFICIENT		
100 =C DIP	100 =C DIP	150 =C PVC
12 "=ID DIP	12 "=ID DIP	30 "ID PVC

$f=0.2083((100/C)^{1.85})^{1.85}/(Q^{1.852}/(D_{inside}^{4.8655}))$ EQ. 83 PVC PIPEHANDBOOK 2nd ED.

III. HEAD LOSS(Ft)= f*PIPE LENGTH(R)/100

IV. EQUIVALENT LENGTHS - MINOR LOSSES

DIP(FT)		(Suction Piping)		(Discharge Piping)		PVC (FT)		(Common Force Main Piping)	
1	90 DEG EL	15.0	15.00	2	REDUCING ELL	9.0	18.00	6	90 DEG EL
1	REDUCER	9.0	9.00	2	GATE VALV	2.9	5.80	2	GATE VALV
				2	CHCK VALV	120.0	240.00		
				2	TEE	30.0	60.00		
				2	90 DEG EL	15.0	30.00		
	PIPE LENGTH		22.00		PIPE LENGTH		20.00		55,300
			46.00				355.80		55,510.20

V. STATIC HEAD

- A. HIGH POINT IN SYSTEM-
B. LOW POINT IN SYSTEM-

83.41 Elevation in Force Main
72.52 Low Elevation in Force Main

TOTAL STATIC HEAD

10.89

VI. DESIGN CURVES

SYSTEM CURVE CALCULATIONS 1. SINGLE PUMP OPERATION

Q (GPM)	DIP DYNAMIC HEAD (FT)	V (FPS)	PE DYNAMIC HEAD (FT)	V (FPS)	PVC DYNAMIC HEAD (FT)	V (FPS)	TOTAL DYNAMIC HEAD (FT)	STATIC HEAD (FT)	TOTAL HEAD (FT)
2500	1.1	7.26	8.2	7.26	7.0	1.16	16.2	10.9	27.1
2600	1.1	7.55	8.8	7.55	7.5	1.21	17.4	10.9	28.3
2700	1.2	7.84	9.4	7.84	8.0	1.25	18.7	10.9	29.6
2800	1.3	8.13	10.1	8.13	8.6	1.30	20.0	10.9	30.9
2900	1.4	8.42	10.8	8.42	9.2	1.35	21.3	10.9	32.2
3000	1.5	8.71	11.4	8.71	9.8	1.39	22.7	10.9	33.6
3100	1.6	9.00	12.2	9.00	10.4	1.44	24.1	10.9	35.0
3200	1.7	9.29	12.9	9.29	11.0	1.49	25.6	10.9	36.5
3300	1.8	9.58	13.7	9.58	11.7	1.53	27.1	10.9	38.0
3400	1.9	9.87	14.4	9.87	12.3	1.58	28.6	10.9	39.5
3500	2.0	10.16	15.2	10.16	13.0	1.63	30.2	10.9	41.1
DESIGN POINT-	2083	6.05	5.8	6.05	5.0	0.97	11.6	10.9	22.4

1. IL DUPLIX PUMP OPERATION- SINGLE PUMP CURVE

Q (GPM)	DIP DYNAMIC HEAD (FT)	V (FPS)	PE DYNAMIC HEAD (FT)	V (FPS)	PVC DYNAMIC HEAD (FT)	V (FPS)	TOTAL DYNAMIC HEAD (FT)	STATIC HEAD (FT)	TOTAL HEAD (FT)
4800	3.5	13.93	98.7	27.87	84.2	4.46	186.5	10.9	197.4
4900	3.7	14.22	102.5	28.45	87.5	4.55	193.7	10.9	204.6
5000	3.8	14.51	106.4	29.03	90.9	4.64	201.1	10.9	212.0
5100	4.0	14.80	110.4	29.61	94.3	4.74	208.6	10.9	219.5
5200	4.1	15.10	114.5	30.19	97.7	4.83	216.3	10.9	227.2
5300	4.2	15.39	118.6	30.77	101.2	4.92	224.0	10.9	234.9
5400	4.4	15.68	122.8	31.35	104.8	5.02	231.9	10.9	242.8
5500	4.5	15.97	127.0	31.93	108.4	5.11	239.9	10.9	250.8
5600	4.7	16.26	131.3	32.51	112.1	5.20	248.1	10.9	259.0
5700	4.9	16.55	135.7	33.09	115.8	5.29	256.4	10.9	267.2
5900	5.2	17.13	144.6	34.25	123.4	5.48	273.3	10.9	284.2
DESIGN POINT-	2083	6.05	21.0	12.09	18.0	1.93	39.7	10.9	50.6

III. TRIPLEX PUMP OPERATION- SINGLE PUMP CURVE

EA, PUMP	Q (GPM)	DIP		PE *		PVC *		TOTAL DYNAMIC HEAD	STATIC HEAD (FT)	TOTAL HEAD (FT)
		DYNAMIC HEAD (FT)	V (FPS)	DYNAMIC HEAD (FT)	V (FPS)	DYNAMIC HEAD (FT)	V (FPS)			
	5900	5.2	17.13	144.6	34.25	123.4	5.48	273.3	10.9	284.2
	6000	5.3	17.42	149.2	34.83	127.4	5.57	281.9	10.9	292.8
	6100	5.5	17.71	153.8	35.42	131.3	5.67	290.7	10.9	301.6
	6200	5.7	18.00	158.5	36.00	135.3	5.76	299.5	10.9	310.4
	6300	5.8	18.29	163.3	36.58	139.4	5.85	308.6	10.9	319.4
	6400	6.0	18.58	168.1	37.16	143.5	5.95	317.7	10.9	328.6
	6500	6.2	18.87	173.0	37.74	147.7	6.04	326.9	10.9	337.8
	6600	6.4	19.16	178.0	38.32	151.9	6.13	336.3	10.9	347.2
	6700	6.6	19.45	183.0	38.90	156.2	6.22	345.8	10.9	356.7
	6800	6.7	19.74	188.1	39.48	160.6	6.32	355.4	10.9	366.3
	6900	6.9	20.03	193.3	40.06	165.0	6.41	365.2	10.9	376.1
DESIGN POINT-	2083	0.8	6.05	21.0	12.09	18.0	1.93	39.7	10.9	50.6

* - COMMON FORCE MAIN, FOR TWO PUMP OPERATION TOTAL FLOW APPROXIMATELY DOUBLED.

COCKFIELD AQUIFER SUMMARY, 2008

AQUIFER SAMPLING AND ASSESSMENT PROGRAM



APPENDIX 9 TO THE 2009 TRIENNIAL SUMMARY REPORT
PARTIAL FUNDING PROVIDED BY THE CWA

A S S E T
AQUIFER SAMPLING AND ASSESSMEN PROGRAM

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BACKGROUND

The Louisiana Department of Environmental Quality's (LDEQ) Aquifer Sampling and Assessment Program (ASSET) is an ambient monitoring program established to determine and monitor the quality of ground water produced from Louisiana's major freshwater aquifers. The ASSET Program samples approximately 200 water wells located in 14 aquifers and aquifer systems across the state. The sampling process is designed so that all fourteen aquifers and aquifer systems are monitored on a rotating basis, within a three-year period so that each well is monitored every three years.

In order to better assess the water quality of a particular aquifer, an attempt is made to sample all ASSET Program wells producing from it in a narrow time frame. To more conveniently and economically promulgate those data collected, a summary report on each aquifer is prepared separately. Collectively, these aquifer summaries will make up, in part, the ASSET Program's Triennial Summary Report for 2009.

Analytical and field data contained in this summary were collected from wells producing from the Cockfield aquifer, during the 2008 state fiscal year (July 1, 2007 - June 30, 2008). This summary will become Appendix 9 of ASSET Program Triennial Summary Report for 2009.

These data show that beginning in February and continuing through May of 2008, 14 wells were sampled which produce from the Cockfield aquifer. Nine of these fourteen are classified as public supply, 4 are classified as domestic use, and 1 is classified as irrigation well. The wells are located in 10 parishes in the northeast and north-central to western Louisiana.

Figure 9-1 shows the geographic locations of the Cockfield aquifer and the associated wells, whereas Table 9-1 lists the wells in the aquifer along with their total depths, use made of produced waters and date sampled.

Well data for registered water wells were obtained from the Louisiana Department of Transportation and Development's Water Well Registration Data file.

GEOLOGY

The Cockfield aquifer is within the Eocene Cockfield formation of the Claiborne Group, which consists of sands, silts, clays, and some lignite. The aquifer units consist of fine sand with interbedded silt, clay, and lignite, becoming more massive and containing less silt and clay with depth. Beneath the Ouachita River, the Cockfield aquifer has been eroded by the ancestral Ouachita River and replaced by alluvial sands and gravels. The regional confining clays of the overlying Vicksburg and Jackson Groups confine the Cockfield.

HYDROGEOLOGY

In the Mississippi River valley, the Cockfield is overlain by and hydraulically connected to the alluvial aquifers. Recharge to the Cockfield aquifer occurs primarily by the direct infiltration of rainfall in interstream, upland outcrop-subcrop areas, the movement of water through the alluvial

and terrace deposits, and vertical leakage from the underlying Sparta aquifer. The Cockfield contains fresh water in north-central and northeast Louisiana in a narrowing diagonal band extending toward Sabine Parish. Saltwater ridges under the Red River valley and the eastern Ouachita River valley divide areas containing fresh water in the Cockfield aquifer. The hydraulic conductivity varies between 25 and 100 feet/day.

The maximum depths of occurrence of freshwater in the Cockfield range from 200 feet above sea level, to 2,150 feet below sea level. The range of thickness of the fresh water interval in the Cockfield is 50 to 600 feet. The depths of the Cockfield wells that were monitored in conjunction with the ASSET Program range from 70 to 445 feet.

PROGRAM PARAMETERS

The field parameters checked at each ASSET well sampling site and the list of conventional parameters analyzed in the laboratory are shown in Table 9-2. The inorganic (total metals) parameters analyzed in the laboratory are listed in Table 9-3. These tables also show the field and analytical results determined for each analyte. For quality control, duplicate samples were taken for each parameter at wells CA-35, RI-127, W-198, W-5120Z, and WC-187.

In addition to the field, conventional, and inorganic analytical parameters, the target analyte list includes three other categories of compounds: volatiles, semi-volatiles, and pesticides/PCBs. Due to the large number of analytes in these categories, tables were not prepared showing the analytical results for these compounds. A discussion of any detections from any of these three categories, if necessary, can be found in their respective sections. Tables 9-8, 9-9 and 9-10 list the target analytes for volatiles, semi-volatiles and pesticides/PCBs, respectively.

Tables 9-4 and 9-5 provide a statistical overview of field and conventional data, and inorganic data for the Cockfield aquifer, listing the minimum, maximum, and average results for these parameters collected in the FY 2008 sampling. Tables 9-6 and 9-7 compare these same parameter averages to historical ASSET-derived data for the Cockfield aquifer, from fiscal years 1996, 1999, 2002, and 2005.

The average values listed in the above referenced tables are determined using all valid, reported results, including non-detects. Per Departmental policy concerning statistical analysis, one-half of the detection limit (DL) is used in place of zero when non-detects are encountered. However, the minimum value is reported as less than the DL, not one-half the DL. If all values for a particular analyte are reported as non-detect, then the minimum, maximum, and average values are all reported as less than the DL. For contouring purposes, one-half the DL is also used for non-detects in the figures and charts referenced below.

Figures 9-2, 9-3, 9-4, and 9-5, respectively, represent the contoured data for pH, total dissolved solids (TDS), chloride (Cl), and iron. Charts 9-1 through 9-16 represent the trend of the graphed parameter, based on the averaged value of that parameter for each three-year reporting period. Discussion of historical data and related trends is found in the **Water Quality Trends and Comparison to Historical ASSET Data** section.

INTERPRETATION OF DATA

Under the Federal Safe Drinking Water Act, EPA has established maximum contaminant levels (MCLs) for pollutants that may pose a health risk in public drinking water. An MCL is the highest level of a contaminant that EPA allows in public drinking water. MCLs ensure that drinking water does not pose either a short-term or long-term health risk. While not all wells sampled were public supply wells, the Office of Environmental Assessment does use the MCLs as a benchmark for further evaluation.

EPA has set secondary standards, which are defined as non-enforceable taste, odor, or appearance guidelines. Field and laboratory data contained in Tables 9-2 and 9-3 show that one or more secondary MCLs (SMCLs) were exceeded in 12 of the 14 wells sampled in the Cockfield aquifer, with a total of 22 SMCLs being exceeded.

Field and Conventional Parameters

Table 9-2 shows the field and conventional parameters for which samples are collected at each well and the analytical results for those parameters. Table 9-4 provides an overview of this data for the Cockfield aquifer, listing the minimum, maximum, and average results for these parameters.

Federal Primary Drinking Water Standards: A review of the analysis listed in Table 9-2 shows that no primary MCL was exceeded for field or conventional parameters for this reporting period. Those ASSET wells reporting turbidity levels greater than 1.0 NTU do not exceed the Primary MCL of 1.0, as this standard applies to public supply water wells that are under the direct influence of surface water. The Louisiana Department of Health and Hospitals has determined that no public water supply well in Louisiana was in this category.

Federal Secondary Drinking Water Standards: A review of the analysis listed in Table 9-2 shows that 5 wells exceeded the SMCL for pH, 4 wells exceeded the SMCL for color, and 6 wells exceeded the SMCL for total dissolved solids (TDS). Laboratory results override field results in exceedance determination, thus only laboratory results will be counted in determining SMCL exceedance numbers for TDS. Following is a list of SMCL parameter exceedances with well number and results:

pH (SMCL = 6.5 – 8.5 Standard Units):

NA-5449Z	8.91 SU	UN-167	4.93 SU
W-192	8.95 SU	W-198	8.60 SU (Original and Duplicate)
W-5120Z	5.52 SU (Original and Duplicate)		

Color (SMCL = 15 color units (PCU)):

NA-5449Z	42 PCU	SA-BYRD	40 PCU
W-192	22 PCU	W-198	30 PCU (Original and Duplicate)
(4 wells did not report a result for Color)			

Total Dissolved Solids (SMCL = 500 mg/L or 0.5 g/L):

	LAB RESULTS (in mg/L)	FIELD MEASURES (in g/L)
NA-5449Z	552 mg/L	0.57 g/L
RI-127	526 mg/L, Duplicate – 528 mg/L	0.57 g/L (Original and Duplicate)
SA-BYRD	748 mg/L	0.79 g/L
W-192	572 mg/L	0.59 g/L
W-187	678 mg/L, Duplicate – 688 mg/L	0.77 g/L (Original and Duplicate)
WC-487	544 mg/L	0.59 g/L

Inorganic Parameters

Table 9-3 shows the inorganic (total metals) parameters for which samples are collected at each well and the analytical results for those parameters. Table 9-5 provides an overview of inorganic data for the Cockfield aquifer, listing the minimum, maximum, and average results for these parameters.

Federal Primary Drinking Water Standards: A review of the analyses listed on Table 9-3 shows that no primary MCL was exceeded for total metals.

Federal Secondary Drinking Water Standards: Laboratory data contained in Table 9-3 shows that 7 wells exceeded the secondary MCL for iron:

Iron (SMCL = 300 ug/L):

CA-35	6,420 ug/L, Duplicate – 6,400 ug/L	MO-479	2,150 ug/L
RI-450	1,950 ug/L	SA-BYRD	698 ug/L
UN-167	5,240 ug/L	WC-187	536 ug/L, Duplicate – 541 ug/L
WC-487	747 ug/L		

Volatile Organic Compounds

Table 9-8 shows the volatile organic compound (VOC) parameters for which samples are collected at each well. Due to the number of analytes in this category, analytical results are not tabulated; however, any detection of a VOC would be discussed in this section.

Natchitoches Parish domestic well number NA-5449Z reported detections of methylene chloride and toluene in the March 2008 sampling of the Cockfield aquifer. These compounds were reported at 11.1 ug/L for methylene chloride (MCL for methylene chloride is 5 ug/L) and 3.0 ug/L for toluene (MCL for toluene is 1,000 ug/L). Per ASSET Program standard procedures, the well was resampled (along with a duplicate sample) for VOCs in May 2008. This resampling confirmed the existence of methylene chloride, reporting results of 7.02/2.83 ug/L (resample/duplicate). However, toluene was detected in the original resample at 2.68 ug/L, but was not detected in the duplicate (detection limit for toluene is 2 ug/L).

Because the existence of methylene chloride was confirmed in the resample (and duplicate), and because the reported level of methylene chloride was above the EPA established MCL, this information was forwarded to the Remediation Services Division (formerly known as the Technology Division) within DEQ for further investigation. Even though this well is not used by the owner as a source of drinking water, the well owner was provided information concerning the health effects of these compounds and possible treatment techniques.

In addition to the VOCs discussed above, tetrachloroethene was detected in a Sabine Parish domestic well. Well number SA-BYRD reported tetrachloroethene in this well at just below the drinking water standard for this compound. Laboratory result for tetrachloroethene was 4.41 ug/L (MCL = 5.0 ug/L).

Close attention will be given to these wells in future ASSET operations, as well as coordination with the well owners and the Remediation Services Division. No other wells reported detections of a VOC at or above its detection limit during the FY 2008 sampling of the Cockfield aquifer.

Semi-Volatile Organic Compounds

Table 9-9 shows the semi-volatile organic compound (SVOC) parameters for which samples are collected at each well. Due to the number of analytes in this category, analytical results are not tabulated; however, any detection of a SVOC would be discussed in this section.

No SVOC was detected at or above its detection limit during the FY 2008 sampling of the Cockfield aquifer.

Pesticides and PCBs

Table 9-10 shows the pesticide and PCB parameters for which samples are collected at each well. Due to the number of analytes in this category, analytical results are not tabulated; however, any detection of a pesticide or PCB would be discussed in this section.

No pesticide or PCB was detected at or above its detection limit during the FY 2008 sampling of the Cockfield aquifer.

WATER QUALITY TRENDS AND COMPARISON TO HISTORICAL ASSET DATA

Analytical and field data show that the quality and characteristics of ground water produced from the Cockfield aquifer exhibit some changes when comparing current data to that of the four previous sampling rotations (three, six, nine and twelve years prior). These comparisons can be found in Tables 9-6 and 9-7, and in Charts 9-1 to 9-16 of this summary. Over the twelve-year period, 8 analytes have shown a general increase in average concentration. These analytes are: pH, chloride, TDS, hardness, nitrite-nitrate, and to lesser degree, salinity, specific conductance (field and lab), and alkalinity. For this same time period, 7 analytes have demonstrated a decrease in average concentration: color, sulfate, ammonia, TKN, iron, copper, and to a lesser degree, total phosphorus (P). Barium and temperature remained consistent for this time period.

The current number of wells with secondary MCL exceedances and the current total number of secondary exceedances have increased since the previous sampling event in FY 2005. Current sample results show that 12 wells reported one or more secondary exceedances with a total of 22 SMCL exceedances. The FY 2005 sampling of the Cockfield aquifer shows that 11 wells reported one or more SMCL exceedances with a total of 17 exceedances.

Also, FY 2008 sampling results reported that one Primary MCL was exceeded in one well while there were no Primary exceedances in FY 2005.

SUMMARY AND RECOMMENDATIONS

In summary, the data show that the ground water produced from this aquifer is moderately hard¹ and that one MCL was exceeded for the volatile organic compound methylene chloride. The data also show that this aquifer is of fair quality when considering taste, odor, or appearance guidelines, with 22 Secondary MCLs exceeded in 12 of the 14 wells sampled.

Comparison to historical ASSET-derived data shows some change in the quality or characteristics of the Cockfield aquifer, with 8 parameters showing consistent increases in concentration, 7 parameters decreasing in concentration, while 2 parameters showed no consistent change over the twelve-year period.

It is recommended that the wells assigned to the Cockfield aquifer be re-sampled as planned, in approximately three years, with close attention given to the occurrence of VOCs in this aquifer. In addition, several wells should be added to the 14 currently in place to increase the well density for this aquifer.

¹ Classification based on hardness scale from: Peavy, H. S. et al. *Environmental Engineering*. New York: McGraw-Hill, 1985.

Table 9-1: List of Wells Sampled, Cockfield Aquifer–FY 2008

DOTD Well Number	Parish	Date	Owner	Depth (Feet)	Well Use
CA-35	CALDWELL	3/10/2008	CITY OF COLUMBIA	298	PUBLIC SUPPLY
EC-233	E CARROLL	2/12/2008	TOWN OF LAKE PROVIDENCE	371	PUBLIC SUPPLY
MO-479	MOREHOUSE	2/12/2008	BAYOU BONNE IDEE WATER SYSTEM	258	PUBLIC SUPPLY
NA-5449Z	NATCHITOCHES	3/11/2008	PRIVATE OWNER	170	DOMESTIC
OU-FRITH	OUACHITA	3/10/2008	PRIVATE OWNER	80	DOMESTIC
RI-127	RICHLAND	2/11/2008	DELHI WATER WORKS	416	PUBLIC SUPPLY
RI-450	RICHLAND	5/12/2008	RIVER ROAD WATERWORKS	283	PUBLIC SUPPLY
SA-BYRD	SABINE	3/25/2008	PRIVATE OWNER	150	DOMESTIC
UN-167	UNION	2/11/2008	PRIVATE OWNER	110	IRRIGATION
W-192	WINN	3/10/2008	RED HILL WATER SYSTEM	210	PUBLIC SUPPLY
W-198	WINN	3/25/2008	ATLANTA WATER SYSTEM	445	PUBLIC SUPPLY
W-5120Z	WINN	4/15/2008	PRIVATE OWNER	70	DOMESTIC
WC-187	W CARROLL	5/12/2008	NEW CARROLL WTR. ASSN.	110	PUBLIC SUPPLY
WC-487	W CARROLL	2/12/2008	TOWN OF OAK GROVE	396	PUBLIC SUPPLY

Table 9-2: Summary of Field and Conventional Data, Cockfield Aquifer–FY 2008

DOTD Well Number	Temp Deg. C	pH SU	Sp. Cond. mmhos/cm	Sal. ppt	TDS g/L	Alk mg/L	Cl mg/L	Color PCU	Sp. Cond. umhos/cm	SO4 mg/L	TDS mg/L	TSS mg/L	Turb. NTU	NH3 mg/L	Hard. mg/L	Nitrite- Nitrate (as N) mg/L	TKN mg/L	Tot. P mg/L
	LABORATORY DETECTION LIMITS →					2.0	1.3	5	10	1.25/1.3	4	4	1	0.1	5.0	0.05	0.10	0.05
	FIELD PARAMETERS																	
	LABORATORY PARAMETERS																	
CA-35	19.72	6.57	0.352	0.17	0.23	95.7	20	5	286	46.4	270	<4	1.5	0.16	116	<0.05	0.25	0.49
CA-35*	19.72	6.57	0.352	0.17	0.23	96.1	19.9	5	316	46.2	266	<4	2.1	0.17	112	<0.05	0.24	0.49
EC-233	19.63	7.74	0.811	0.40	0.53	407	42	NA	816	<1.25	492	<4	<1	1.09	128	<0.05	1.4	0.16
MO-479	19.36	7.21	0.708	0.35	0.46	320	43.1		712	12.3	424	6	27.4	0.33	345	<0.05	0.66	0.12
NA-5449Z	19.20	8.91	0.883	0.44	0.57	381	17.3	42	817	67.6	552	<4	1.4	0.69	6.9	<0.05	0.78	0.88
OU-FRITH	18.52	8.17	0.563	0.27	0.37	326	<1.25	5	496	<1.25	350	<4	<1	0.52	41.9	<0.05	0.7	<0.05
RI-127	22.05	7.97	0.874	0.43	0.57	380	67.6	NA	878	<1.25	526	<4	<1	0.75	7.4	<0.05	1.17	0.10
RI-127*	22.05	7.97	0.874	0.43	0.57	380	67.6		877	<1.25	528	<4	<1	0.85	7.2	<0.05	0.9	0.19
RI-450	20.15	7.15	0.495	0.24	0.32	258	11.2	<5	501	<1.25	288	<4	13	0.31	233	<0.05	0.41	0.28
SA-BYRD	19.11	8.17	1.221	0.61	0.79	435	50.4	40	1204	147	748	<4	3.6	0.95	45.9	0.07	1.28	0.2
UN-167	19.37	4.93	0.204	0.10	0.13	3.8	17.1	NA	200	27.9	151	<4	14.1	<0.1	9.7	17.7	<0.1	<0.05
W-192	19.90	8.95	0.913	0.45	0.59	361	60	22	879	35.3	572	<4	1.5	0.82	6.6	<0.05	0.96	0.49
W-198	21.96	8.60	0.418	0.20	0.27	204	11.2	30	393	2	252	<4	<1	0.25	<5	<0.05	0.26	1.69
W-198*	21.96	8.60	0.418	0.20	0.27	207	11	30	393	2	260	<4	<1	0.24	<5	<0.05	0.29	1.79
W-5120Z	19.18	5.52	0.035	0.02	0.02	8.3	2.1	<5	33	<1.25	28	<4	<1	<0.1	8.7	<0.05	<0.1	<0.05
W-5120Z*	19.18	5.52	0.035	0.02	0.02	8.4	2.1	<5	30.2	<1.25	28.7	<4	<1	<0.1	8.7	<0.05	<0.1	<0.05
WC-187	19.06	7.15	1.184	0.59	0.77	329	*189	<5	1200	13	678	<4	5	0.1	467	0.08	0.16	0.09
WC-187*	19.06	7.15	1.184	0.59	0.77	326	*189	<5	1201	13	688	<4	6	0.11	474	0.08	0.11	0.09
WC-487	19.01	7.43	0.906	0.45	0.59	365	102	NA	938	1.4	544	<4	4.1	0.2	104	<0.05	0.32	0.06

*Denotes Duplicate Sample †Estimated Value ‡Reported from a Dilution NA = Not analyzed by Lab. Shaded cells exceed EPA Secondary Standards

Table 9-3: Summary of Inorganic Data, Cockfield Aquifer–FY 2008

DOTD Well Number	Antimony ug/L	Arsenic ug/L	Barium ug/L	Beryllium ug/L	Cadmium ug/L	Chromium ug/L	Copper ug/L	Iron ug/L	Lead ug/L	Mercury ug/L	Nickel ug/L	Selenium ug/L	Silver ug/L	Thallium ug/L	Zinc ug/L
Laboratory Detection Limits	1	3	2	1	0.5	3	3	20	3	0.05	3	4	0.5	1	10
CA-35	<1	<3	141	<1	<0.5	<3	<3	6420	<3	0.26	<3	<4	<0.5	<1	26
CA-35*	<1	<3	141	<1	<0.5	<3	<3	6400	<3	0.05	<3	<4	<0.5	<1	17
EC-233	<1	<3	251	<1	<0.5	<3	<3	<20	<3	0.1	<3	<4	<0.5	<1	<10
MO-479	<1	<3	336	<1	<0.5	<3	<3	2150	<3	<0.05	<3	<4	<0.5	<1	<10
NA-5449Z	<1	<3	14.7	<1	<0.5	<3	9.9	143	<3	<0.05	<3	<4	<0.5	<1	<10
OU-FRITH	<1	<3	121	<1	<0.5	<3	<3	84.9	<3	0.05	<3	<4	<0.5	<1	<10
RI-127	<1	<3	34.7	<1	<0.5	<3	<3	58.9	<3	<0.05	<3	<4	<0.5	<1	<10
RI-127*	<1	<3	34.2	<1	<0.5	<3	<3	61.5	<3	0.19	<3	<4	<0.5	<1	<10
RI-450	<1	<3	167	<1	<0.5	<3	<3	1950	8	R	<3	<4	<0.5	<1	<10
SA-BYRD	<1	<3	50.6	<1	<0.5	<3	21.2	698	3.5	0.07	<3	<4	<0.5	<1	324
UN-167	<1	<3	318	<1	1.3	<3	10.4	5240	<3	0.13	7.6	<4	<0.5	<1	26.2
W-192	<1	<3	11.4	<1	<0.5	<3	<3	<20	<3	0.05	<3	<4	<0.5	<1	<10
W-198	<1	<3	3.8	<1	<0.5	<3	<3	38.3	<3	0.07	<3	<4	<0.5	<1	<10
W-198*	<1	<3	4.8	<1	<0.5	<3	<3	45.6	<3	0.07	<3	<4	<0.5	<1	<10
W-5120Z	<1	<3	15.8	<1	<0.5	<3	14.5	<20	<3	0.05	<3	<4	<0.5	<1	<10
W-5120Z*	<1	<3	15.7	<1	<0.5	<3	8.2	<20	<3	0.05	<3	<4	<0.5	<1	<10
WC-187	<1	5.1	170	<1	<0.5	<3	4.4	536	<3	R	<3	<4	<0.5	<1	<10
WC-187*	<1	4.4	167	<1	<0.5	<3	<3	541	<3	R	<3	<4	<0.5	<1	<10
WC-487	<1	<3	127	<1	<0.5	<3	10.4	747	<3	0.06	<3	<4	<0.5	<1	23.6

*Denotes Duplicate Sample.

Exceeds EPA Secondary Standards.

R = Mercury values rejected; mercury reported in Field Blank for the May 2008 sampling.

Table 9-4: FY 2008 Field and Conventional Statistics, ASSET Wells

	PARAMETER	MINIMUM	MAXIMUM	AVERAGE
FIELD	Temperature (°C)	18.52	22.05	19.90
	pH (SU)	4.93	8.95	7.38
	Specific Conductance (mmhos/cm)	0.035	1.221	0.65
	Salinity (ppt)	0.02	0.61	0.32
	TDS (g/L)	0.023	0.793	0.430
LABORATORY	Alkalinity (mg/L)	3.8	435	257.4
	Chloride (mg/L)	<1.25	189	48.6
	Color (PCU)	<5	42	14.7
	Specific Conductance (umhos/cm)	30.2	1204	640.5
	Sulfate (mg/L)	<1.25	147	22.0
	TDS (mg/L)	28	748	402.4
	TSS (mg/L)	<4	6	<4
	Turbidity (NTU)	<1	27.4	3.9
	Ammonia, as N (mg/L)	<0.1	1.09	0.40
	Hardness (mg/L)	<5	474	111.9
	Nitrite - Nitrate, as N (mg/L)	<0.05	7.70	0.44
	TKN (mg/L)	<0.1	1.4	0.53
	Total Phosphorus (mg/L)	<0.05	1.79	0.38

Table 9-5: FY 2008 Inorganic Statistics, ASSET Wells

PARAMETER	MINIMUM	MAXIMUM	AVERAGE
Antimony (ug/L)	<1	<1	<1
Arsenic (ug/L)	<3	5.1	<3
Barium (ug/L)	3.8	336	111.8
Beryllium (ug/L)	<1	<1	<1
Cadmium (ug/L)	<0.5	1.3	<0.5
Chromium (ug/L)	<3	<3	<3
Copper (ug/L)	<3	21.2	5.11
Iron (ug/L)	<20	6420	1323.9
Lead (ug/L)	<3	8	<3
Mercury (ug/L)	<0.05	0.26	0.08
Nickel (ug/L)	<3	7.6	<3
Selenium (ug/L)	<4	<4	<4
Silver (ug/L)	<0.5	0.5	<0.5
Thallium (ug/L)	<1	<1	<1
Zinc (ug/L)	<10	324	25.6

Table 9-6: Triennial Field and Conventional Statistics, ASSET Wells

	PARAMETER	FY 1996 AVERAGE	FY 1999 AVERAGE	FY 2002 AVERAGE	FY 2005 AVERAGE	FY 2008 AVERAGE
FIELD	Temperature (°C)	19.91	19.76	20.30	19.82	19.90
	pH (SU)	6.77	6.99	7.39	7.46	7.38
	Specific Conductance (mmhos/cm)	0.564	0.613	0.647	0.70	0.65
	Salinity (Sal.) (ppt)	0.27	0.30	0.32	0.35	0.32
	TDS (Total dissolved solids) (g/L)	-	-	-	0.46	0.430
LABORATORY	Alkalinity (Alk.) (mg/L)	219.2	223.9	262.4	293.7	257.4
	Chloride (Cl) (mg/L)	35.9	52.0	42.2	52.5	48.6
	Color (PCU)	37.5	11.8	11.9	11.0	14.7
	Specific Conductance (umhos/cm)	560.7	618.8	642.8	736.9	640.5
	Sulfate (SO ₄) (mg/L)	33.36	35.51	98.92	21.9	22.0
	TDS (Total dissolved solids) (mg/L)	320.3	429.7	396.0	437.8	402.4
	TSS (Total suspended solids) (mg/L)	5.3	<4	<4	<4	<4
	Turbidity (Turb.) (NTU)	7.14	9.74	4.71	5.4	3.9
	Ammonia, as N (NH ₃) (mg/L)	0.66	0.50	0.62	0.36	0.40
	Hardness (mg/L)	115.3	79.3	89.9	139.9	111.9
	Nitrite - Nitrate, as N (mg/L)	0.11	0.08	0.30	0.50	0.44
	TKN (mg/L)	0.80	0.71	0.94	0.47	0.53
	Total Phosphorus (P) (mg/L)	0.32	0.59	0.30	0.30	0.38

Table 9-7: Triennial Inorganic Statistics, ASSET Wells

PARAMETER	FY 1996 AVERAGE	FY 1999 AVERAGE	FY 2002 AVERAGE	FY 2005 AVERAGE	FY 2008 AVERAGE
Antimony (ug/L)	<5	<5	<5	<10	<1
Arsenic (ug/L)	5.43	<5	<5	<10	<3
Barium (ug/L)	121.3	124.5	140.9	161.9	111.8
Beryllium (ug/L)	<5	<5	<5	<1	<1
Cadmium (ug/L)	<5	<5	<5	<1	<0.5
Chromium (ug/L)	<5	<5	<5	<5	<3
Copper (ug/L)	39.62	5.86	11.77	8.34	5.11
Iron (ug/L)	1,835.8	1,623.2	1,319.5	1,084.1	1323.9
Lead (ug/L)	<10	<10	<10	<10	<3
Mercury (ug/L)	<0.05	<0.05	<0.05	<0.05	0.08
Nickel (ug/L)	<5	<5	<5	<5	<3
Selenium (ug/L)	<5	<5	<5	<5	<4
Silver (ug/L)	<5	<5	<5	4.72	<0.5
Thallium (ug/L)	<5	<5	<5	<5	<1
Zinc (ug/L)	117.5	34.1	30.7	<20	25.6

Table 9-8: VOC Analytical Parameters

COMPOUND	METHOD	DETECTION LIMIT (ug/L)
1,1-Dichloroethane	624	2
1,1-Dichloroethene	624	2
1,1,1-Trichloroethane	624	2
1,1,2-Trichloroethane	624	2
1,1,2,2-Tetrachloroethane	624	2
1,2-Dichlorobenzene	624	2
1,2-Dichloroethane	624	2
1,2-Dichloropropane	624	2
1,3- Dichlorobenzene	624	2
1,4-Dichlorobenzene	624	2
Benzene	624	2
Bromoform	624	2
Carbon tetrachloride	624	2
Chlorobenzene	624	2
Dibromochloromethane	624	2
Chloroethane	624	2
trans-1,2-Dichloroethene	624	2
cis-1,3-Dichloropropene	624	2
Bromodichloromethane	624	2
Methylene chloride	624	2
Ethyl benzene	624	2
Bromomethane	624	2
Chloromethane	624	2
o-Xylene	624	2
Styrene	624	2
Methylt-butyl ether	624	2
Tetrachloroethene	624	2
Toluene	624	2
trans-1,3-Dichloropropene	624	2
Trichloroethene	624	2
Trichlorofluoromethane	624	2
Chloroform	624	2
Vinyl chloride	624	2
Xylenes, m & p	624	4

Table 9-9: SVOC Analytical Parameters

COMPOUND	METHOD	DETECTION LIMIT (ug/L)
1,2-Dichlorobenzene	625	10
1,2,3-Trichlorobenzene	625	10
1,2,3,4-Tetrachlorobenzene	625	10
1,2,4-Trichlorobenzene	625	10
1,2,4,5-Tetrachlorobenzene	625	10
1,3-Dichlorobenzene	625	10
1,3,5-Trichlorobenzene	625	10
1,4-Dichlorobenzene	625	10
2-Chloronaphthalene	625	10
2-Chlorophenol	625	20
2-Methyl-4,6-dinitrophenol	625	20
2-Nitrophenol	625	20
2,4-Dichlorophenol	625	20
2,4-Dimethylphenol	625	20
2,4-Dinitrophenol	625	20
2,4-Dinitrotoluene	625	10
2,4,6-Trichlorophenol	625	20
2,6-Dinitrotoluene	625	10
3,3'-Dichlorobenzidine	625	10
4-Bromophenyl phenyl ether	625	10
4-Chloro-3-methylphenol	625	20
4-Chlorophenyl phenyl ether	625	10
4-Nitrophenol	625	20
Acenaphthene	625	10
Acenaphthylene	625	10
Anthracene	625	10
Benzidine	625	20
Benzo[a]pyrene	625	10
Benzo[k]fluoranthene	625	10
Benzo[a]anthracene	625	10
Benzo[b]fluoranthene	625	10
Benzo[g,h,i]perylene	625	10
Bis(2-chloroethoxy)methane	625	10
Bis(2-ethylhexyl)phthalate	625	10
Bis(2-chloroethyl)ether	625	10
Bis(2-chloroisopropyl)ether	625	10

Table 9-9: SVOCs (Continued)

COMPOUND	METHOD	DETECTION LIMIT (ug/L)
Butylbenzylphthalate	625	10
Chrysene	625	10
Dibenzo[a,h]anthracene	625	10
Diethylphthalate	625	10
Dimethylphthalate	625	10
Di-n-butylphthalate	625	10
Di-n-octylphthalate	625	10
Fluoranthene	625	10
Fluorene	625	10
Hexachlorobenzene	625	10
Hexachlorobutadiene	625	10
Hexachlorocyclopentadiene	625	10
Hexachloroethane	625	10
Indeno[1,2,3-cd]pyrene	625	10
Isophorone	625	10
Naphthalene	625	10
Nitrobenzene	625	10
N-Nitrosodimethylamine	625	10
N-Nitrosodiphenylamine	625	10
N-nitroso-di-n-propylamine	625	10
Pentachlorobenzene	625	10
Pentachlorophenol	625	20
Phenanthrene	625	10
Phenol	625	20
Pyrene	625	10

Table 9-10: Pesticides and PCBs

COMPOUND	METHOD	DETECTION LIMITS (ug/L)
4,4'-DDD	608	0.05
4,4'-DDE	608	0.05
4,4'-DDT	608	0.05
Aldrin	608	0.05
Alpha-Chlordane	608	0.05
alpha-BHC	608	0.05
beta-BHC	608	0.05
delta-BHC	608	0.05
gamma-BHC	608	0.05
Chlordane	608	0.2
Dieldrin	608	0.05
Endosulfan I	608	0.05
Endosulfan II	608	0.05
Endosulfan Sulfate	608	0.05
Endrin	608	0.05
Endrin Aldehyde	608	0.05
Endrin Ketone	608	0.05
Heptachlor	608	0.05
Heptachlor Epoxide	608	0.05
Methoxychlor	608	0.05
Toxaphene	608	2
Gamma-Chlordane	608	0.05
PCB-1016	608	1
PCB-1221	608	1
PCB-1232	608	1
PCB-1242	608	1
PCB-1248	608	1
PCB-1254	608	1
PCB-1260	608	1

Figure 9-1: Location Plat, Cockfield Aquifer

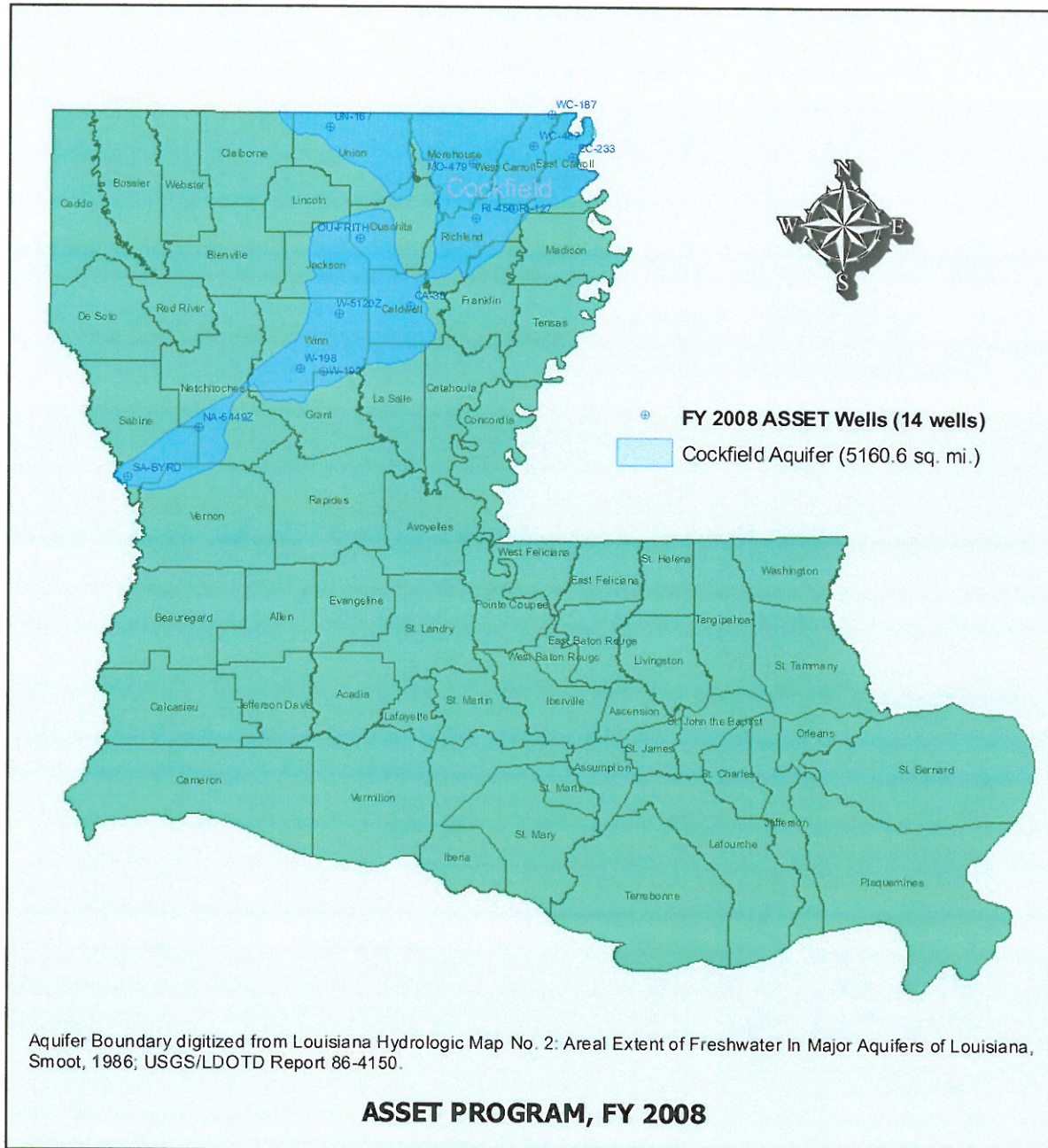


Figure 9-2: Map of pH Data

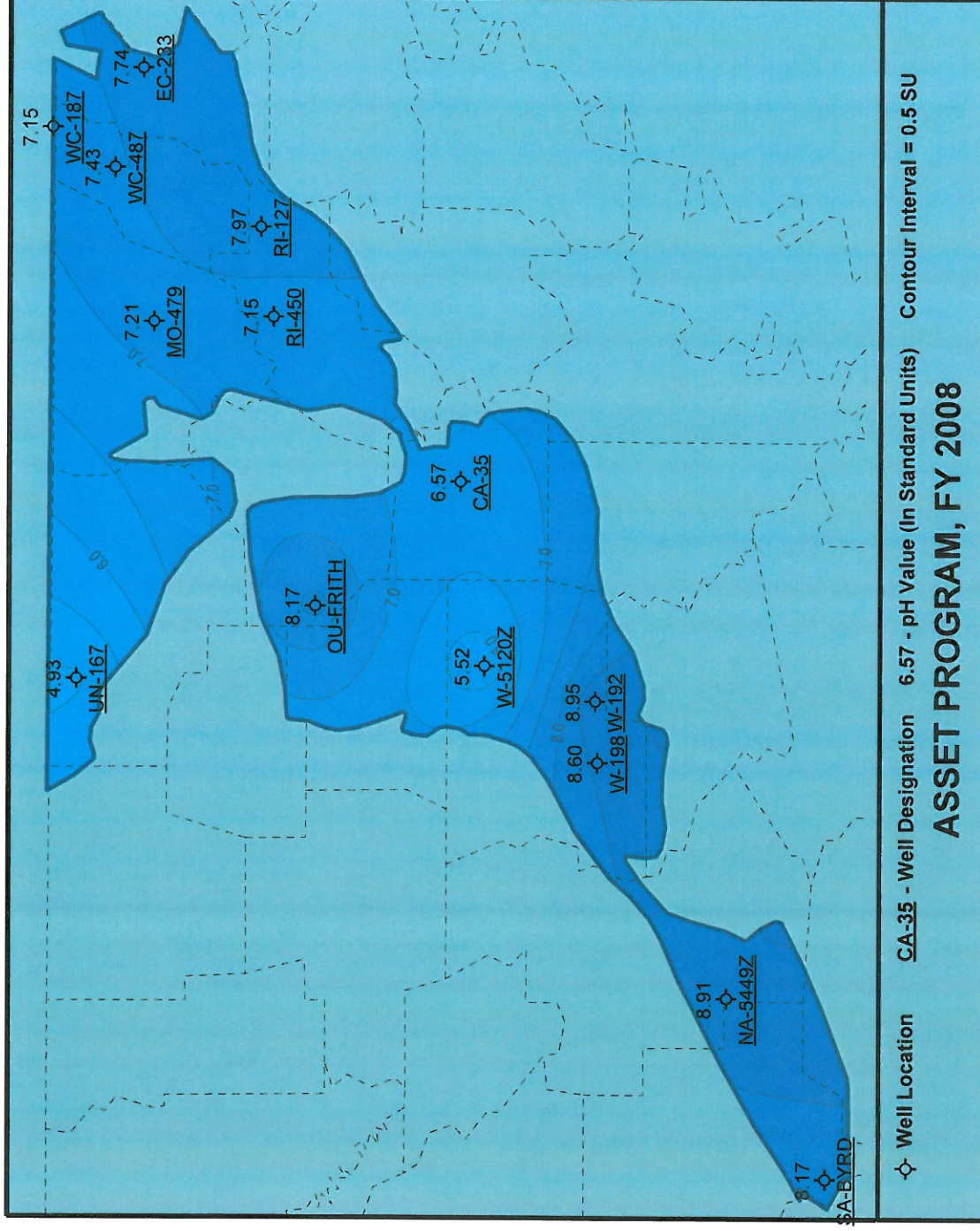


Figure 9-3: Map of TDS Lab Data

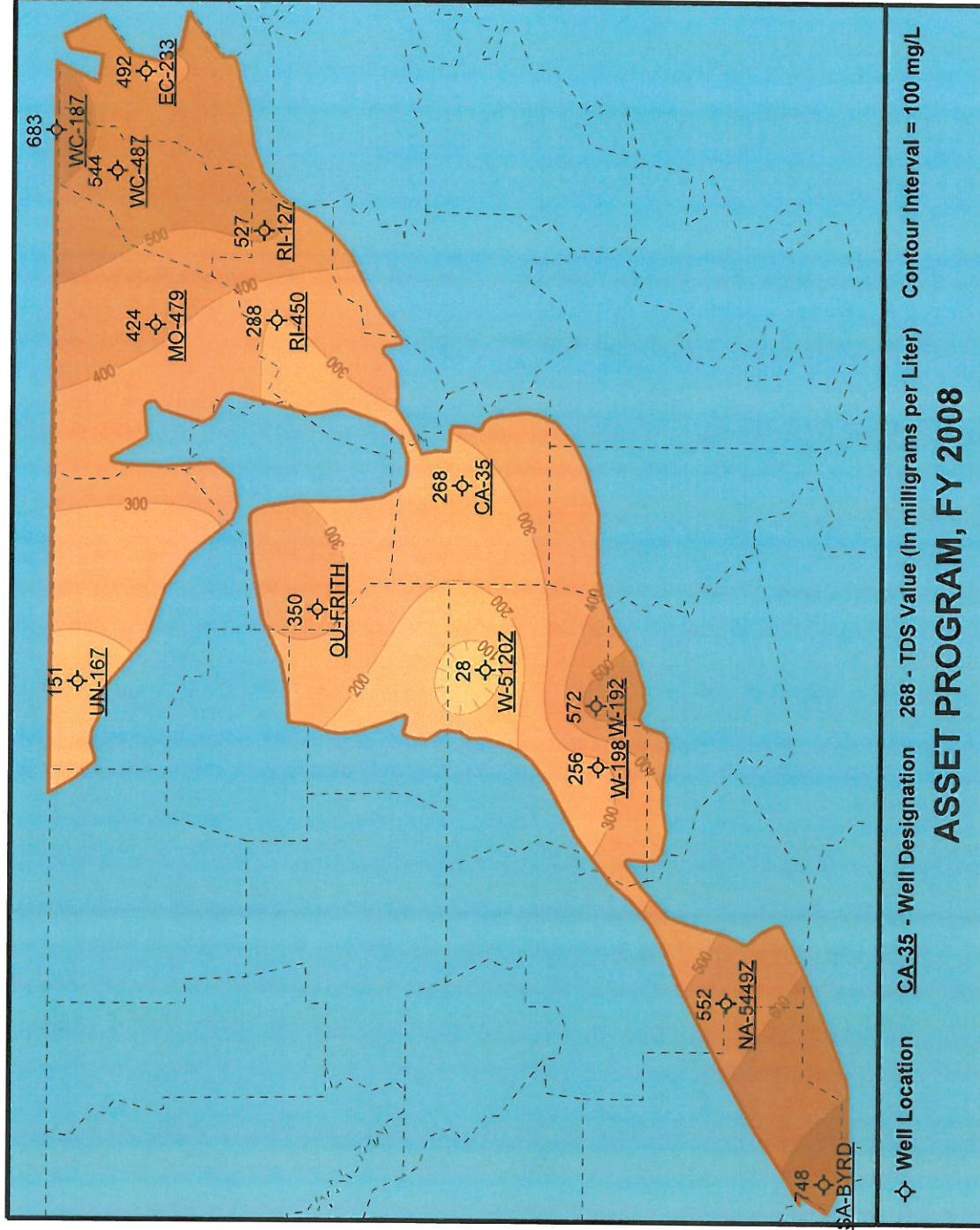


Figure 9-4: Map of Chloride Data

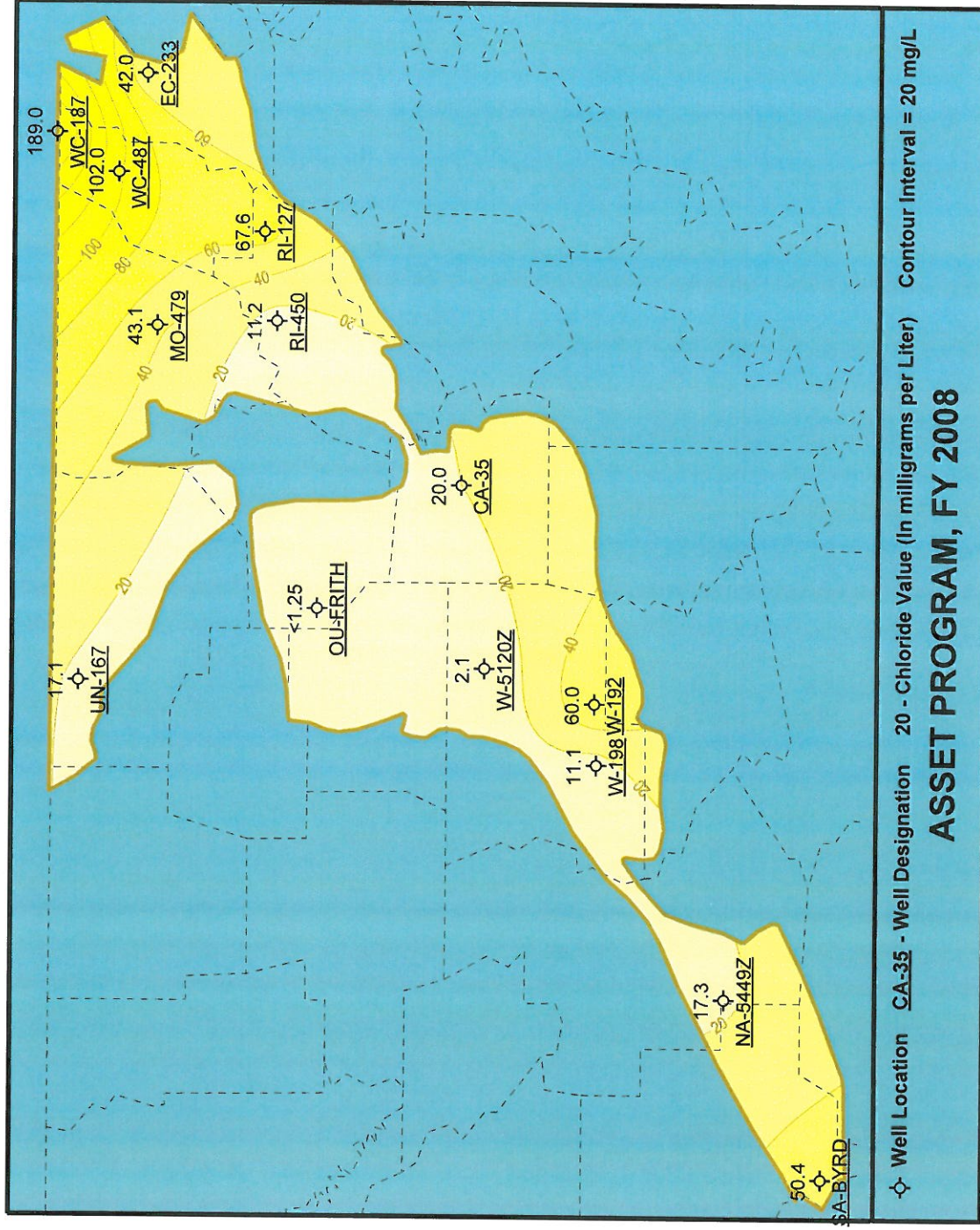


Figure 9-5: Map of Iron Data

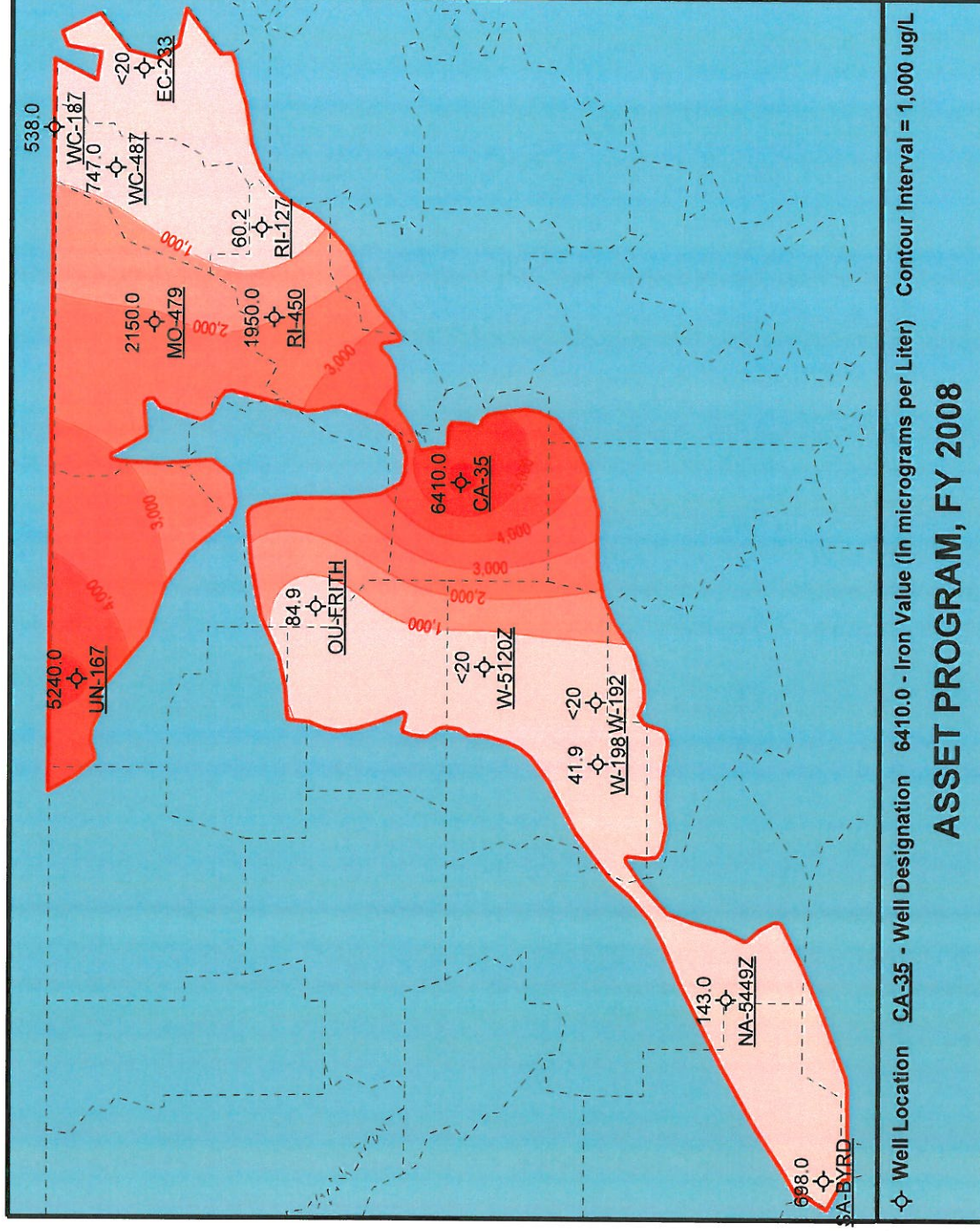


Chart 9-1: Temperature Trend

Average Field Temperature Trend for the Cockfield Aquifer

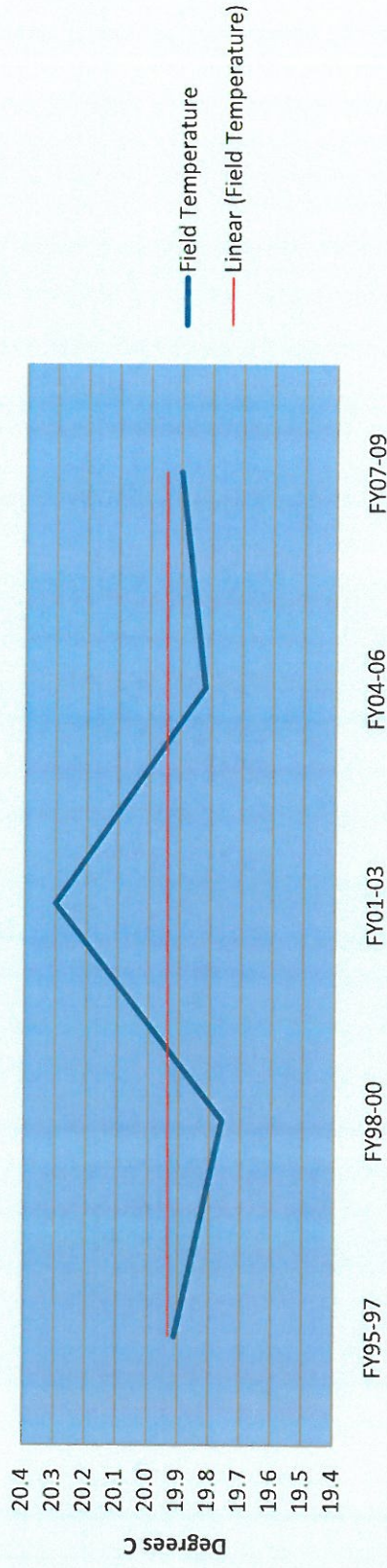


Chart 9-2: pH Trend

Average Field pH Trend of the Cockfield Aquifer

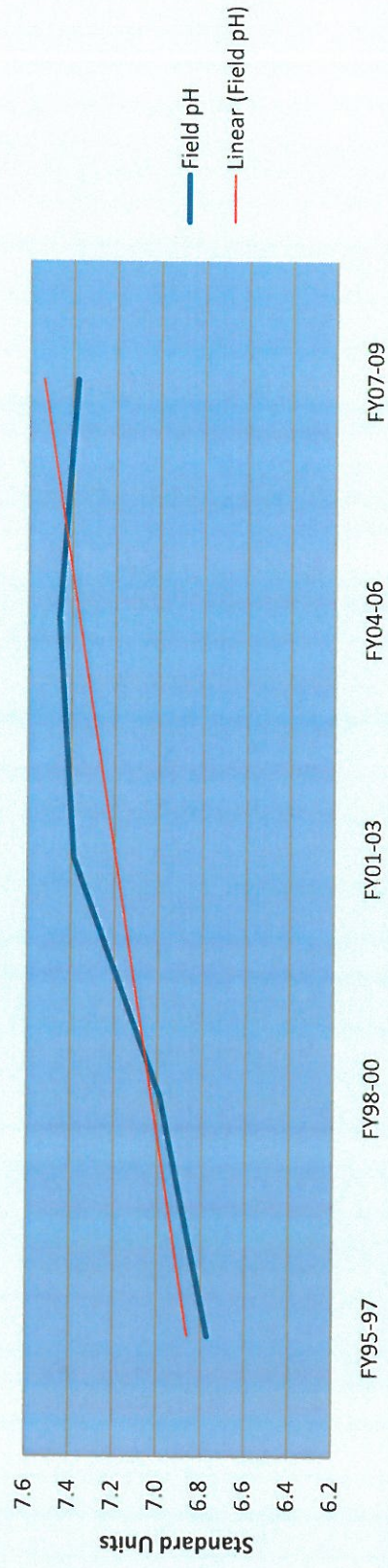


Chart 9-3: Field Specific Conductance Trend

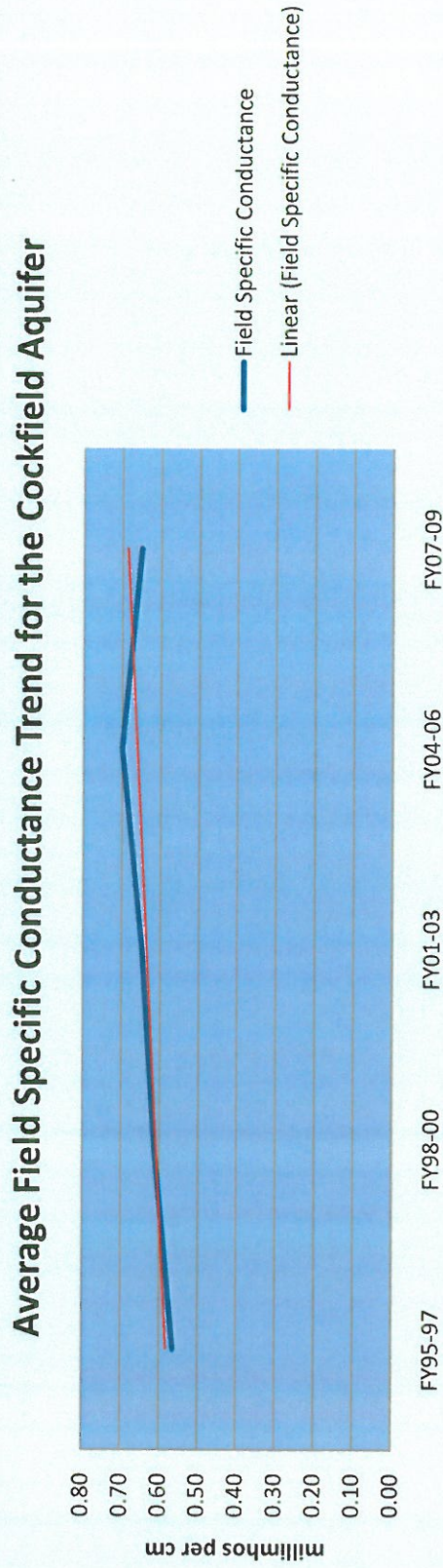


Chart 9-4: Lab Specific Conductance Trend

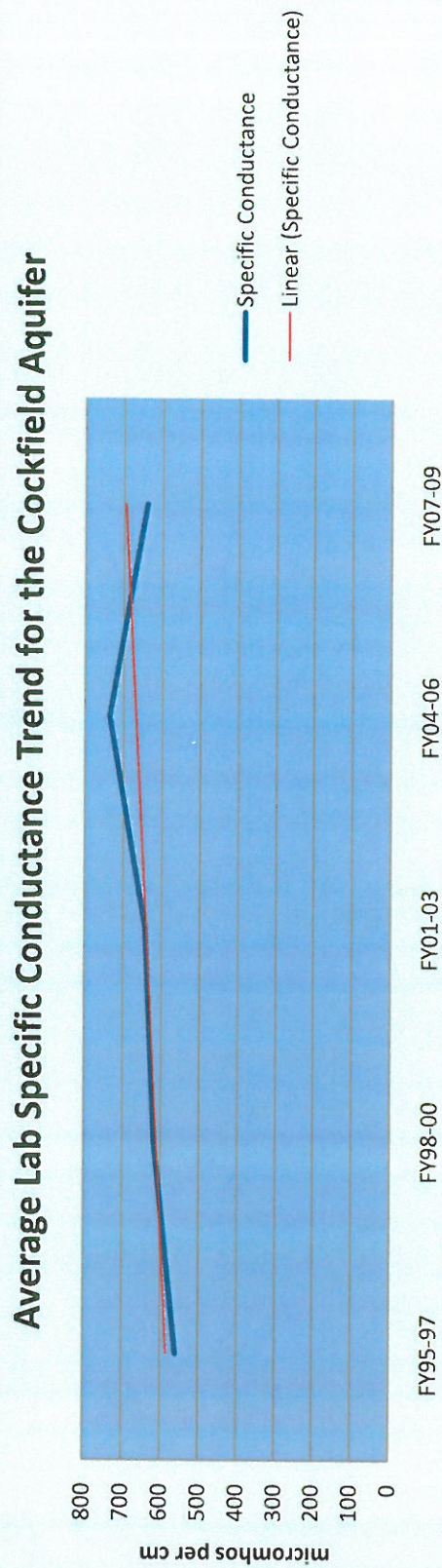


Chart 9-5: Field Salinity Trend

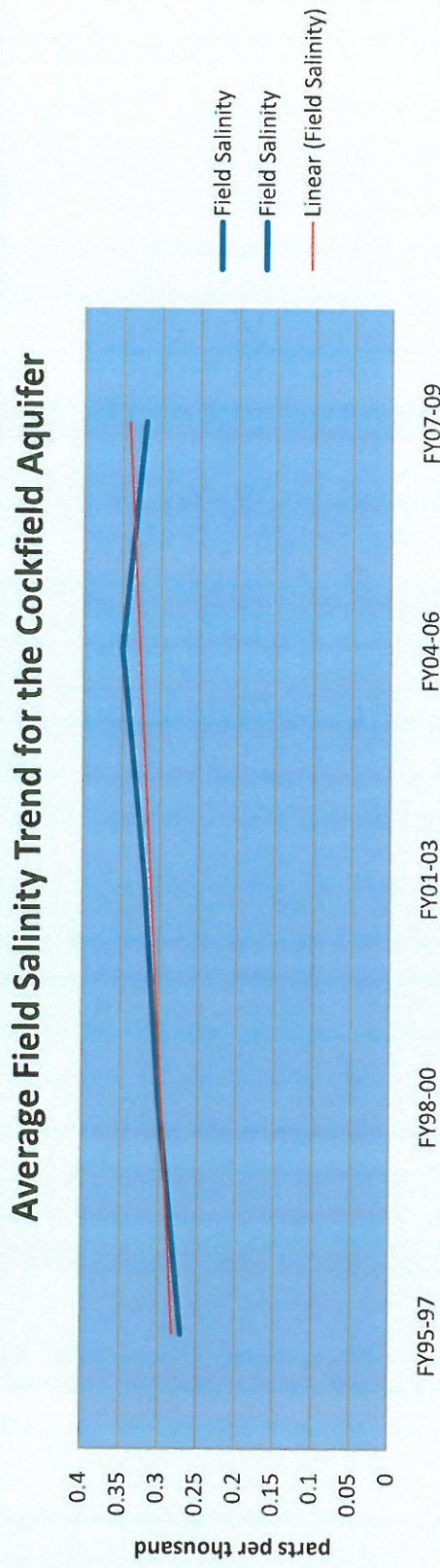


Chart 9-6: Alkalinity Trend

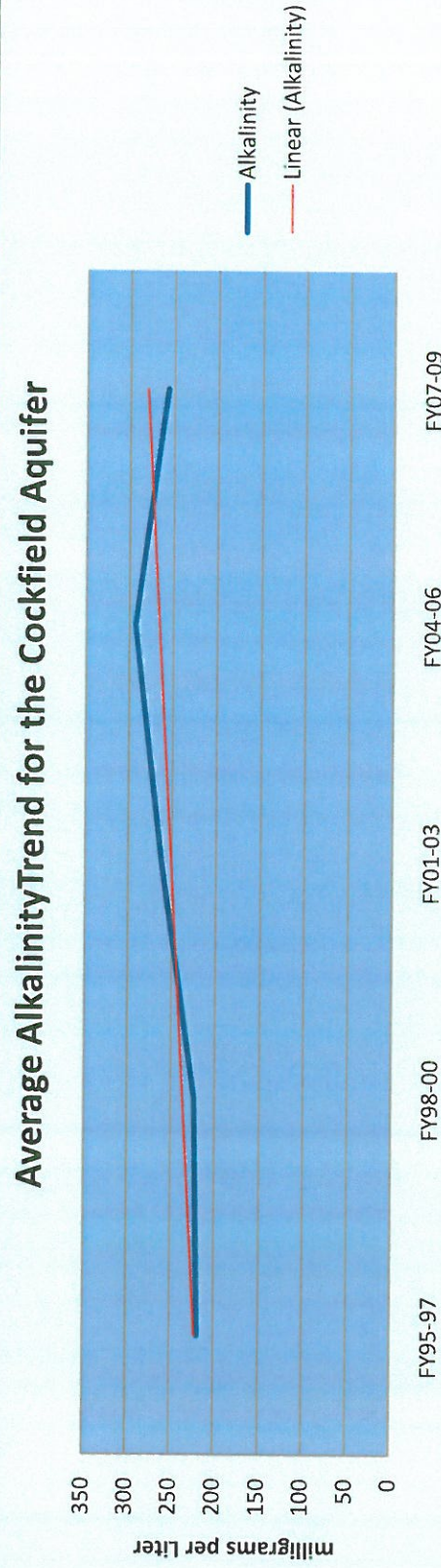


Chart 9-7: Chloride Trend

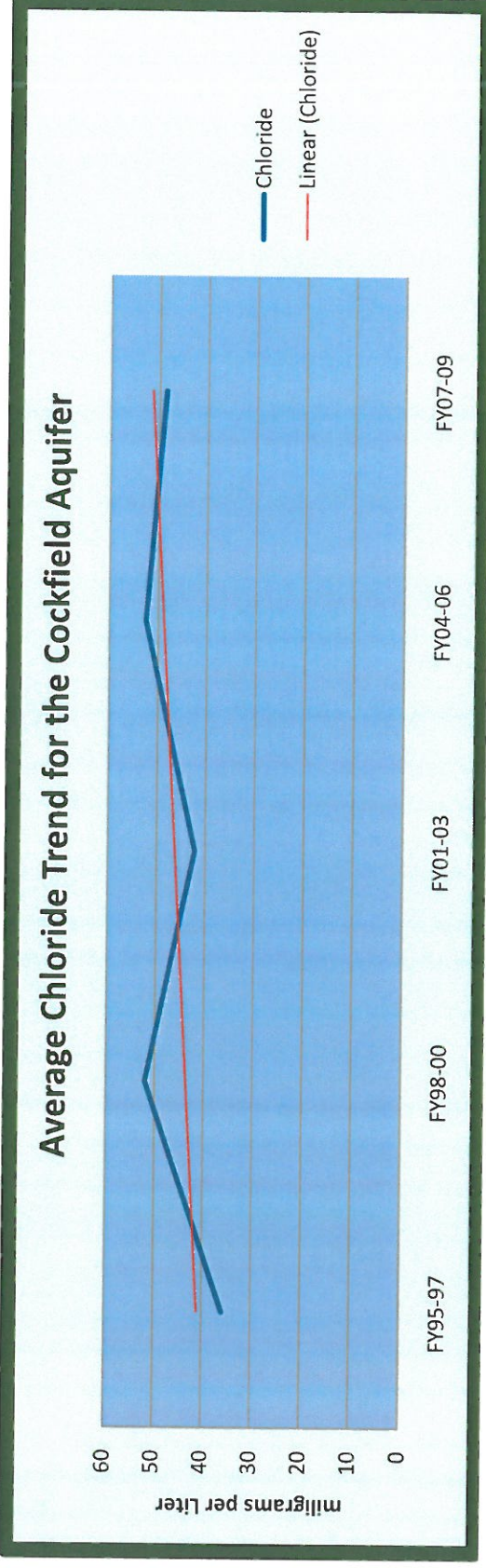


Chart 9-8: Color Trend

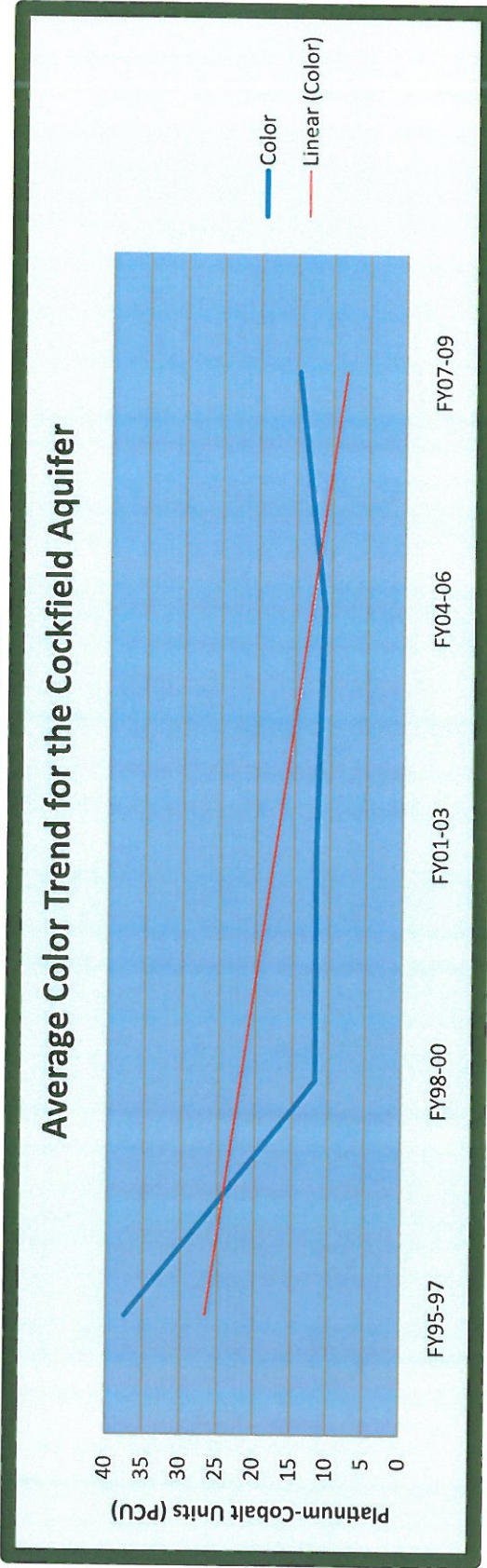


Chart 9-9: Sulfate (SO4) Trend

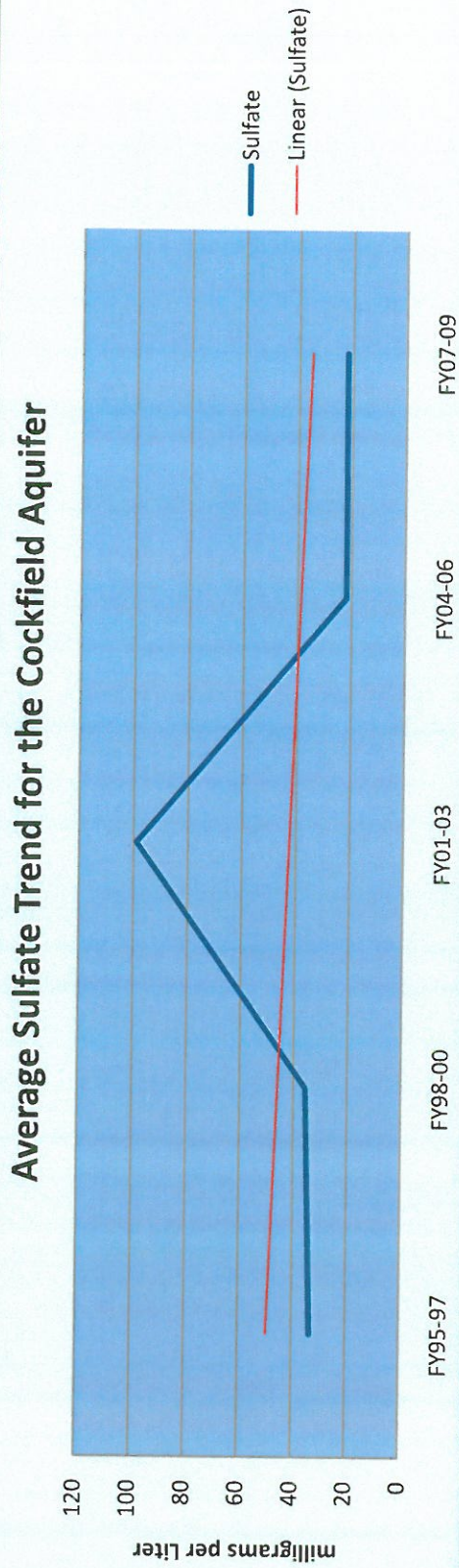


Chart 9-10: Total Dissolved Solids (TDS) Trend

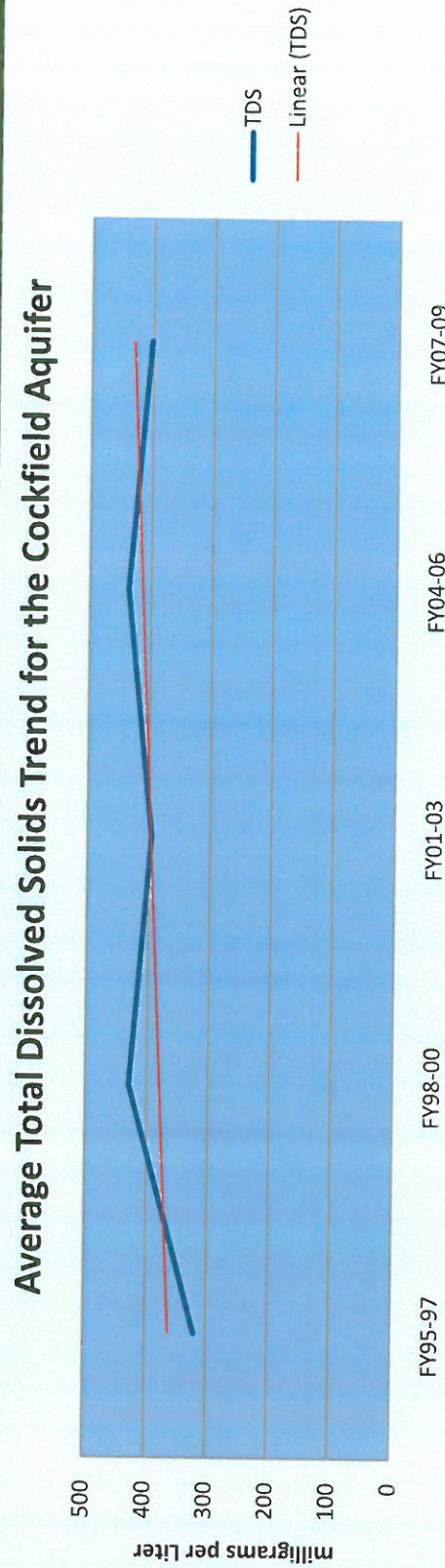


Chart 9-11: Ammonia (NH3) Trend

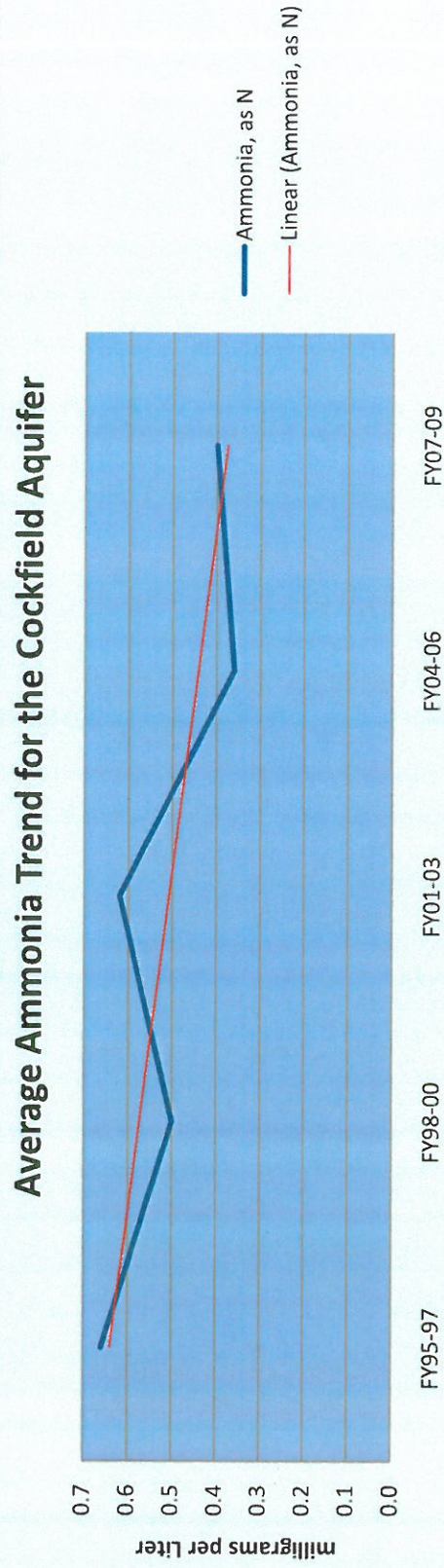


Chart 9-12: Hardness Trend

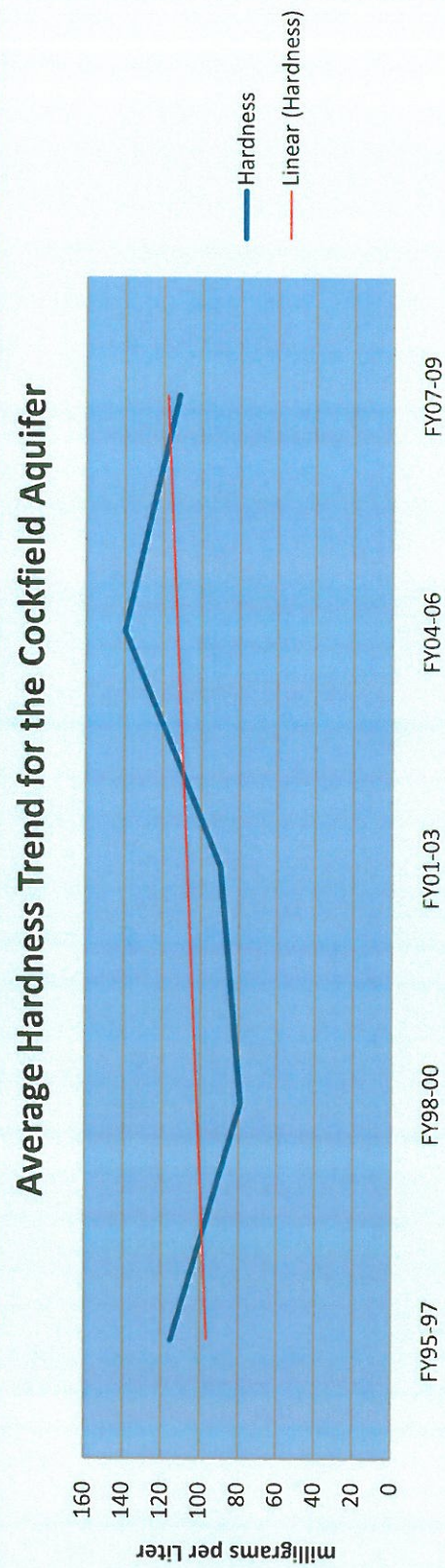


Chart 9-13: Nitrite – Nitrate Trend

Average Nitrite - Nitrate Trend for the Cockfield Aquifer

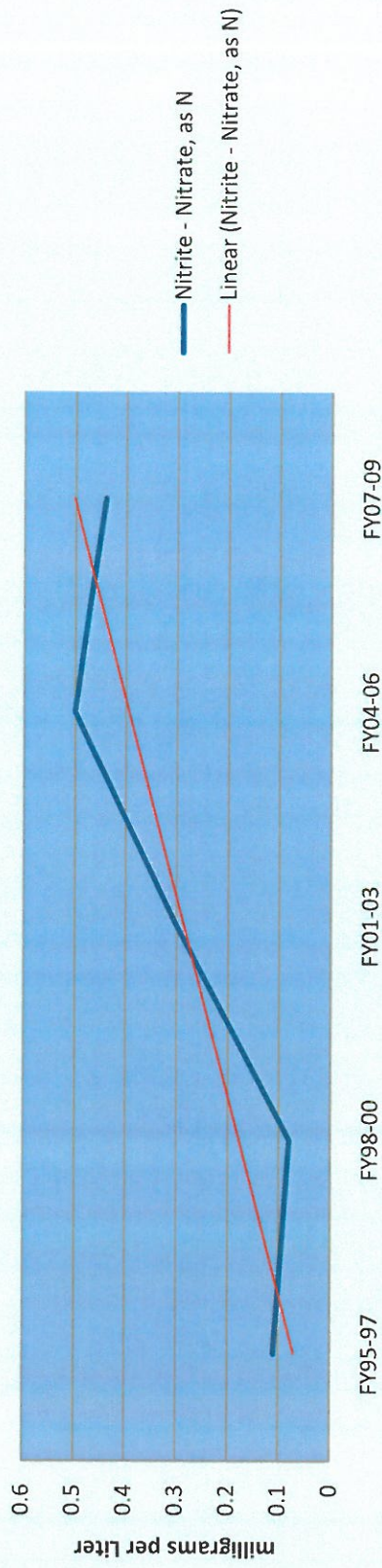


Chart 9-14: TKN Trend

Average TKN Trend for the Cockfield Aquifer

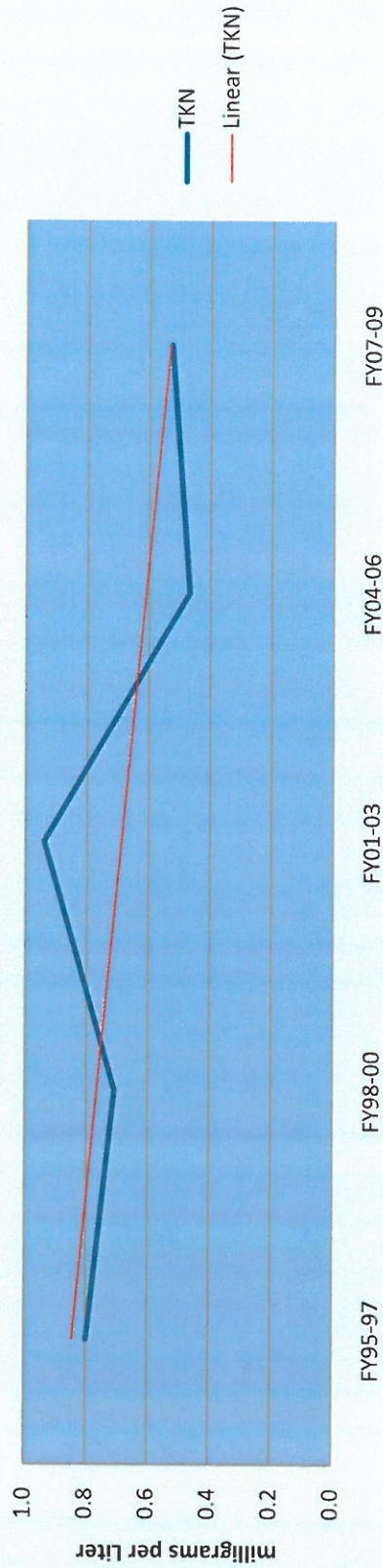


Chart 9-15: Total Phosphorus Trend

Average Total Phosphorus Trend for the Cockfield Aquifer

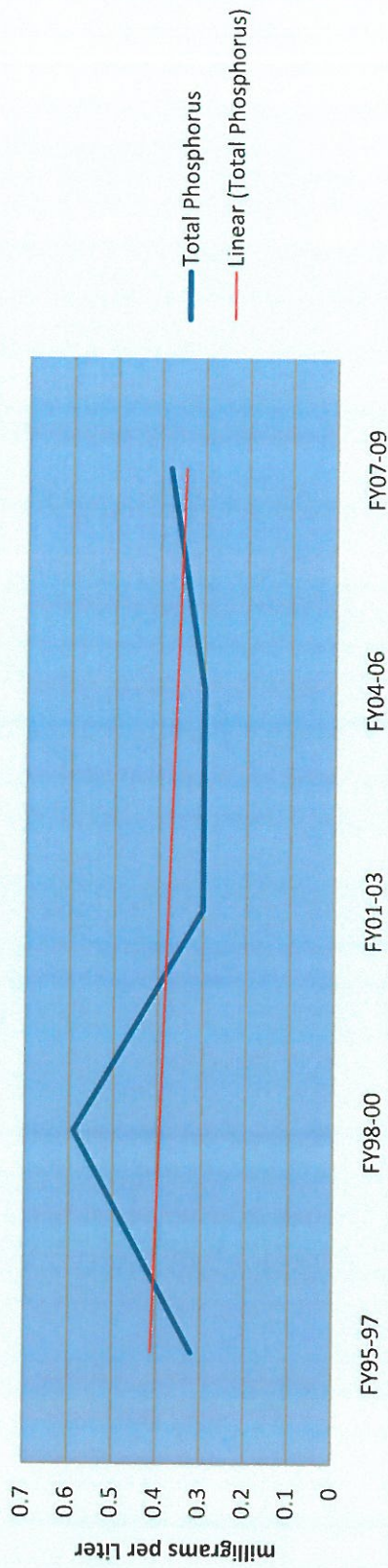


Chart 9-16: Iron Trend

Average Iron Trend for the Cockfield Aquifer

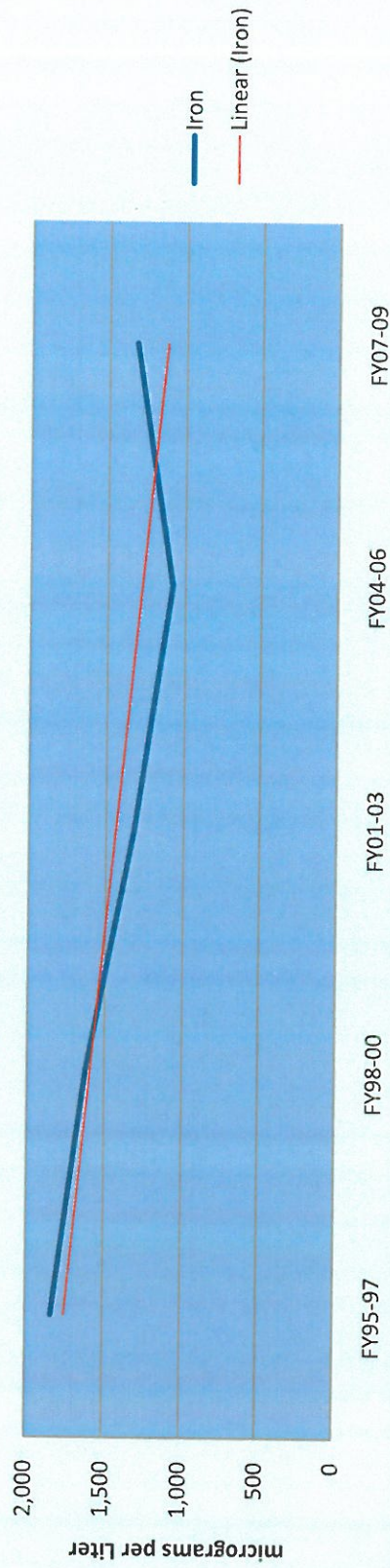


EXHIBIT 5 - LABORATORY RESULTS

UNIVERSITY OF LOUISIANA

MONROE

*QUALITY ASSURANCE / QUALITY CONTROL
SAMPLE CHECK LIST*

ULM CLIENT: DENMON ENGINEERING COMPANY

ULM SAMPLE NUMBERS: 11-2249, 2250

CONDITION CHECKED BY	KH
LOGGED IN BY	KH
PREPARED BY	
EXTRACTED BY	
ANALYZED BY	DHB,KM,TL,SW,KK
CALCULATIONS BY	DHB,KM,TL,SW,KK
QA/QC DATA CALCULATED BY	DHB,KM,TL,SW,KK
QA/QC DATA APPROVED BY	KK,TL
REPORT PREPARED BY	TL
REPORT APPROVED BY	TL
REPORT RELEASE DATE	11/15/11

UNIVERSITY OF LOUISIANA

MONROE

CERTIFICATE # 02018

REPORT OF ANALYSIS FOR DENMON ENGINEERING COMPANY

ULM LOG #: 11-2249
SAMPLE DATE: 11/09/11
DATE RECEIVED: 11/09/11
COLLECTED BY: Randy Denmon

SAMPLE TYPE: Water
SAMPLE TIME: 11:30:00
DATE REPORTED: 11/15/11
CLIENT ID: Franklin, Farm, Miss, All, South

REPORT TABLE:

ANALYSIS	TEST METHOD	RESULTS	REPORT UNITS
pH	SM 4500-H B	6.84	su
Conductivity	SM 2510B	1001	ummhos/cm
TS	SM 2540B 19 th	568	mg/l
TDS	SM 2540C 19 th	556	mg/l
TSS	SM 2540D 19 th	8	mg/l
Chloride	SM 4500-CL C 19 th	45	mg/l
Sulfate	SM 426C 15 th	110	mg/l
Nitrate	EPA 352.1	0.614	mg/l
Ammonia	SM 4500NH3D 19 th	0.34	mg/l
Alkalinity	SM 2320B 19 th	400	mg/l
Turbidity	SM 2130B 19 th	40	NTU's
Hardness	SM 2340B 19 th	415	mg/l
Color	SM 2120B 19 th	105	CPU's
COD	EPA 410.4	ND	mg/l
Oil & Grease	EPA 1664 A	ND	mg/l
Arsenic	SM 3113B 19 th	0.0043	mg/l
Selenium	SM 3113B 19 th	ND	mg/l
Mercury	EPA 245.1	ND	mg/l
Aluminum	EPA 200.7	0.05	mg/l
Barium	EPA 200.7	0.22	mg/l
Beryllium	EPA 200.7	ND	mg/l
Boron	EPA 200.7	ND	mg/l
Cadmium	EPA 200.7	ND	mg/l
Calcium	EPA 200.7	106	mg/l
Chromium	EPA 200.7	ND	mg/l
Cobalt	EPA 200.7	ND	mg/l
Copper	EPA 200.7	ND	mg/l
Iron	EPA 200.7	3.11	mg/l
Lead	EPA 200.7	ND	mg/l
Magnesium	EPA 200.7	36.8	mg/l
Manganese	EPA 200.7	0.30	mg/l
Molybdenum	EPA 200.7	ND	mg/l
Nickel	EPA 200.7	ND	mg/l
Potassium	EPA 200.7	1.89	mg/l
Silver	EPA 200.7	ND	mg/l
Sodium	EPA 200.7	63.2	mg/l
Thallium	EPA 200.7	ND	mg/l
Tin	EPA 200.7	ND	mg/l
Vanadium	EPA 200.7	ND	mg/l
Zinc	EPA 200.7	ND	mg/l

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Soil-Plant Analysis Laboratory

C&NS Building, Room 117 700 University Ave. Monroe, LA 71209-0505

Phone: (318) 342-1948 Fax: (318) 342-1949

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UNIVERSITY OF LOUISIANA

MONROE

CERTIFICATE # 02018

REPORT OF ANALYSIS FOR DENMON ENGINEERING COMPANY

ULM LOG #:	11-2250	SAMPLE TYPE:	Water
SAMPLE DATE:	11/09/11	SAMPLE TIME:	11:45:00
DATE RECEIVED:	11/09/11	DATE REPORTED:	11/15/11
COLLECTED BY:	Randy Denmon	CLIENT ID:	Franklin, Farm, Miss, All, North

REPORT TABLE:

ANALYSIS	TEST METHOD	RESULTS	REPORT UNITS
pH	SM 4500-H B	6.99	su
Conductivity	SM 2510B	873	ummmhos/cm
TS	SM 2540B 19 th	527	mg/l
TDS	SM 2540C 19 th	530	mg/l
TSS	SM 2540D 19 th	5	mg/l
Chloride	SM 4500-CL C 19 th	45	mg/l
Sulfate	SM 426C 15 th	83.9	mg/l
Nitrate	EPA 352.1	0.216	mg/l
Ammonia	SM 4500NH3D 19 th	0.19	mg/l
Alkalinity	SM 2320B 19 th	320	mg/l
Turbidity	SM 2130B 19 th	28	NTU's
Hardness	SM 2340B 19 th	391	mg/l
Color	SM 2120B 19 th	60	CPU's
COD	EPA 410.4	ND	mg/l
Oil & Grease	EPA 1664 A	ND	mg/l
Arsenic	SM 3113B 19 th	0.0033	mg/l
Selenium	SM 3113B 19 th	ND	mg/l
Mercury	EPA 245.1	ND	mg/l
Aluminum	EPA 200.7	ND	mg/l
Barium	EPA 200.7	0.20	mg/l
Beryllium	EPA 200.7	ND	mg/l
Boron	EPA 200.7	ND	mg/l
Cadmium	EPA 200.7	ND	mg/l
Calcium	EPA 200.7	99.4	mg/l
Chromium	EPA 200.7	ND	mg/l
Cobalt	EPA 200.7	ND	mg/l
Copper	EPA 200.7	ND	mg/l
Iron	EPA 200.7	1.89	mg/l
Lead	EPA 200.7	ND	mg/l
Magnesium	EPA 200.7	34.7	mg/l
Manganese	EPA 200.7	0.38	mg/l
Molybdenum	EPA 200.7	ND	mg/l
Nickel	EPA 200.7	ND	mg/l
Potassium	EPA 200.7	1.44	mg/l
Silver	EPA 200.7	ND	mg/l
Sodium	EPA 200.7	38.1	mg/l
Thallium	EPA 200.7	ND	mg/l
Tin	EPA 200.7	ND	mg/l
Vanadium	EPA 200.7	ND	mg/l
Zinc	EPA 200.7	ND	mg/l

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MONROE

ANALYSIS	DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
pH	0.01	11/09/11@14:12	DHB
Conductivity	2.17	11/11/11@09:46	DHB
TS	5.0	11/10/11@13:40	SW
TDS	5.0	11/10/11@11:21	SW
TSS	2.0	11/10/11@11:40	SW
Chloride	1.53	11/14/11@14:52	DHB
Sulfate	0.45	11/14/11@13:47	KK
Nitrate	0.005	11/14/11@14:26	DHB
Ammonia	0.06	11/10/11@10:29	KM
Alkalinity	0.2	11/14/11@15:44	DHB
Turbidity	1.0	11/10/11@13:45	KK
Hardness	0.27	11/10/11@11:05	DHB
Color	2.5	11/10/11@09:30	SW
COD	18.6	11/10/11@10:54	DHB
Oil & Grease	1.76	11/10/11@08:37	KK
Arsenic	0.0016	11/10/11@11:50	KK
Selenium	0.001	11/10/11@11:50	KK
Mercury	0.00006	11/10/11@15:04	TL
Aluminum	0.018	11/10/11@08:56	DHB
Barium	0.002	11/10/11@08:56	DHB
Beryllium	0.002	11/10/11@08:56	DHB
Boron	0.004	11/14/11@09:04	DHB
Cadmium	0.002	11/10/11@08:56	DHB
Calcium	0.010	11/10/11@11:05	DHB
Chromium	0.004	11/10/11@08:56	DHB
Cobalt	0.004	11/10/11@08:56	DHB
Copper	0.002	11/10/11@08:56	DHB
Iron	0.003	11/10/11@08:56	DHB
Lead	0.010	11/10/11@08:56	DHB
Magnesium	0.010	11/10/11@11:05	DHB
Manganese	0.002	11/10/11@08:56	DHB
Molybdenum	0.04	11/10/11@08:56	DHB
Nickel	0.002	11/10/11@08:56	DHB
Potassium	0.04	11/10/11@11:05	DHB
Silver	0.003	11/11/11@08:04	DHB
Sodium	0.018	11/10/11@11:05	DHB
Thallium	0.018	11/10/11@08:56	DHB
Tin	0.024	11/14/11@13:21	DHB
Vanadium	0.005	11/10/11@08:56	DHB
Zinc	0.003	11/10/11@08:56	DHB

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UNIVERSITY OF LOUISIANA

MONROE

QA / QC REPORT: ULM #11-2249, 2250

ANALYSIS	BLANK	REAGENT SPIKE RECOVERY	MATRIX SPIKE RECOVERY
pH	< 0.01	NA	NA
Conductivity	< 2.17	NA	NA
TS	< 5.0	NA	NA
TDS	< 5.0	NA	NA
TSS	< 2.0	NA	NA
Chloride	< 1.53	100.0	102.5
Sulfate	< 0.45	100	105
Nitrate	< 0.005	100.0	101.2
Ammonia	< 0.06	97.2	87.0
Alkalinity	< 0.2	NA	NA
Turbidity	< 1.0	NA	NA
Hardness	< 0.27	105.8	101.3
Color	< 2.5	NA	NA
COD	< 18.6	101.0	100.3
Oil & Grease	< 1.76	95.25	89.5
Arsenic	< 0.0016	105.9	94.1
Selenium	< 0.001	101.2	105.3
Mercury	< 0.00006	99.5	97.9
Aluminum	< 0.018	87.5	90.1
Barium	< 0.002	92.8	90.9
Beryllium	< 0.002	101.4	92.4
Boron	< 0.004	101.2	99.4
Cadmium	< 0.002	92.5	86.4
Calcium	< 0.010	108.4	106.0
Chromium	< 0.004	92.8	87.4
Cobalt	< 0.004	91.3	84.7
Copper	< 0.002	88.7	82.4
Iron	< 0.003	88.2	81.5
Lead	< 0.010	90.9	84.0
Magnesium	< 0.010	102.8	96.5
Manganese	< 0.002	92.5	95.0
Molybdenum	< 0.04	92.6	92.5
Nickel	< 0.002	87.2	81.5
Potassium	< 0.04	110.9	102.1
Silver	< 0.003	94.0	87.0
Sodium	< 0.018	96.2	102.0
Thallium	< 0.018	88.9	85.0
Tin	< 0.024	113.6	81.4
Vanadium	< 0.005	95.7	90.7
Zinc	< 0.003	85.8	84.9

No nonstandard test method was utilized in the analysis of these samples.

There was no deviation from the listed test methods during analysis.

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Director

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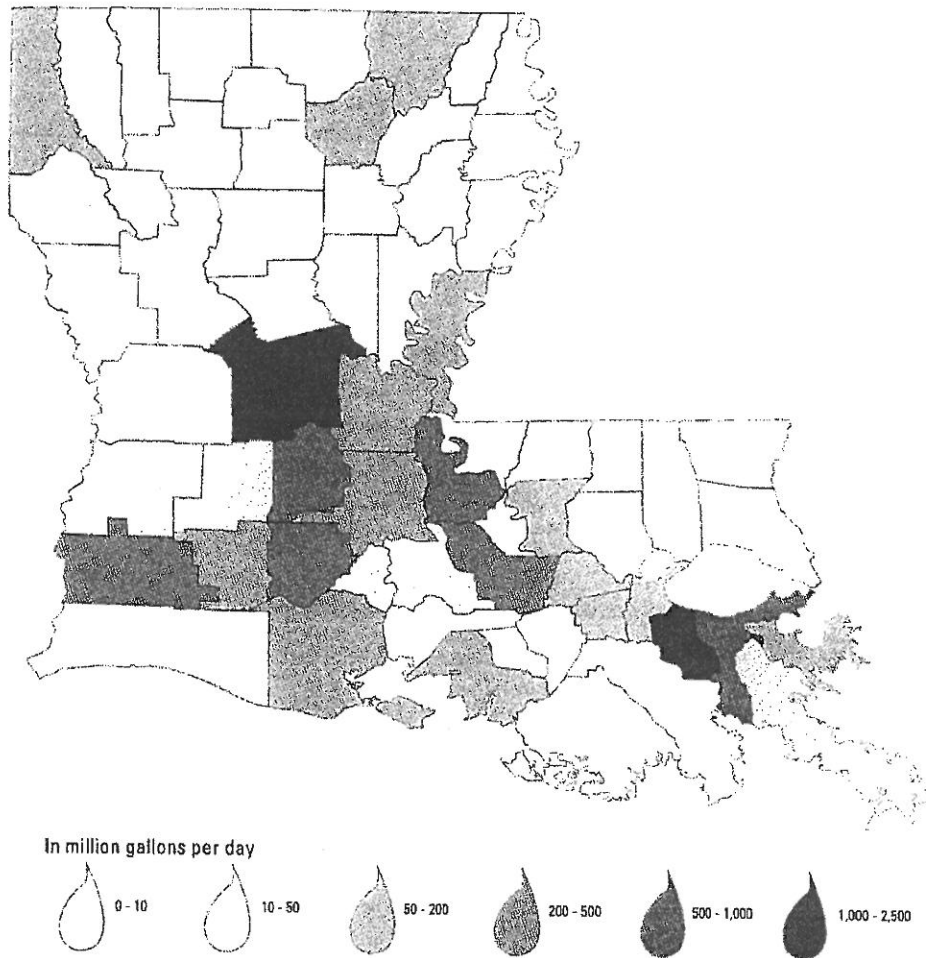
Phone: (318) 342-1948 Fax: (318) 342-1949

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EXHIBIT 6 - WATER USE IN LOUISIANA, 2010

Water Use In Louisiana, 2010

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
Water Resources Special Report No. 17 (Revised)



STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
PUBLIC WORKS AND WATER RESOURCES DIVISION

in cooperation with the
U.S. GEOLOGICAL SURVEY

2011 (Revised October 2012)

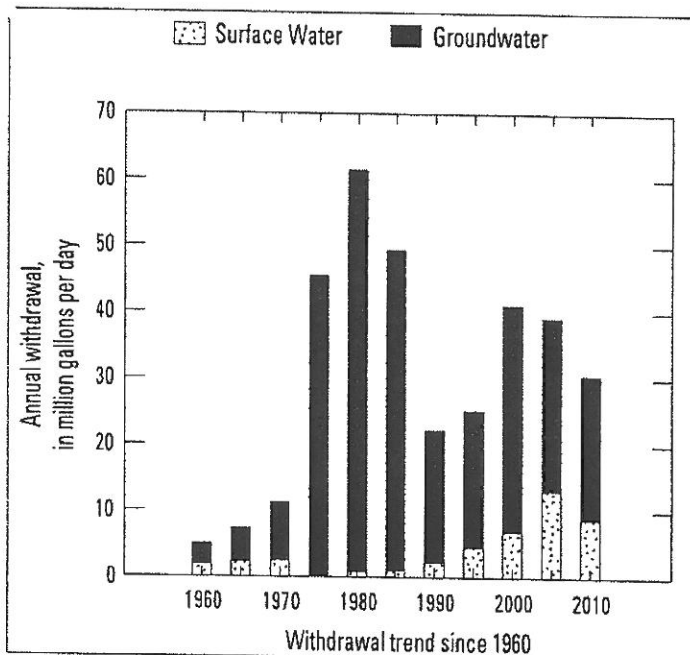


Richland

Population: 20,725
 Population served by public supply: 14,798
 Per capita withdrawals (gal/d): 1,474
 Acres irrigated: 38,056
 Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)			
	Groundwater (GW)	Surface Water (SW)	Total
Public supply	2.89		2.89
Industrial			.00
Power generation			.00
Rural domestic	.47		.47
Livestock	.06	.06	.11
Rice irrigation	9.76		9.76
General irrigation	8.65	8.65	17.31
Aquaculture			.00
Total	21.83	8.71	30.54

Withdrawals by Major Industrial Group (Mgal/d)		
Standard Industrial Classification	GW	SW

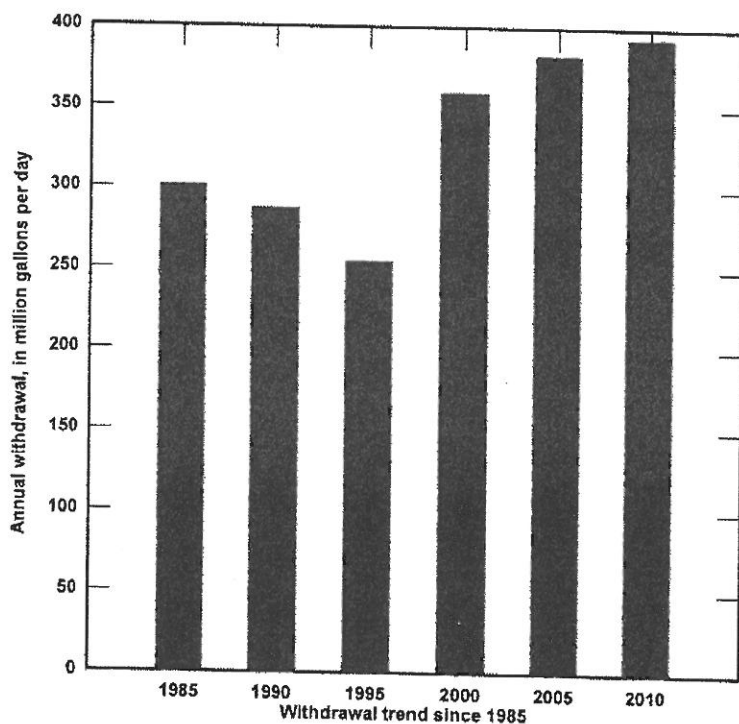
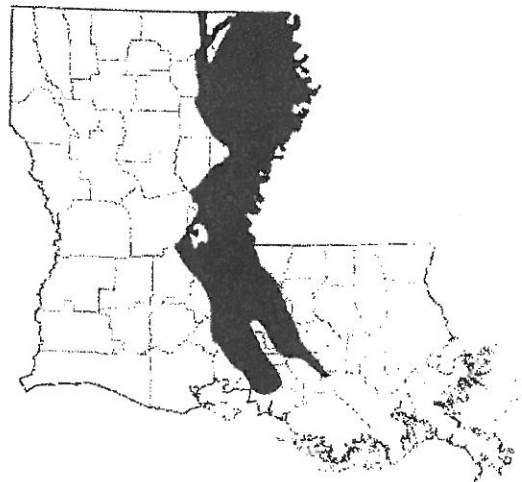


Withdrawals by Major Public Supplier (Mgal/d)		
Public Supplier	GW	SW
Archibald Water System	0.39	
Delhi Water System	1.00	
Liddieville Water System	.11	
Mangham Water System	.08	
N. Franklin Water Works	.74	
Rayville Water System	.02	
River Road Water System	.24	
Start Water System	.21	

Mississippi River Alluvial Aquifer

Withdrawals, in million gallons per day (Mgal/d)

Public supply	10.04
Industry	28.49
Power generation	.82
Rural domestic	3.41
Livestock	1.12
Rice Irrigation	132.30
General irrigation	155.13
Aquaculture	62.26
Total	393.57



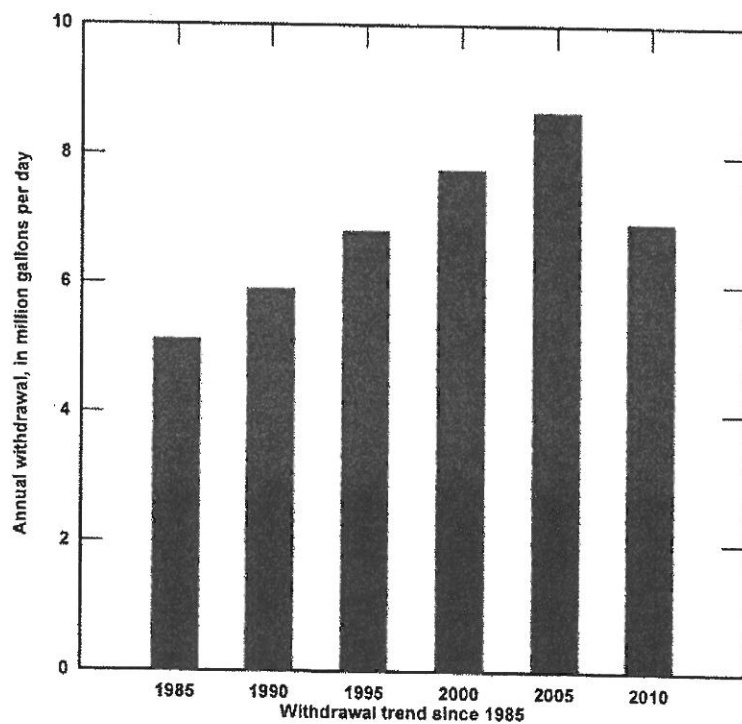
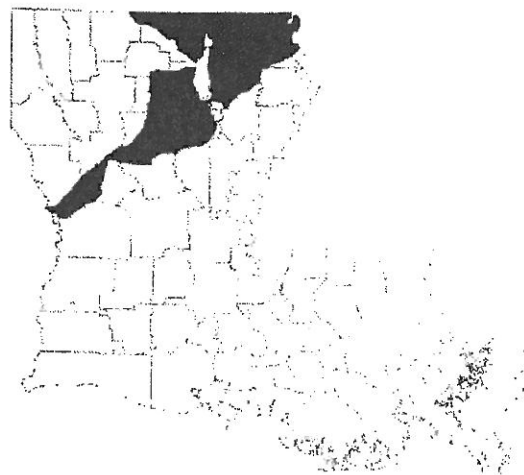
Withdrawals by Parish

Parish	Mgal/d
Ascension	0.15
Assumption	6.81
Avoyelles	24.96
Caldwell	.61
Catahoula	20.49
Concordia	26.16
East Baton Rouge	.09
East Carroll	19.91
Franklin	35.18
Iberia	.17
Iberville	20.41
Lafayette	.29
Lafourche	4.09
Madison	38.83
Morehouse	67.50
Ouachita	.88
Pointe Coupee	17.64
Richland	20.37
St. James	.01
St. Landry	19.77
St. Martin	25.08
St. Mary	.03
Tensas	28.62
Terrebonne	.61
West Baton Rouge	2.88
West Carroll	11.98
West Feliciana	.04

Cockfield Aquifer

Withdrawals, in million gallons per day (Mgal/d)

Public supply	6.40
Industry	.00
Power generation	.00
Rural domestic	.44
Livestock	.01
Rice Irrigation	.11
General irrigation	.00
Aquaculture	.00
Total	6.96



Withdrawals by Parish

Parish	Mgal/d
Caldwell	1.09
Claiborne	.01
East Carroll	1.29
Grant	.20
Jackson	.06
La Salle	.86
Lincoln	.01
Morehouse	.34
Natchitoches	.07
Ouachita	.11
Richland	1.46
Sabine	.07
Union	.06
Vernon	.06
West Carroll	1.08
Winn	.19

EXHIBIT 7 - RICHLAND BEACON ARTICLE "DELHI EARNS STATE HONOR"

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Delhi earns state honor

Posted August 16th, 2011

The Town of Delhi was awarded the Louisiana Municipal Association Community Achievement Award for Economic Development at the 2011 conference in Shreveport.

"This is a great honor for our town to take first place in this division. There is tremendous competition every year in the various categories of economic development, basic services and community development," stated Mayor Lynn Lewis.

The town's entry detailed the major infrastructure projects completed in 2010 to facilitate the services needed for the Con-Agra/Lamb Weston sweet potato processing plant. Lewis explained,

"Working with our city engineers, the overall project was divided into seven construction contracts including wastewater collection and treatment, water booster plant, a new water well, an elevated tank that holds nearly a million gallons and over twenty-six miles of sewer line and wastewater force mains. A new SCADA system was added and cast iron oxidation ditch the size of a football field was created to handle the 1.2 million gallons of wastewater produced by the plant each day."

In addition, a sludge composting facility was constructed to handle the sweet potato by-products of wastewater treatment. This sludge will be mixed with woody refuse to create a marketable compost soil. "This is the first of its kind in our state," stated Lewis. "It's an innovative process that will allow us to make a useful product from waste that would normally go to a landfill." There were upgrades made to Delhi's existing four water wells along with the major additions to the town's wastewater facilities. "These new elements and upgrades will improve our capacity to serve the entire community as well as Con-Agra," explained Lewis.

The town's investment came to over 18 million dollars. "One of the unique aspects of this project was the various funding opportunities provided by the Department of Health/Hospital's

Drinking Water Revolving Loan Fund and the Department of Environmental Quality's Clean Water State Revolving Fund. These low cost loans helped Lamb Weston avoid heavy up-front expenses. The Department of Economic Development provided Con-Agra with other state incentives all of which helped make the plant possible. Funding solutions are one of the things the judges look for in these entries, and we were very successful in obtaining these."

Mayor Lewis further explained the judging process for the Community Achievement Awards. "The entries are studied by a large panel of individuals from LSU, various state departments and business advisers. One of the things they look for in an entry is the obstacles that had to be overcome. We had plenty of those," stated Lewis. "In the beginning, we were under a non-disclosure agreement, yet our engineers had to make preliminary plans and environmental studies in case the Delhi site was chosen. Once the decision was made and announced, we had one year to get the work done so Lamb-Weston could begin by the September harvest. We were really proud when one of the ConAgra engineers told us that they had never had a town complete their infrastructure as quickly as Delhi. Our city engineers from Meyer, Meyer, Lecroix and Hixson, as well as our field works employees, lead by Director Pete McCall, did a phenomenal job and deserve full credit for this."

"Another judging criteria considers community involvement," said Lewis. "We detailed in our entry the critical initiative taken by Mr. Lev Dawson to interest ConAgra in coming to our region. Once this initial interest was stirred, our government officials such as Senator Francis Thompson and Representative Chaney kept support and incentives coming from

the capital through the Department of Economic Development. Northeast Louisiana Economic Alliance Director, Tana Trichel, was an instrumental mediator for us as well."

Once the announcement was made that Delhi had been chosen, the town council took immediate action to approve the necessary agendas to ensure the plant's success. "The leadership shown by Shirley McDade, Dub Sumner, the late J.C. Smith, Marvin Dale [unclear] and Bob Benson was critical to confidently go forward with all plans. At that point, everyone in the community was excited about this opportunity—we made that very clear in our application," explained Lewis.

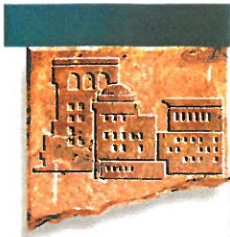
"It is very rewarding for the town to be recognized for this progress by the Louisiana Municipal Association and the judges who studied these entries. These are professional people in positions who know how hard it can be to attract industry and to complete the work for such a major plant. We plan to keep on submitting our projects and hope to win again," said Lewis.

Most read articles

Headline	Published
Delhi eyes Settler's Point	11/14/2012 - 11:18
Police Report	12/12/2012 - 10:58
Delhi hosts 2011 crop forum	01/18/2011 - 15:48
November 29, 2012	11/27/2012 - 09:18
Rhymes slates Tour of Homes	11/14/2012 - 11:18

[more](#)

EXHIBIT 8 - OPERATOR LETTERS



Town of Delhi

209 BROADWAY • P.O. BOX 277 • DELHI, LOUISIANA • 71232
TEL (318) 878-3792 • FAX (318) 878-3362

Northeast Louisiana Economic Alliance
P.O. Drawer 746
Ferriday, La. 71334

Re: Franklin Farm

Dear Ms. Trichel:

The Town of Delhi is agreeable to either serve as the Certified Operator of new water and wastewater systems that might be provided at the Franklin Farm Mega-site or in the vicinity, or provide such services within the capabilities of our existing systems, or upgrades that could be reasonably permitted and constructed. The Town of Delhi assisted ConAgra in the location of their new sweet potato processing facility on Highway 609 (three miles from Franklin Farms) with a \$17,000,000 installation of water storage tank, capacity upgrades to the town's sewer treatment facilities including nearly twenty miles of additional 18"-20" water and sewer lines and additional well and ground storage for increased water capacity.

As with the ConAgra user agreement, the cost of any required improvements or the maintenance and operation of additional services will have to be borne by others to connect to our facilities or reasonable user rates applied to cover the cost of additional services.

The Town of Delhi is always interested in partnering or assisting in attracting new industry to our area.

Feel free to contact me if you need more assistance.

J. Lynn Lewis, Mayor

Larry Rancher
District A - Alderman

Bob Benson
District B - Alderman

Henry Washington, Jr.
District C - Alderman

Marvin Hamilton
District D - Alderman

Caroline Christman
District E - Alderman

Steven W. Harris
Chief of Police

Sincerely,

Mayor J. Lynn Lewis

January 28, 2013

Northeast Louisiana Economic Alliance
P.O. Drawer 746
Farriday, La. 71334

Re: Franklin Farm

Dear Ms. Trichel:

The Town of Rayville, Louisiana is agreeable to either serve as the Certified Operator of new water and wastewater systems that might be provided at the Franklin Farm Mega-site or in the vicinity, or provide such services within the capabilities of our existing systems, or upgrades that could be reasonably permitted and constructed.

The cost of any required improvements or the maintenance and operation of additional services will have to be borne by others or reasonable rates applied to cover the cost of additional services.

The Town of Rayville, Louisiana is always interested in partnering or assisting in attracting new industry to our area.

Feel free to contact me if you need more assistance.

Town of Rayville, Louisiana

 Mayor
Harry Lewis

END OF REPORT