EVANGELINE EQUIVALENT AQUIFER SYSTEM SUMMARY

BASELINE MONITORING PROGRAM, FY 2006

APPENDIX 13

OF THE

TRIENNIAL SUMMARY REPORT

FOR THE

WATER QUALITY ASSESSMENT DIVISION

OF

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

PARTIAL FUNDING PROVIDED THROUGH THE CWA

EVANGELINE EQUIVALENT AQUIFER SYSTEM SUMMARY
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BACKGROUND

In order to better assess the water quality of a particular aquifer at a given point in time, an attempt was made during the year to sample all Baseline Monitoring Program (BMP) wells producing from a common aquifer in a narrow time frame. Also, to more conveniently and economically promulgate those data collected from a particular aquifer, a summary report on each aquifer sampled was prepared separately. Collectively, these aquifer summaries will make up part of the Baseline Monitoring Program Triennial Summary Report.

Figure 13-1 shows the geographic locations of the Evangeline Equivalent Aquifer System and the associated wells, whereas Table 13-2 lists the wells in the aquifer along with their total depths and the use made of produced waters and the date sampled.

These data show that in March of 2006, fifteen wells were sampled which produce from the Evangeline Equivalent Aquifer System. Of these fifteen wells, six are classified as domestic wells, five are classified as public supply wells, three are classified as industrial wells, and one is classified as irrigation well. The wells are located in eleven parishes in southeast and south central Louisiana.

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

GEOLOGY

The Evangeline Equivalent aquifer system is composed of the Pliocene aged aquifers of the Baton Rouge area and St. Tammany, Tangipahoa, and Washington Parishes. These Pliocene sediments outcrop in southwestern Mississippi. The sedimentary sequences that make up the aquifer system are subdivided into several aquifer units separated by confining beds. Northward within southeast Louisiana, fewer units are recognized because some younger units pinch out updip and some clay layers present to the south disappear. Where clay layers are discontinuous or disappear, aquifer units coalesce. The aquifers consist of moderately to well sorted, fine to medium grained sands, with interbedded coarse sand, silt, and clay.

HYDROGEOLOGY

The deposits that constitute the individual aquifers are not readily differentiated at the surface and act as one hydraulic system that can be subdivided into several hydrologic zones in the subsurface. A zone or ridge of saline water occurs within the Pliocene sediments beneath the Mississippi River alluvial valley. Recharge occurs primarily by the direct infiltration of rainfall in interstream, upland outcrop areas, and by the movement of water between aquifers. The hydraulic conductivity varies between 10-200 feet/day. The maximum depths of occurrence of freshwater in the Evangeline Equivalent range from 0 to 2,500 feet below sea level. The range of thickness of the fresh water interval in the Evangeline Equivalent is 50 to 1,500 feet. The depths of the Evangeline Equivalent wells that were monitored in conjunction with the BMP range from 160 to 1900 feet.

INTERPRETATION OF DATA

Field, Water Quality, and Nutrients Parameters

Table 13-3 lists the field parameters that were checked and the water quality and nutrients parameters for which samples were collected at each well. It also shows the field results and the water quality and nutrients analytical results for each well. Table 13-5 lists the minimum, maximum, and average results for the field data, water quality data, and nutrients data for the Evangeline Equivalent Aquifer System.

Federal Primary Drinking Water Standards

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, this Office does use the MCLs as a benchmark for further evaluation.

A review of the analyses listed on Table 13-3 shows that no primary MCL was exceeded for field, water quality, or nutrients parameters. Those project 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 surface water systems only.

Federal Secondary Drinking Water Standards

EPA has set secondary standards that are defined as non-enforceable taste, odor, or appearance guidelines.

Field and laboratory data contained in Table 13-3 show that the following secondary MCLs (SMCLs) were exceeded.

Color – SMCL = 15 PCU

AV-5304Z – 20 PCU, duplicate – 20 PCU
ST-6711Z – 50 PCU
WA-241 – 40 PCU, duplicate – 40 PCU

pH – SMCL = 6.5 – 8.5 SU

AV-5304Z – 8.52 SU, duplicate – 8.52 SU
EB-1003 – 8.69 SU
EF-5045Z – 6.06 SU
LI-299 – 8.66 SU
PC-325 – 8.62 SU
SL-679 – 8.96 SU
ST-532 – 9.11 SU
ST-6711Z – 8.85 SU
TA-284 – 8.67 SU
WA-241 – 6.30 SU, duplicate – 6.30 SU
WBR-181 – 9.02 SU

Comparison to Historical Data

Table 13-7 lists the current field, water quality, and nutrients data averages alongside those parameters' data averages for the three previous sampling rotations (three, six and nine years prior). A comparison shows that the averages have remained consistent with general fluctuations in many of the parameters. Of particular note; chloride, color, and TDS demonstrated a decline in

the 2000 and 2003 sample years and then returned in 2006 to similar levels found in 1997. Sulfate has shown a slight but consistent increase since 1997 while TKN had an initial decline after 1997, but has remained consistent since.

Inorganic Parameters

Table 13-4 shows the inorganic (total metals) parameters for which samples were collected and the analytical results for those parameters for each well. Table 13-6 lists the minimum, maximum, and average results for the inorganic data for the Evangeline Equivalent Aquifer System.

Federal Primary Drinking Water Standards

Further review of the analyses listed on Table 13-4 shows that no primary MCL was exceeded for inorganic parameters.

Federal Secondary Drinking Water Standards

Laboratory data contained in Table 13-4 show that the following secondary SMCL was exceeded.

Iron – SMCL = 300 ppb
WA-241 – 1,730 ppb, duplicate – 1,730 ppb WA-5210Z – 600 ppb

Comparison to Historical Data

Table 13-8 lists the current inorganic data averages alongside the inorganic data averages for the three previous sampling rotations (three, six and nine years prior). A comparison shows that iron increased in 2000, then returned to values similar to 1997; barium has demonstrated a general increase since 1997 while copper and zinc have decreased to below their respective detection limits. Even though the average for antimony has been below its detection limit after 1997, no trend can be established because its detection limit has changed for 2006. All other inorganic averages have remained below their respective detection levels.

Volatile Organic Compounds

Table 13-9 shows the volatile organic compound (VOC) parameters for which samples were collected. Due to the large number of analytes in this category, a total list of the analytical results for each analyte is not provided, however any detection of a VOC would be discussed in this section.

There were no confirmed detections of VOCs at or above their respective detection limits during the FY 2006 sampling of the Evangeline Equivalent Aquifer System.

Semivolatile Organic Compounds

Table 13-10 shows the semivolatile organic compound (SVOC) parameters for which samples were collected.Due to the large number of analytes in this category, a total list of the analytical

results for each analyte is not provided, however any detection of a semivolatile would be discussed in this section.

There were no confirmed detections of SVOCs at or above their respective detection limits during the FY 2006 sampling of the Evangeline Equivalent Aquifer System.

Pesticides and PCBs

Table 13-11 shows the pesticide and PCB parameters for which samples were collected. Due to the large number of analytes in this category, a total list of the analytical results for each analyte is not provided, however any detection of a pesticide or PCB would be discussed in this section.

There were no confirmed detections of pesticides or PCBs at or above their respective detection limits during the FY 2006 sampling of the Evangeline Equivalent Aquifer System.

Common Water Characteristics

Table 13-1 below highlights some of the more common water characteristics that are considered when studying ground water quality. The minimum, maximum, and average values that were found during the current sampling of the Evangeline Equivalent Aquifer System for Chloride, Field pH, Hardness, Iron and Nitrite-Nitrate (as N) are listed in the table. Figures 13-2, 13-3, 13-4, and 13-5 respectively, represent the contoured data for pH, TDS, chloride, and iron. The data values that are contoured and reported in the contour maps are derived from the initial current sampling of each well with any duplicate samples or re-samples averaged into them. The data average for hardness show that the ground water produced from this aquifer is soft[1]

Table 13-1 Common Water Characteristics

PARAMETER	MINIMUM	MAXIMUM	AVERAGE
Chloride (ppm)	2.4	65.2	22.6
Field pH (SU)	6.06	9.11	7.88
Hardness (ppm)	<5.0	35.6	10.8
Iron (ppb)	<20.0	1,730.0	265.1
Nitrates/Nitrites (ppm)	<0.05	0.78	0.07
TDS (ppm)	48.7	428	197.5

[1] Classification based on hardness scale from: *Peavey, H. S. et all. Environmental Engineering, 1985.*

SUMMARY AND RECOMMENDATIONS

In summary, the data show that the ground water produced from the Evangeline Equivalent Aquifer System is soft and that no primary MCLs were exceeded. Furthermore, this aquifer is of good quality when considering taste, odor, or appearance guidelines. Also, a comparison of present and historical BMP data averages shows that for the most part the data averages are fairly consistent, with only sulfate and barium averages increasing. Generally, all other data averages have remained consistent or decreased.

It is recommended that the wells assigned to the Evangeline Equivalent Aquifer System be re-sampled as planned in approximately three years. In addition, several wells should be added to those currently in place to increase the well density for this aquifer.

Table 13-2 List of Wells Sampled

DOTD WELL NUMBER	PARISH	DATE SAMPLED	OWNER	DEPTH (FEET)	WELL USE
AV-5304Z	AVOYELLES	3/27/2006	PRIVATE OWNER	547	DOMESTIC
EB-1003	E BATON ROUGE	3/28/2006	BATON ROUGE WATER WORKS	1430	PUBLIC SUPPLY
EF-5045Z	E FELICIANA	3/28/2006	PRIVATE OWNER	160	DOMESTIC
LI-299	LIVINGSTON	3/28/2006	WARD 2 WATER DISTRICT	1417	PUBLIC SUPPLY
PC-325	POINTE COUPEE	3/27/2006	ALMA PLANTATION LTD	1252	INDUSTRIAL
SL-679	ST LANDRY	3/27/2006	VALERO ENERGY CORPORATION	1152	INDUSTRIAL
ST-532	ST TAMMANY	3/6/2006	SE LOUISIANA STATE HOSPITAL	1520	PUBLIC SUPPLY
ST-6711Z	ST TAMMANY	3/6/2006	PRIVATE OWNER	860	DOMESTIC
TA-284	TANGIPAHOA	3/7/2006	CITY OF PONCHATOULA	608	PUBLIC SUPPLY
TA-286	TANGIPAHOA	3/7/2006	TOWN OF KENTWOOD	640	PUBLIC SUPPLY
TA-6677Z	TANGIPAHOA	3/7/2006	PRIVATE OWNER	495	DOMESTIC
WA-241	WASHINGTON	3/7/2006	PRIVATE OWNER	400	IRRIGATION
WA-5210Z	WASHINGTON	3/6/2006	PRIVATE OWNER	752	DOMESTIC
WBR-181	W BATON ROUGE	3/27/2006	PORT OF GREATER BATON ROUGE	1900	INDUSTRIAL
WF-DELEE	W FELICIANA	3/28/2006	PRIVATE OWNER	240	DOMESTIC

Table 13-3 Summary of Water Quality Data

Well Name	pH SU	Sal. ppt	Sp. Cond. mmhos/cm	TDS g/L	Temp. Deg. C	Alk. ppm	NH3 ppm	Cl ppm	Color PCU	Hard. ppm	Nitrite-Nitrate (as N) ppm	TKN ppm	Tot. P ppm	Sp. Cond. umhos/cm	SO4 ppm	TDS ppm	TSS ppm	Turb. NTU
LABORATORY DETECTION LIMITS →						2.0	0.1	1.3	5.0	5.0	0.05	0.1	0.05	10	1.3	4.0	4.0	1.0
	FIELD PARAMETERS					LABORATORY PARAMETERS												
AV-5304Z	8.52	0.30	0.623	0.41	20.13	236	0.39	64.6	20	18.5	0.06	0.54	0.14	635	7.7	405	<4	<1
AV-5304Z*	8.52	0.30	0.623	0.41	20.13	235	0.38	65.2	20	18.7	0.06	0.58	0.14	635	7.7	400	<4	<1
EB-1003	8.69	0.14	0.291	0.19	27.37	140	0.19	4.2	<5	7.3	<0.05	0.31	0.21	285	10.2	195	<4	<1
EF-5045Z	6.06	0.02	0.051	0.03	18.37	15.7	<0.1	6.2	<5	8.5	<0.05	<0.1	<0.05	47.1	<1.3	48.7	<4	<1
LI-299	8.66	0.13	0.27	0.18	24.84	130	0.14	4	<5	<5	<0.05	0.3	0.66	266	8.6	217	<4	<1
PC-325	8.62	0.13	0.284	0.19	24.95	138	0.22	3.2	5	<5	<0.05	0.44	0.32	299	9.4	215	<4	<1
SL-679	8.96	0.17	0.362	0.24	26.42	176	0.19	3.5	10	5.3	<0.05	0.29	0.29	361	11.6	256	<4	<1
ST-532	9.11	0.16	0.341	0.22	28.81	162	0.29	2.4	6	<5	<0.05	†0.34	0.3	323	11.8	224	<4	<1
ST-6711Z	8.85	0.32	0.658	0.43	21.47	334	0.34	14.4	50	<5	<0.05	†0.63	0.43	635	3.2	428	<4	<1
TA-284	8.67	0.13	0.276	0.18	23.29	133	<0.1	2.5	5	<5	<0.05	<0.1	0.29	268	9.2	191	<4	<1
TA-286	6.99	0.04	0.095	0.06	20.45	14.9	<0.1	2.5	5	8.8	<0.05	<0.1	<0.05	48.2	2.9	52	<4	<1
TA-6677Z	7.04	0.05	0.107	0.07	20.16	44.1	<0.1	3.3	5	16.7	<0.05	<0.1	0.07	102	3.3	108	<4	<1
WA-241	6.30	0.04	0.087	0.06	19.97	23.3	<0.1	2.4	40	16.8	<0.05	<0.1	0.08	77.2	9.8	96	<4	<1
WA-241*	6.30	0.04	0.087	0.06	19.97	23.5	<0.1	2.5	40	16.4	<0.05	<0.1	<0.05	77.7	9.9	98.7	<4	1.1
WA-5210Z	6.70	0.07	0.152	0.10	21.96	61	0.2	3	5	35.6	<0.05	0.46	0.25	146	9.6	151	<4	<1
WBR-181	9.02	0.15	0.308	0.20	25.84	144	0.2	2.8	10	<5	<0.05	0.24	0.26	292	10	201	<4	<1
WF-DELEE	7.00	0.04	0.082	0.05	19.82	21.1	<0.1	13.1	<5	15.2	0.78	<0.1	<0.05	77.2	<1.3	70.7	<4	<1

*Denotes Duplicate Sample

†Estimated Value

Table 13-4 Summary of Inorganic Data

WELL NAME	Antimony ppb	Arsenic ppb	Barium ppb	Beryllium ppb	Cadmium ppb	Chromium ppb	Copper ppb	Iron ppb	Lead ppb	Mercury ppb	Nickel ppb	Selenium ppb	Silver ppb	Thallium ppb	Zinc ppb
Laboratory Detection Limits	50	20	1	1	1	5	10	20	20	0.05	5	5	2.5	5	10
AV-5304Z	<50	<20	104	<1	<1	<5	<10	<20	<20	<0.05	<5	<5	<2.5	<5	<10
AV-5304Z*	<50	<20	105	<1	<1	<5	<10	<20	<20	<0.05	<5	<5	<2.5	<5	<10
EB-1003	<50	<20	24	<1	<1	<5	<10	61.1	<20	<0.05	<5	<5	<2.5	<5	<10
EF-5045Z	<50	<20	69.1	<1	<1	<5	<10	<20	<20	<0.05	<5	<5	<2.5	<5	<10
LI-299	<50	<20	3.7	<1	<1	<5	<10	39.6	<20	<0.05	<5	<5	<2.5	<5	<10
PC-325	<50	<20	5.9	<1	<1	<5	<10	20.4	<20	<0.05	<5	<5	<2.5	<5	<10
SL-679	<50	<20	15.2	<1	<1	<5	<10	<20	<20	<0.05	<5	<5	<2.5	<5	<10
ST-532	<50	<20	5.8	<1	<1	<5	<10	<20	<20	<0.05	<5	<5	<2.5	<5	<10
ST-6711Z	<50	<20	11.4	<1	<1	<5	<10	<20	<20	<0.05	<5	<5	<2.5	<5	<10
TA-284	<50	<20	16.4	<1	<1	<5	<10	<20	<20	<0.05	<5	<5	<2.5	<5	<10
TA-286	<50	<20	61.4	<1	<1	<5	<10	<20	<20	<0.05	<5	<5	<2.5	<5	<10
TA-6677Z	<50	<20	111	<1	<1	<5	<10	25.5	<20	<0.05	<5	<5	<2.5	<5	<10
WA-241	<50	<20	84.1	<1	<1	<5	<10	1730	<20	<0.05	<5	<5	<2.5	<5	<10
WA-241*	<50	<20	83.7	<1	<1	<5	<10	1730	<20	<0.05	<5	<5	<2.5	<5	<10
WA-5210Z	<50	<20	65.7	<1	<1	<5	<10	600	<20	<0.05	<5	<5	<2.5	<5	<10
WBR-181	<50	<20	3.1	<1	<1	<5	<10	115	<20	<0.05	<5	<5	<2.5	<5	<10
WF-DELEE	<50	<20	42.9	<1	<1	<5	<10	105	<20	<0.05	<5	<5	<2.5	<5	10.3

* Denotes duplicate sample.

Table 13-5 Current Year Water Quality Statistics

	PARAMETER	MINIMUM	MAXIMUM	AVERAGE
FIELD	Temperature (^{O}C)	18.37	28.81	22.59
	pH (SU)	6.06	9.11	7.88
	Specific Conductance (mmhos/cm)	0.051	0.658	0.28
	Salinity (ppt)	0.02	0.32	0.13
	TDS (g/L)	0.033	0.428	0.18
LABORATORY	Alkalinity (ppm)	14.9	334	119.5
	Chloride (ppm)	2.4	65.2	11.8
	Color (PCU)	<5	50	13.6
	Specific Conductance (umhos/cm)	47.1	635	269.1
	Sulfate (ppm)	<1.3	11.8	7.42
	TDS (ppm)	48.7	428	197.5
	TSS (ppm)	<4	<4	<4
	Turbidity (NTU)	<1	1.1	<1
	Ammonia, as N (ppm)	<0.1	0.39	0.17
	Hardness (ppm)	<5	35.6	10.8
	Nitrate - Nitrite, as N (ppm)	<0.05	0.78	0.07
	TKN (ppm)	<0.1	0.58	0.23
	Total Phosphorous (ppm)	<0.05	0.66	0.21

Table 13-6 Current Year Inorganic Statistics

PARAMETER	MINIMUM	MAXIMUM	AVERAGE
Antimony (ppb)	<50	<50	<50
Arsenic (ppb)	<20	<20	<20
Barium (ppb)	3.1	111	47.8
Beryllium (ppb)	<1	<1	<1
Cadmium (ppb)	<1	<1	<1
Chromium (ppb)	<5	<5	<5
Copper (ppb)	<10	<10	<10
Iron (ppb)	<20	1,730	265.1
Lead (ppb)	<20	<20	<20
Mercury (ppb)	<0.05	<0.05	<0.05
Nickel (ppb)	<5	<5	<5
Selenium (ppb)	<5	<5	<5
Silver (ppb)	<2.5	<2.5	<2.5
Thallium (ppb)	<5	<5	<5
Zinc (ppb)	<10	10.3	<10

Table 13-7 Three-year Water Quality Statistics

	PARAMETER	FY 1997 AVERAGE	FY 2000 AVERAGE	FY 2003 AVERAGE	FY 2006 AVERAGE
FIELD	Temperature (^{O}C)	25.17	22.73	22.74	22.59
	pH (SU)	7.45	8.02	8.41	7.88
	Specific Conductance (mmhos/cm)	0.33	0.24	0.27	0.28
	Field Salinity (ppt)	0.14	0.12	0.12	0.13
LABORATORY	Alkalinity (ppm)	125.37	110.34	117.70	119.51
	Chloride (ppm)	13.71	8.26	7.31	11.75
	Color (ppm)	14.29	7.67	7.94	13.59
	Specific Conductance (umhos/cm)	276.67	249.73	236.64	269.08
	Sulfate (ppm)	5.83	6.45	7.63	7.42
	TDS (ppm)	232.56	162.61	169.50	197.48
	TSS (ppm)	<4.00	4.71	<4.00	<4.00
	Turbidity (NTU)	1.57	2.02	1.31	<1
	Ammonia, as N (ppm)	0.30	0.13	0.15	0.17
	Hardness (ppm)	10.22	12.74	10.59	10.75
	Nitrate - Nitrite, as N (ppm)	0.04	0.10	0.17	0.07
	TKN (ppm)	1.14	0.27	0.24	0.23
	Total Phosphorous (ppm)	0.19	0.27	0.22	0.21

Table 13-8 Three-year Inorganic Statistics

PARAMETER	FY 1997 AVERAGE	FY 2000 AVERAGE	FY 2003 AVERAGE	FY 2006 AVERAGE
Antimony (ppb)	11.53	<5.00	<5.00	<50.00
Arsenic (ppb)	<5.00	<5.00	<5.00	<20.00
Barium (ppb)	29.06	41.00	39.91	47.79
Beryllium (ppb)	<1.00	<1.00	<1.00	<1.00
Cadmium (ppb)	<2.00	<2.00	<1.00	<1.00
Chromium (ppb)	<5.00	<5.00	<5.00	<5.00
Copper (ppb)	12.93	8.99	6.73	<10.00
Iron (ppb)	331.43	942.93	204.06	265.09
Lead (ppb)	<10.00	<10.00	<10.00	<20.00
Mercury (ppb)	<0.05	<0.05	<0.05	<0.05
Nickel (ppb)	<5.00	<5.00	<5.00	<5.00
Selenium (ppb)	<5.00	<5.00	<5.00	<5.00
Silver (ppb)	<2.00	<1.00	<1.00	<2.50
Thallium (ppb)	<2.00	<5.00	<5.00	<5.00
Zinc (ppb)	141.60	177.97	11.82	<10.00

Table 13-9 List of VOC Analytical Parameters

BASELINE MONITORING PROGRAM
VOLATILE ORGANICS BY EPA METHOD 624

COMPOUND	DETECTION LIMIT (ppb)
1,1-DICHLOROETHANE	2
1,1-DICHLOROETHENE	2
1,1,1-TRICHLOROETHANE	2
1,1,2-TRICHLOROETHANE	2
1,1,2,2-TETRACHLOROETHANE	2
1,2-DICHLOROBENZENE	2
1,2-DICHLOROETHANE	2
1,2-DICHLOROPROPANE	2
1,3-DICHLOROBENZENE	2
1,4-DICHLOROBENZENE	2
BENZENE	2
BROMOFORM	2
CARBON TETRACHLORIDE	2
CHLOROBENZENE	2
DIBROMOCHLOROMETHANE	2
CHLOROETHANE	2
TRANS-1,2-DICHLOROETHENE	2
CIS-1,3-DICHLOROPROPENE	2
BROMODICHLOROMETHANE	2
METHYLENE CHLORIDE	2
ETHYLBENZENE	2
BROMOMETHANE	2
CHLOROMETHANE	2
METHYLENE CHLORIDE	2
O-XYLENE	2
STYRENE	2
METHYL-t-BUTYL ETHER	2
TETRACHLOROETHENE	2
TOLUENE	2
TRANS-1,3-DICHLOROPROPENE	2
TRICHLOROETHENE	2
TRICHLOROFLUOROMETHANE	2
CHLOROFORM	2
VINYL CHLORIDE	2

ppb = parts per billion

Table 13-10 List of Semivolatile Analytical Parameters

BASELINE MONITORING PROGRAM

SEMIVOLATILE ORGANICS BY EPA METHOD 625

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

Table 13-10 (Cont'd)
Semivolatile Parameters

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

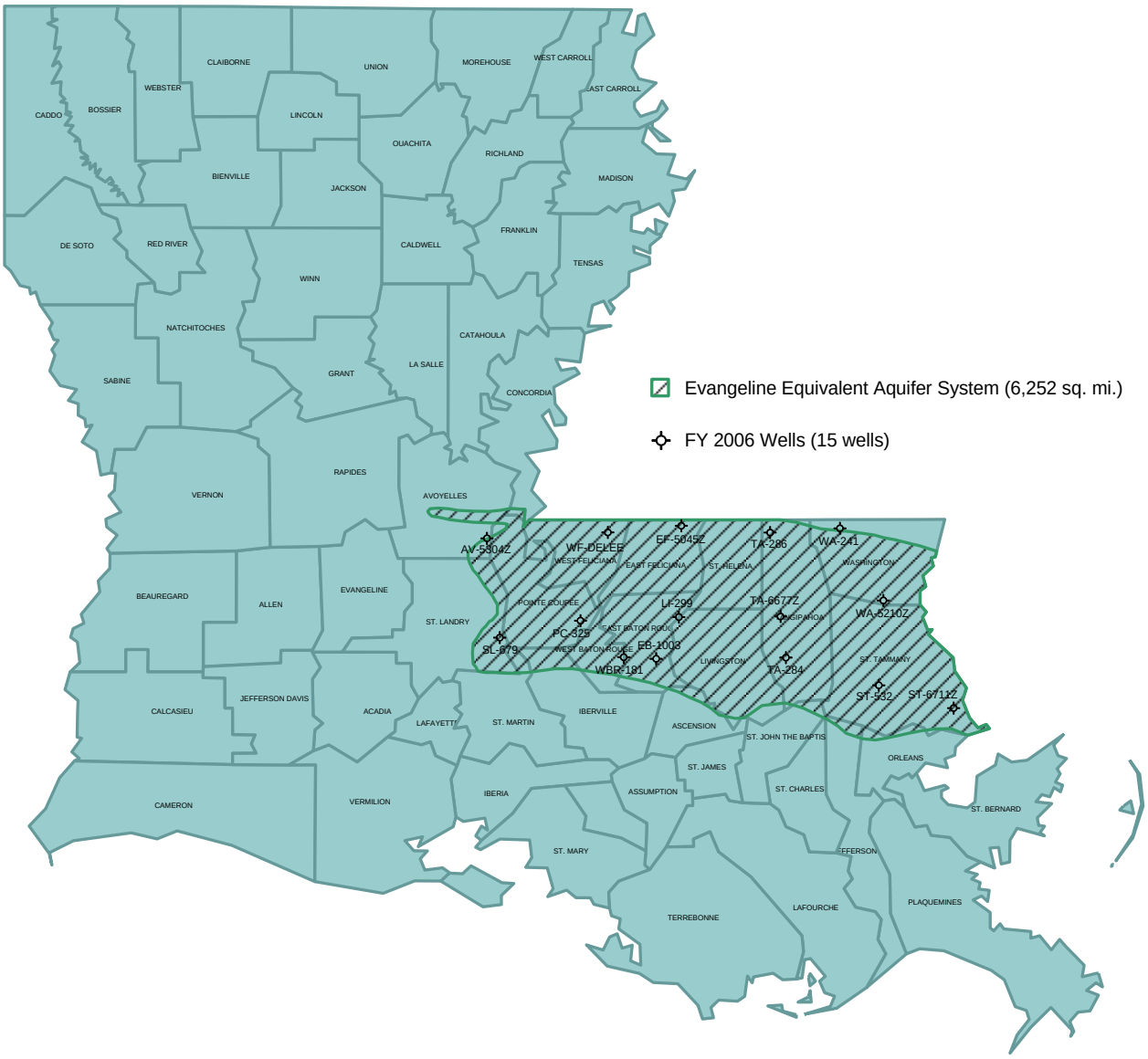
Table 13-11 List of Pesticide and PCB Analytical Parameters

BASELINE MONITORING PROGRAM

EPA METHOD 625

COMPOUND	DETECTION LIMIT (ppb)
4,4'-DDD	2
4,4'-DDE	2
4,4'-DDT	2
Aldrin	2
alpha-BHC	2
beta-BHC	2
delta-BHC	2
gamma-BHC (Lindane)	2
Chlordane	2
Dieldrin	2
Endosulfan I	2
Endosulfan II	2
Endosulfan sulfate	2
Endrin	2
Endrin aldehyde	2
Heptachlor	2
Heptachlor epoxide	2
Toxaphene	75
Aroclor-1016	10
Aroclor-1221	10
Aroclor-1232	10
Aroclor-1242	10
Aroclor-1248	10
Aroclor-1254	10
Aroclor-1260	10

BASELINE MONITORING PROGRAM WELLS OF THE EVANGELINE EQUIVALENT AQUIFER SYSTEM



Aquifer boundary digitized from Louisiana Hydrologic Map No. 2: Areal Extent of Freshwater in Major Aquifers of Louisiana. Smoot, 1988; USGS/LDOTD Report 86-4150

Figure 13-1 Location Plat, Evangeline Equivalent Aquifer System

EVANGELINE EQUIVALENT AQUIFER SYSTEM - pH

Baseline Monitoring Program, FY2006

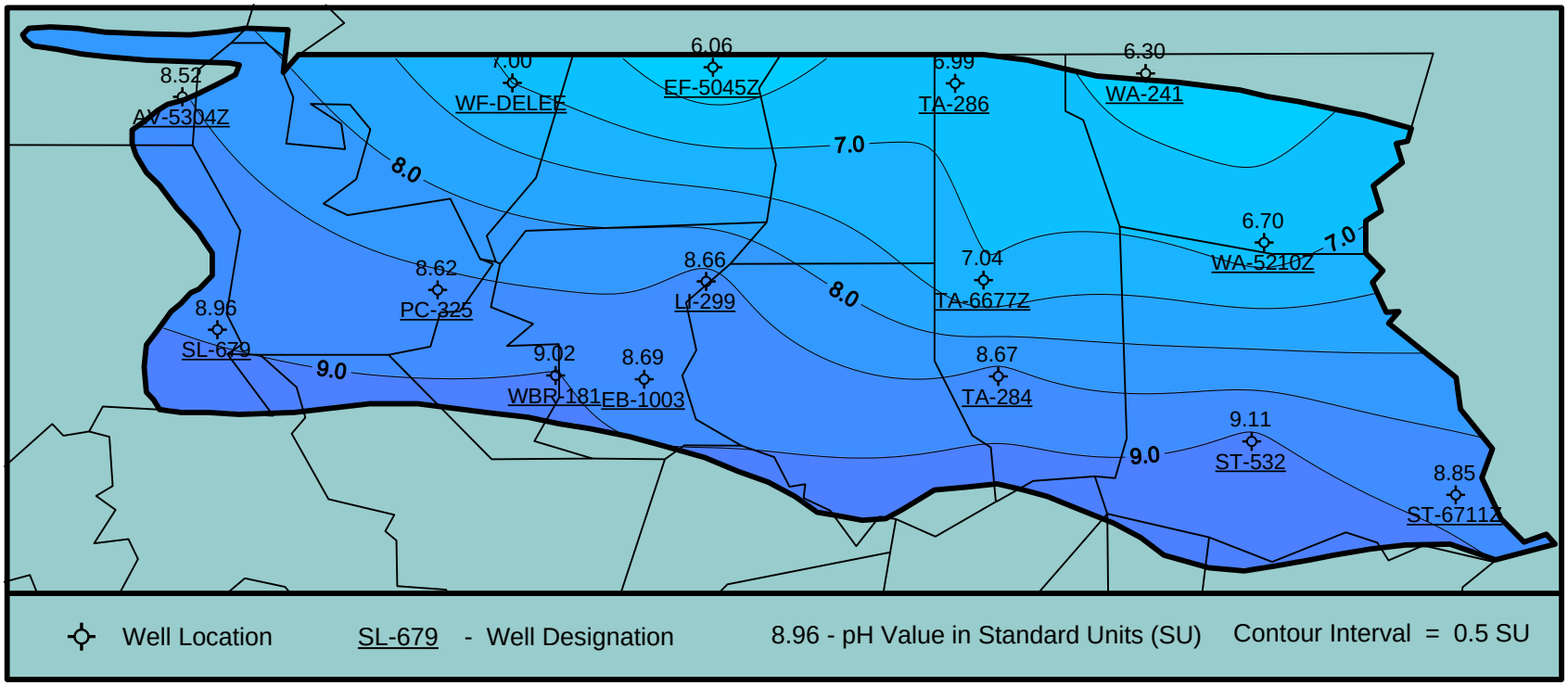


Figure 13-2 Map of pH Data

EVANGELINE EQUIVALENT AQUIFER SYSTEM - Total Dissolved Solids

Baseline Monitoring Program, FY2006

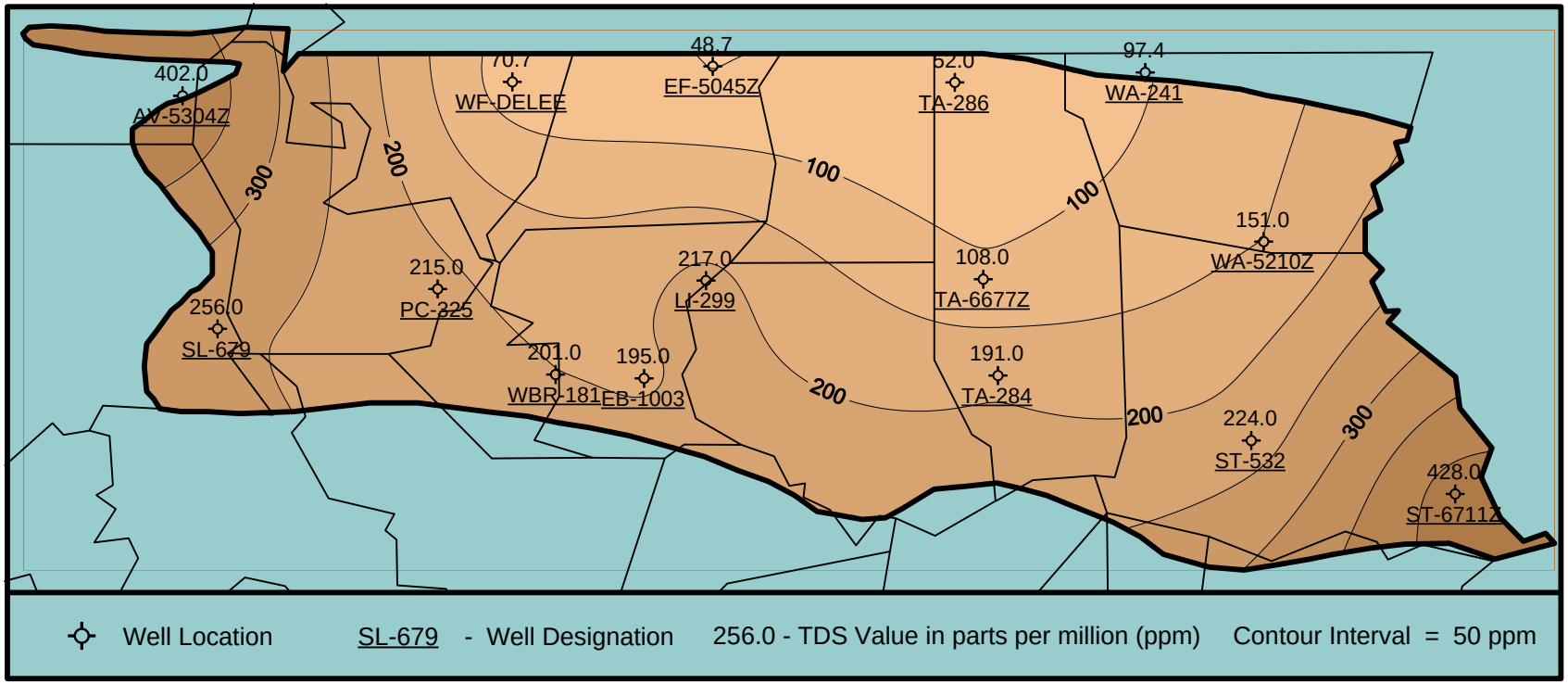


Figure 13-3 Map of TDS Data

EVANGELINE EQUIVALENT AQUIFER SYSTEM - Chloride

Baseline Monitoring Program, FY2006

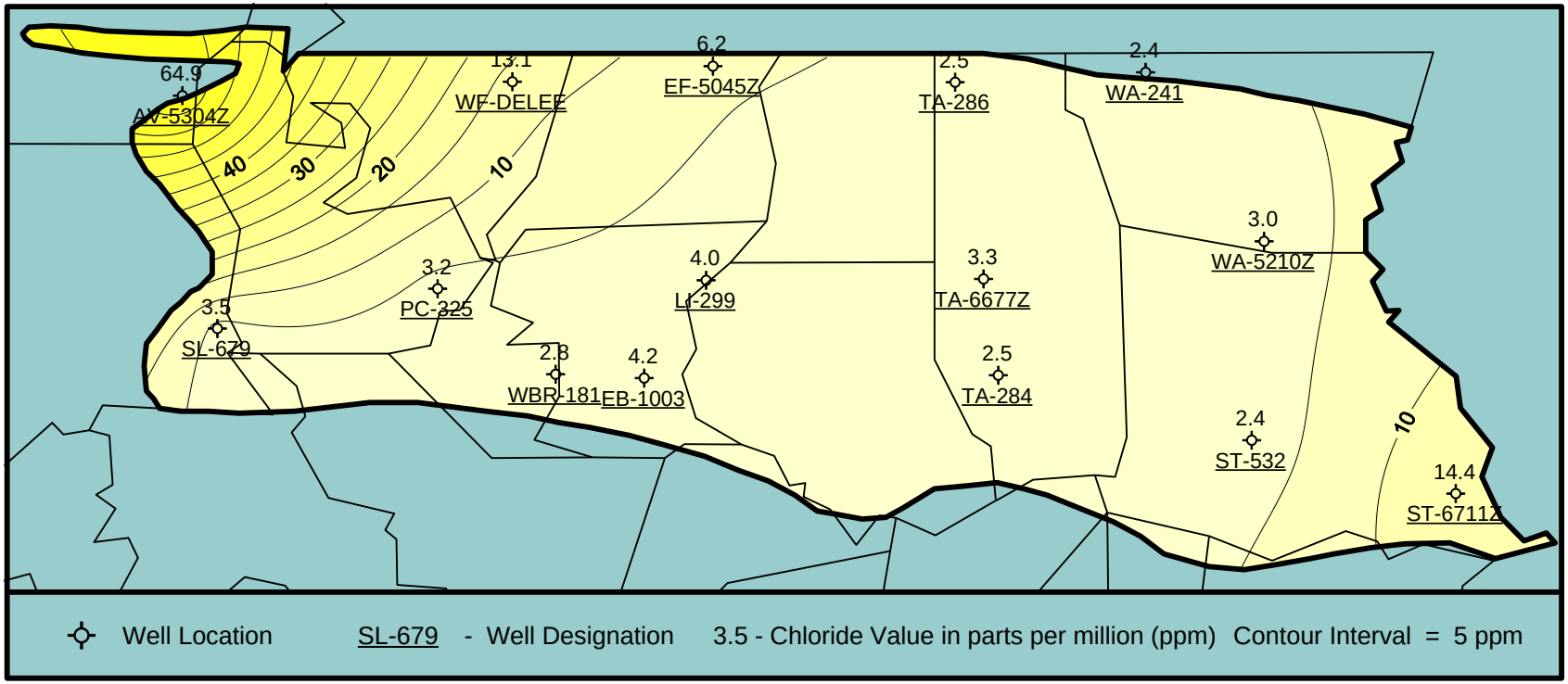


Figure 13-4 Map of Chloride Data

EVANGELINE EQUIVALENT AQUIFER SYSTEM - Iron

Baseline Monitoring Program, FY2006

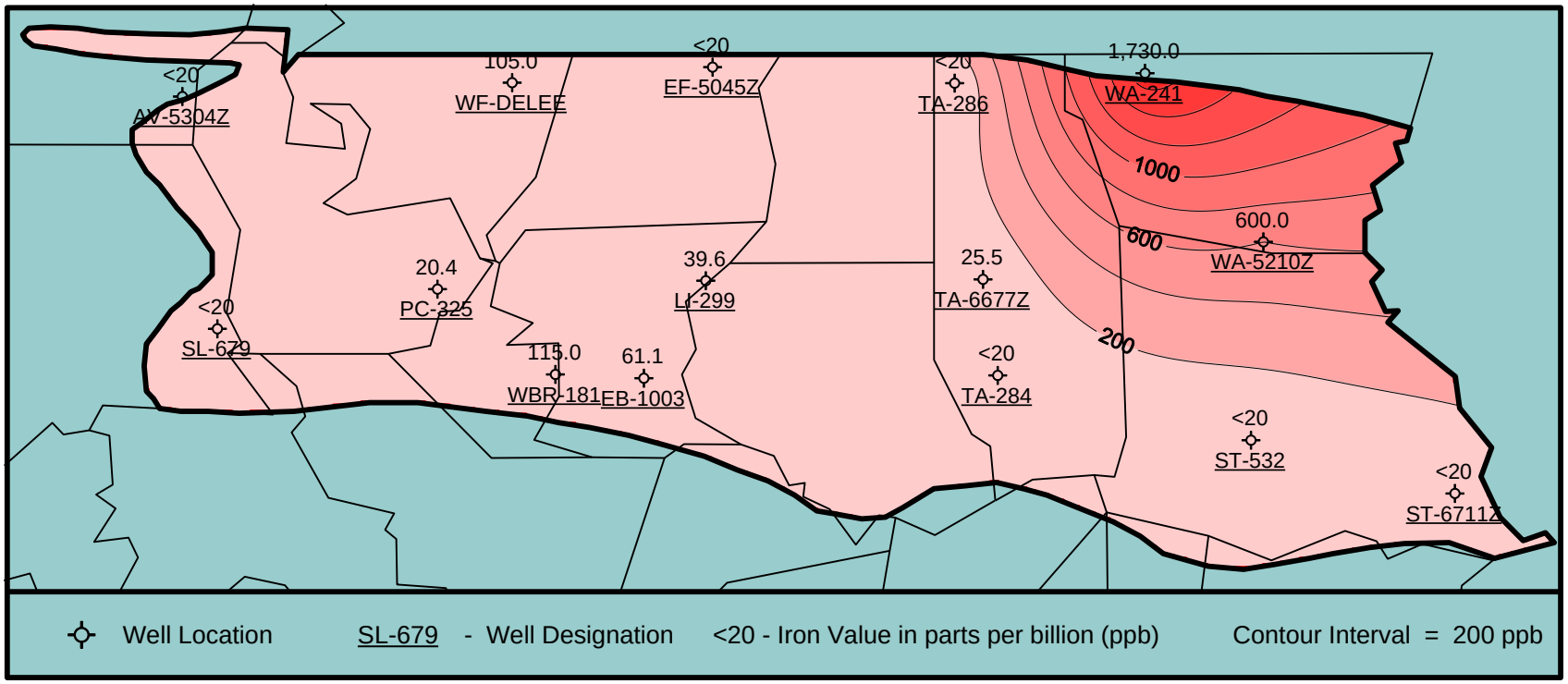


Figure 13-5 Map of Iron Data