NORTH LOUISIANA TERRACE AQUIFER SUMMARY, 2007
AQUIFER SAMPLING AND ASSESSMENT PROGRAM

APPENDIX 6 TO THE 2009 TRIENNIAL SUMMARY REPORT

PARTIAL FUNDING PROVIDED BY THE CWA

Contents

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 North Louisiana Terrace aquifer, during the 2007 state fiscal year (July 1, 2006 - June 30, 2007). This summary will become Appendix 6 of ASSET Program Triennial Summary Report for 2009.

These data show that in April 2007, 10 wells were sampled which produce from the North Louisiana Terrace aquifer. Seven of these wells are classified as public supply, 2 as domestic, and 1 as industrial. The wells are located in 7 parishes in the central, northeast, and northwest areas of the state.

Figure 6-1 shows the geographic locations of the North Louisiana Terrace aquifer and the associated wells, whereas Table 6-1 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 Pleistocene terrace aquifers that make up the North Louisiana Terrace aquifer occur as blanket terrace deposits in central Louisiana and as erosional remnants of dissected terraces northward. The Prairie, intermediate, and high terraces typically consist of unconsolidated, fining upward sequences of gravel, sand, silt, and clay and are overlain by Holocene alluvium in the valleys of the larger streams. The older terraces generally have a coarser texture and the fine-grained top stratum is often eroded. The aquifer deposits are typically poorly to well sorted and consist of coarse sand and gravel in the lower parts grading to fine sand toward the top. The North Louisiana Terrace is unconfined in most areas, but may be confined by silt and clay locally.

HYDROGEOLOGY

Recharge is primarily from the direct infiltration of rainfall in interstream, upland outcrop areas and can be relatively rapid where the overlying silts and clays are thin or missing. Water in the terrace aquifers moves downgradient and laterally and is discharged into streams that have eroded valleys into the aquifer units. Water levels typically reflect variations in precipitation and seasonal withdrawals by wells. The hydraulic conductivity of the North Louisiana Terrace varies between 150 and 270 feet/day.

The maximum depths of occurrence of freshwater in the North Louisiana Terrace range from 100 feet above sea level, to 100 feet below sea level. The range of thickness of the fresh water interval in the North Louisiana Terrace is 50 to 150 feet. The depths of the North Louisiana Terrace wells that were monitored in conjunction with the BMP range from 49 to 158 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 6-2. The inorganic (total metals) parameters analyzed in the laboratory are listed in Table 6-3. These tables also show the field and analytical results determined for each analyte. For quality control, a duplicate sample was taken for each parameter at well LS-264.

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 6-8, 6-9 and 6-10 list the target analytes for volatiles, semi-volatiles and pesticides/PCBs, respectively.

Tables 6-4 and 6-5 provide a statistical overview of field and conventional data, and inorganic data for the North Louisiana Terrace aquifer, listing the minimum, maximum, and average results for these parameters. Tables 6-6 and 6-7 compare these same parameter averages to historical ASSET-derived data for the North Louisiana Terrace aquifer, from fiscal years 1995, 1998, 2001 and 2004.

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 6-2, 6-3, 6-4, and 6-5 respectively, represent the contoured data for pH, total dissolved solids (TDS), chloride (Cl), and iron. Charts 6-1 through 6-16 represent the trend of the graphed parameter, based on the averaged value of that parameter for each three-year reporting period.

Chart 6-8, which depicts the averaged value and trend for Color, covers only historical data, as this parameter was not analyzed by the lab for this time period (FY 2007). 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 6-2 and 6-3 show that one or more secondary MCL (SMCL) was exceeded in 9 of the 10 wells sampled in the North Louisiana Terrace aquifer, with a total of 11 SMCLs exceeded.

Field and Conventional Parameters

Table 6-2 shows the field and conventional parameters for which samples are collected at each well and the analytical results for those parameters. Table 6-4 provides an overview of this data for the North Louisiana Terrace aquifer, listing the minimum, maximum, and average results for these parameters.

Federal Primary Drinking Water Standards: A review of the analysis listed in Table 6-2 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 6-2 shows that 6 wells exceeded the SMCL for pH and one well exceeded the SMCLs for total dissolved solids and chloride. Laboratory results override field results in exceedance determinations, thus only lab 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):

BI-208 – 5.72 SU
G-342 – 5.32 SU
LS-264 – 5.84 SU (Original and Duplicate)
BO-434 – 6.49 SU
G-432 – 5.52 SU
OU-5524Z – 6.06 SU

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

	LAB RESULTS (in mg/L)	FIELD MEASURES (in g/L)
MO-364	948 mg/L	1.05 g/L

Chloride (SMCL = 250 mg/L):

MO-364 – 307 mg/L

Inorganic Parameters

Table 6-3 shows the inorganic (total metals) parameters for which samples are collected at each well and the analytical results for those parameters. Table 6-5 provides an overview of inorganic data for the North Louisiana Terrace aquifer, listing the minimum, maximum, and average results for these parameters.

Federal Primary Drinking Water Standards: A review of the analyses listed in Table 6-3 shows that no primary MCL was exceeded for total metals.

Federal Secondary Drinking Water Standards: Laboratory data contained in Table 6-3 shows that 3 wells exceeded the secondary MCL for iron:

Iron (SMCL = 300 ug/L):

BO-578 – 837 ug/L
RR-254 – 1,700 mg/L
MO-364 – 1,960 mg/L

Volatile Organic Compounds

Table 6-8 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.

No VOC was detected at or above its detection limit during the FY 2007 sampling of the North Louisiana Terrace aquifer.

Semi-Volatile Organic Compounds

Table 6-9 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 2007 sampling of the North Louisiana Terrace aquifer.

Pesticides and PCBs

Table 6-10 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 2007 sampling of the North Louisiana Terrace 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 North Louisiana Terrace 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 6-6 and 6-7, and in Charts 6-1 to 6-16 of this summary. Over the twelve-year period, 10 analytes have shown a general increase in their average concentrations; of these 10, 5 have demonstrated only a slight increase. These analytes are: temperature, sulfate, hardness, total phosphorus, and zinc; slight increase: pH, specific conductivity (field and lab), salinity, alkalinity, and chloride. For this same time period, 3 analytes have demonstrated a decrease in their average concentrations: total dissolved solids, TKN and iron. Ammonia has remained fairly consistent in its average concentration, while nitrite-nitrate has remained below its detection limit for this entire time period.

The current number of wells with secondary MCL exceedances and the current total number of secondary exceedances are similar to the previous sampling event in FY 2004. Current sample results show that 9 wells reported one or more secondary exceedances with a total of 11 secondary MCL exceedances. Historical data show that in the FY 2004 sampling of the North Louisiana Terrace aquifer, there were 8 wells with one or more secondary exceedances for a total of 11 SMCL exceedances also.

There was some question as to the validity of the metals (inorganic) data values reported in the previous sampling rotation in FY 2004. At the time that report was produced, it was determined that the reported results were due to lab or field contamination and were rejected. Reported analytical results for inorganics for the current sample rotation support that original determination in that most if not all of the metals of concern were not detected, or were at levels below any health risk guidelines for this time period.

SUMMARY AND RECOMMENDATIONS

In summary, the data show that the ground water produced from this aquifer is moderately hard[1] and is of good quality when considering short-term or long-term health risk guidelines. Laboratory data show that no ASSET well that was sampled during the Fiscal Year 2007 monitoring of the North Louisiana Terrace aquifer exceeded a Primary MCL. The data also show that this aquifer is of fair to good quality when considering taste, odor or appearance guidelines, with 11 Secondary MCLs exceeded in 9 wells.

Comparison to historical ASSET-derived data shows some change in the quality or characteristics of the North Louisiana Terrace aquifer, with 10 parameters showing consistent increases in average concentration (5 with only slight increases), 3 parameters decreasing in average concentration, one parameter showing no consistent change, and one parameter remaining below its detection limit over the previous twelve years.

It is recommended that the wells assigned to the North Louisiana Terrace aquifer be re-sampled as planned, in approximately three years. In addition, several wells should be added to the ten currently in place to increase the well density for this aquifer.

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

Table 6-1: List of Wells Sampled, North Louisiana Terrace Aquifer–FY 2007

DOTD Well Number	Parish	Date	Owner	Depth (Feet)	Well Use
BI-208	BIENVILLE	4/16/2007	PRIVATE OWNER	100	DOMESTIC
BO-434	BOSSIER	4/17/2007	RED CHUTE UTILITIES	94	PUBLIC SUPPLY
BO-578	BOSSIER	4/17/2007	VILLAGE WATER SYSTEM	85	PUBLIC SUPPLY
G-342	GRANT	4/16/2007	VANGUARD SYNFUELS, LLC	49	INDUSTRIAL
G-432	GRANT	4/16/2007	CENTRAL GRANT WATER SYSTEM	158	PUBLIC SUPPLY
LS-264	LA SALLE	4/16/2007	CITY OF JENA	105	PUBLIC SUPPLY
MO-124	MOREHOUSE	4/17/2007	TEXAS GAS	133	PUBLIC SUPPLY
MO-364	MOREHOUSE	4/17/2007	PEOPLES WATER SERVICE	154	PUBLIC SUPPLY
OU-5524Z	OUACHITA	4/17/2007	PRIVATE OWNER	95	DOMESTIC
RR-254	RED RIVER	4/16/2007	EAST CROSS WATER SYSTEM	93	PUBLIC SUPPLY

Table 6-2: Summary of Field and Conventional Data, North Louisiana Terrace Aquifer–FY 2007

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												
BI-208	19.54	5.72	0.085	0.04	0.06	12.9	11.4	NOT ANALYZED	87.1	1.8	71.3	<4	<1	<0.1	16.9	1.84	<0.1	<0.05
BO-434	18.61	6.49	0.207	0.10	0.14	85.7	10.5		205	4.2	145	<4	<1	<0.1	74.7	0.47	<0.1	0.35
BO-578	19.12	7.47	0.601	0.29	0.39	250	46.2		597	<1.25	332	<4	6.1	0.36	155	<0.05	†0.53	0.24
G-342	19.57	5.32	0.099	0.05	0.06	8.4	12		99.4	3.4	73.3	<4	<1	<0.1	14.4	†3.43	<0.1	<0.05
G-432	19.16	5.52	0.043	0.02	0.03	11.9	3.4		42.6	<1.3	42	<4	<1	<0.1	8.1	0.49	<0.1	<0.05
LS-264	18.76	5.84	0.12	0.06	0.08	22.4	15.4		118	11.3	‡94	<4	<1	<0.1	24.9	0.87	<0.1	0.07
LS-264*	18.76	5.84	0.12	0.06	0.08	22.6	14.3		118	8	‡89.3	<4	<1	<0.1	25.2	0.87	<0.1	0.06
MO-124	20.42	6.56	0.258	0.12	0.17	84.8	25.5		254	<1.3	181	<4	<1	<0.1	82.7	1.28	<0.1	0.13
MO-364	21.29	6.66	1.62	0.82	1.05	250	†307		1627	102	948	<4	2.3	<0.1	368	<0.05	<0.1	0.23
OU-5524Z	19.17	6.06	0.132	0.06	0.09	31.9	19.7		139	1.5	112	<4	1.7	<0.1	30.7	0.22	0.18	0.09
RR-254	19.35	6.60	0.186	0.09	0.12	46.2	22		180	8.6	131	<4	2.2	<0.1	26.2	0.12	<0.1	0.11

*Denotes Duplicate Sample †Reported from a Dilution ‡Estimated Value Shaded cells exceed EPA Secondary Standards

Table 6-3: Summary of Inorganic Data, North Louisiana Terrace Aquifer–FY 2007

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**	**5**	**3**	**20**	**3**	**0.05**	**3**	**4**	**0.5**	**1**	**10**
BI-208	<1	<3	73.3	<1	<0.5	<3	5.6	<20	<3	<0.05	<3	<4	<0.5	<1	<10
BO-434	<1	<3	70.3	<1	<0.5	<3	5	89.1	7.8	<0.05	<3	<4	<0.5	<1	32
BO-578	<1	<3	367	<1	<0.5	<3	<3	837	<3	<0.05	<3	<4	<0.5	<1	<10
G-342	<1	<3	105	<1	<0.5	<3	5.3	<20	<3	<0.05	<3	<4	<0.5	<1	<10
G-432	<1	<3	49	<1	<0.5	<3	9.4	<20	14.3	<0.05	<3	<4	<0.5	<1	<10
LS-264	<1	<3	59.9	<1	<0.5	<3	7	<20	<3	<0.05	<3	<4	<0.5	<1	<10
LS-264*	<1	3	60.5	<1	<0.5	<3	7.9	<20	<3	<0.05	<3	<4	<0.5	<1	<10
MO-124	<1	<3	120	<1	<0.5	<3	<3	133	<3	<0.05	<3	<4	<0.5	<1	<10
MO-364	<1	<3	845	<1	<0.5	<3	14.8	1,960	<3	<0.05	3.7	<4	<0.5	<1	31.3
OU-5524Z	<1	<3	51.5	<1	<0.5	<3	121	212	<3	<0.05	<3	<4	<0.5	<1	<10
RR-254	<1	<3	31	<1	<0.5	<3	<3	1,700	<3	<0.05	<3	<4	<0.5	<1	18.7

*Denotes Duplicate Sample. Shaded cell exceed EPA Secondary Standards

Table 6-4: FY 2007 Field and Conventional Statistics, ASSET Wells

	PARAMETER	MINIMUM	MAXIMUM	AVERAGE
FIELD	Temperature (^{O}C)	18.61	21.29	19.43
	pH (SU)	5.32	7.47	6.19
	Specific Conductance (mmhos/cm)	0.043	1.62	0.32
	Salinity (ppt)	0.02	0.82	0.16
	TDS (g/L)	0.028	1.053	0.21
LABORATORY	Alkalinity (mg/L)	8.4	250	75.16
	Chloride (mg/L)	3.4	307	44.31
	Color (PCU)	-	-	-
	Specific Conductance (umhos/cm)	42.6	1627	315.19
	Sulfate (mg/L)	<1.25	102	12.98
	TDS (mg/L)	42	948	201.72
	TSS (mg/L)	<4	<4	<4
	Turbidity (NTU)	<1	6.1	1.44
	Ammonia, as N (mg/L)	<0.1	0.36	<0.10
	Hardness (mg/L)	8.1	368	75.16
	Nitrite - Nitrate, as N (mg/L)	<0.05	3.43	0.88
	TKN (mg/L)	<0.1	0.53	0.11
	Total Phosphorus (mg/L)	<0.05	0.35	0.12

Table 6-5: FY 2007 Inorganic Statistics, ASSET Wells

PARAMETER	MINIMUM	MAXIMUM	AVERAGE
Antimony (ug/L)	<1	<1	<1
Arsenic (ug/L)	<3	<3	<3
Barium (ug/L)	31	845	166.59
Beryllium (ug/L)	<1	<1	<1
Cadmium (ug/L)	<0.5	<0.5	<0.5
Chromium (ug/L)	<3	<3	<3
Copper (ug/L)	<3	121	16.41
Iron (ug/L)	<20	1960	452.83
Lead (ug/L)	<3	14.3	3.24
Mercury (ug/L)	<0.05	<0.05	<0.05
Nickel (ug/L)	<3	3.7	<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	32	11.09

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

	PARAMETER	FY 1995 AVERAGE	FY 1998 AVERAGE	FY 2001 AVERAGE	FY 2004 AVVERAGE	FY 2007 AVERAGE
FIELD	Temperature (^{O}C)	20.18	19.79	18.97	19.43	19.43
	pH (SU)	6.27	5.88	6.81	6.51	6.19
	Specific Conductance (mmhos/cm)	0.28	0.26	0.32	0.55	0.32
	Salinity (ppt)	0.12	0.13	0.15	0.27	0.16
	TDS (g/L)	-	-	-	0.36	0.21
LABORATORY	Alkalinity (mg/L)	81.70	69.60	97.68	112.42	75.16
	Chloride (mg/L)	22.68	20.99	25.03	80.74	44.31
	Color (PCU)	17.69	6.43	8.75	<5	-
	Specific Conductance (umhos/cm)	278.00	268.06	352.94	558.24	315.19
	Sulfate (mg/L)	25.95	32.62	41.53	38.32	12.98
	TDS (mg/L)	219.54	192.43	239.04	331.35	201.72
	TSS (mg/L)	6.62	<4	<4	7.73	<4
	Turbidity (NTU)	11.08	9.49	3.09	35.05	1.44
	Ammonia, as N (mg/L)	0.19	0.25	0.18	0.18	<0.10
	Hardness (mg/L)	48.57	64.02	89.65	152.26	75.16
	Nitrite - Nitrate, as N (mg/L)	0.67	1.27	0.68	0.43	0.88
	TKN (mg/L)	0.69	0.36	0.24	0.25	0.11
	Total Phosphorus (mg/L)	0.24	0.14	0.15	0.15	0.12

Table 6-7: Triennial Inorganic Statistics, ASSET Wells

PARAMETER	FY 1995 AVERAGE	FY 1998 AVERAGE	FY 2001 AVERAGE	FY 2004 AVERAGE	FY 2007 AVERAGE
Antimony (ug/L)	<5	<5	<5	<60	<1
Arsenic (ug/L)	<5	<5	<5	<10	<3
Barium (ug/L)	117.25	90.54	93.86	202.23	166.59
Beryllium (ug/L)	<5	<5	<1	<5	<1
Cadmium (ug/L)	<5	<5	<1	<5	<0.5
Chromium (ug/L)	<5	<5	<5	<10	<3
Copper (ug/L)	6.57	55.75	11.77	27.52	16.41
Iron (ug/L)	2,243.92	1,077.02	522.23	3,623.7	452.83
Lead (ug/L)	<10	<10	<10	3.64	3.24
Mercury (ug/L)	0.07	<0.05	<0.05	<0.2	<0.05
Nickel (ug/L)	7.18	3.44	6.89	<40	<3
Selenium (ug/L)	<5	<5	<5	<10	<4
Silver (ug/L)	<5	<5	<1	-	<0.5
Thallium (ug/L)	<5	<5	<5	<10	<1
Zinc (ug/L)	25.03	46.36	119.17	33.8	11.09

Table 6-8: 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
Methyl-t-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
m- & p-Xylenes	624	4

Table 6-9: 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

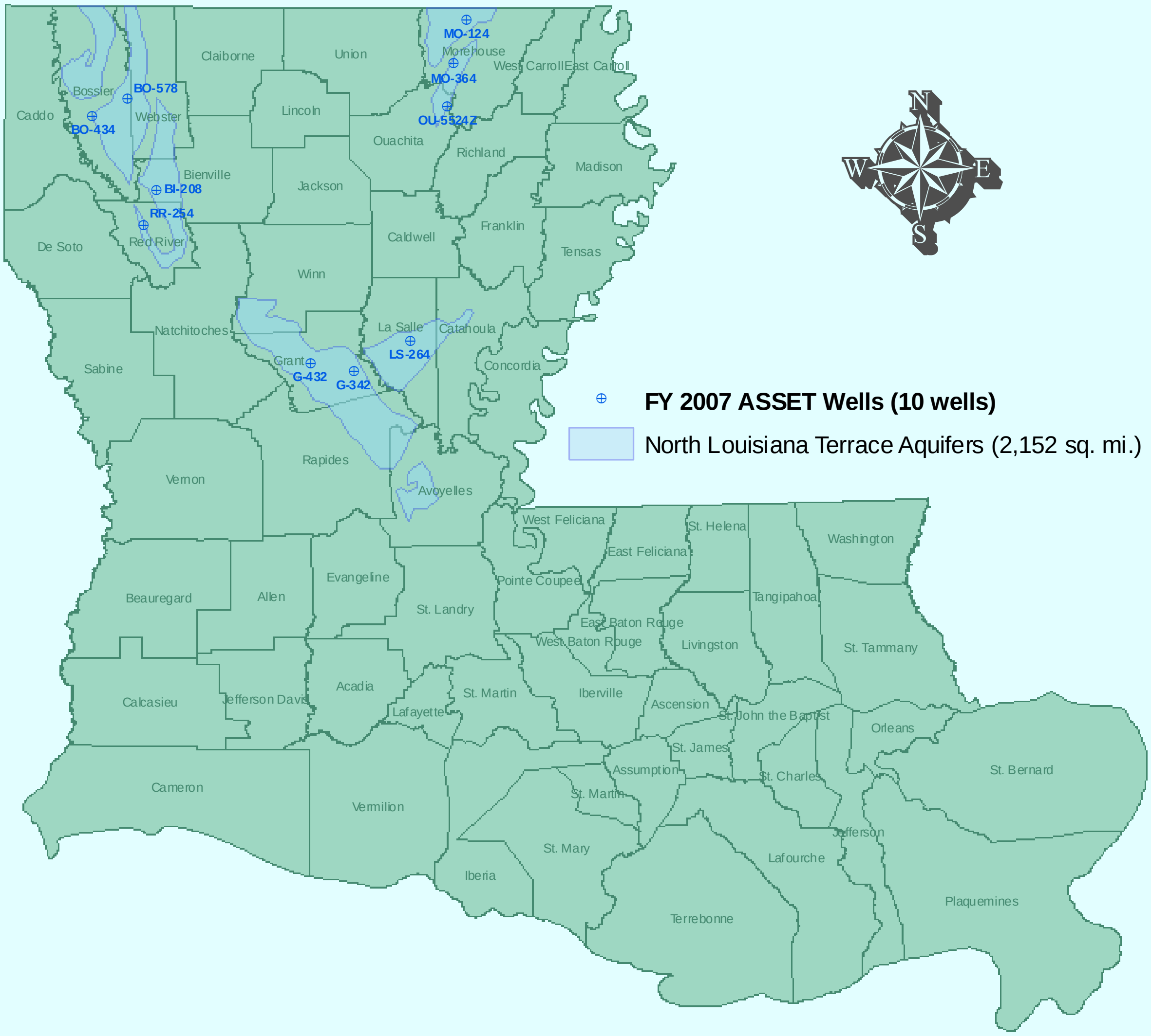
Table 6-9: SVOCs (Continued)

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 6-10: Pesticides and PCBs

COMPOUND	METHOD	DETECTION LIMITS (ug/L)
4,4'-DDD	8081	0.1
4,4'-DDE	8081	0.1
4,4'-DDT	8081	0.1
Aldrin	8081	0.05
Alpha-Chlordane	8081	0.05
alpha-BHC	8081	0.05
beta-BHC	8081	0.05
delta-BHC	8081	0.05
gamma-BHC	8081	0.05
Dieldrin	8081	0.1
Endosulfan I	8081	0.05
Endosulfan II	8081	0.1
Endosulfan Sulfate	8081	0.1
Endrin	8081	0.1
Endrin Aldehyde	8081	0.1
Endrin Ketone	8081	0.1
Heptachlor	8081	0.05
Heptachlor Epoxide	8081	0.05
Methoxychlor	8081	0.5
Toxaphene	8081	2
Gamma-Chlordane	8081	0.05
PCB-1016	8082	1
PCB-1221	8082	1
PCB-1232	8082	1
PCB-1242	8082	1
PCB-1248	8082	1
PCB-1254	8082	1
PCB-1260	8082	1

Figure 6-1: Location Plat, North Louisiana Terrace Aquifer



Aquifer Boundary digitized from Louisiana Hydrologic Map No. 2: Areal Extent of Freshwater In Major Aquifers of Louisiana, Smoot, 1986; USGS/LDOTD Report 86-4150.

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Figure 6-2: Map of pH Data

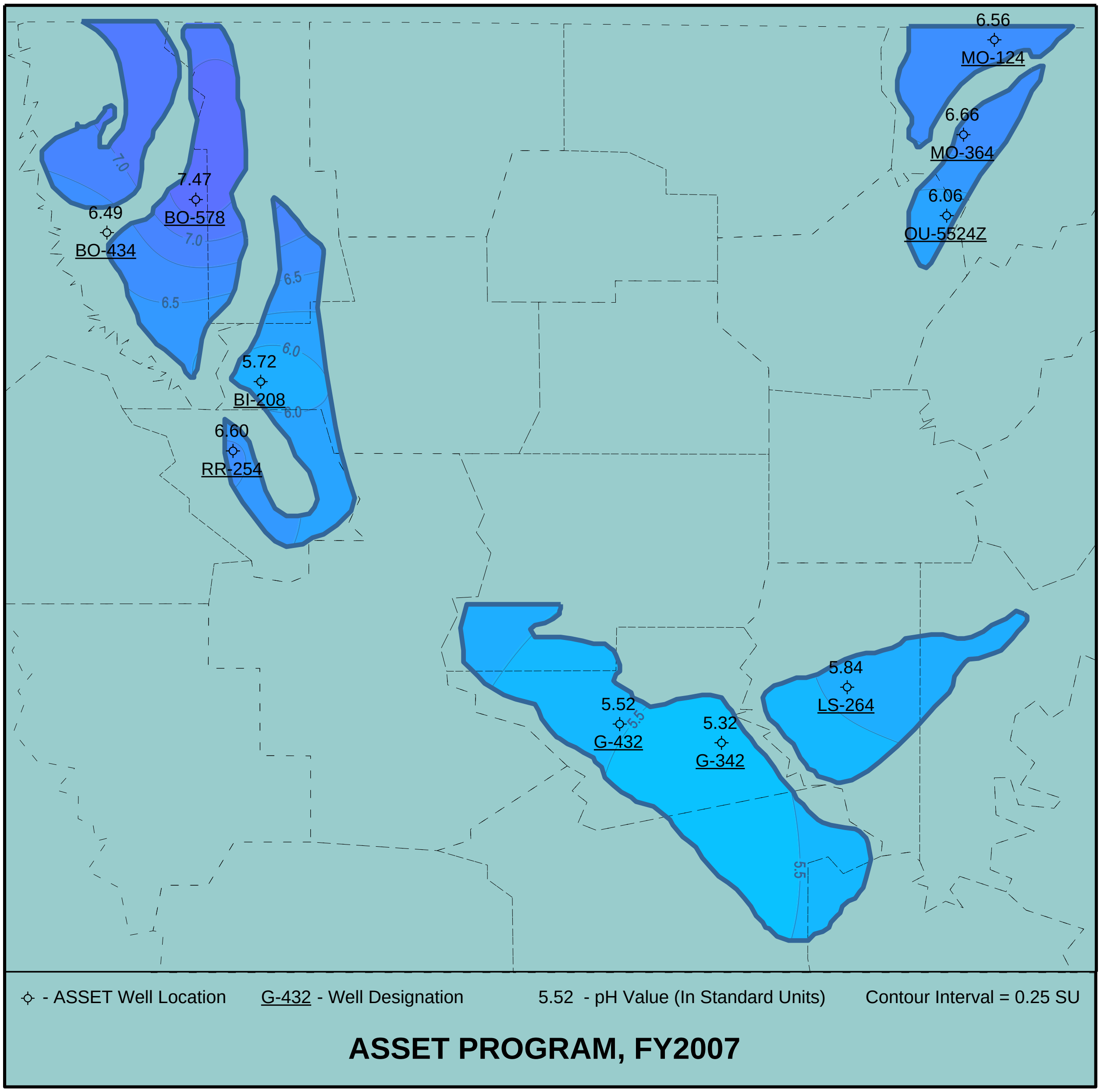

Figure 6-3: Map of TDS Lab Data

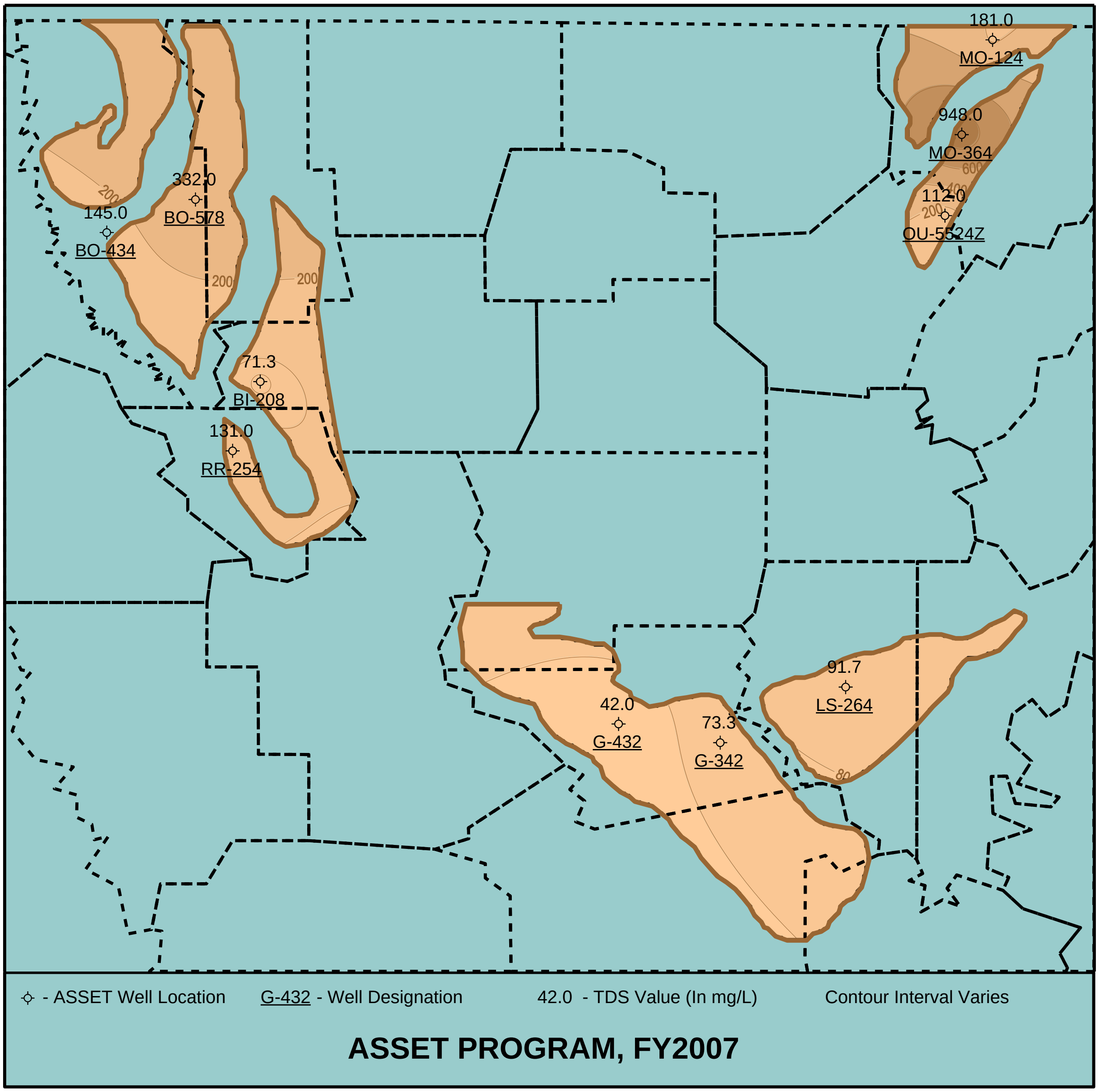

Figure 6-4: Map of Chloride Data

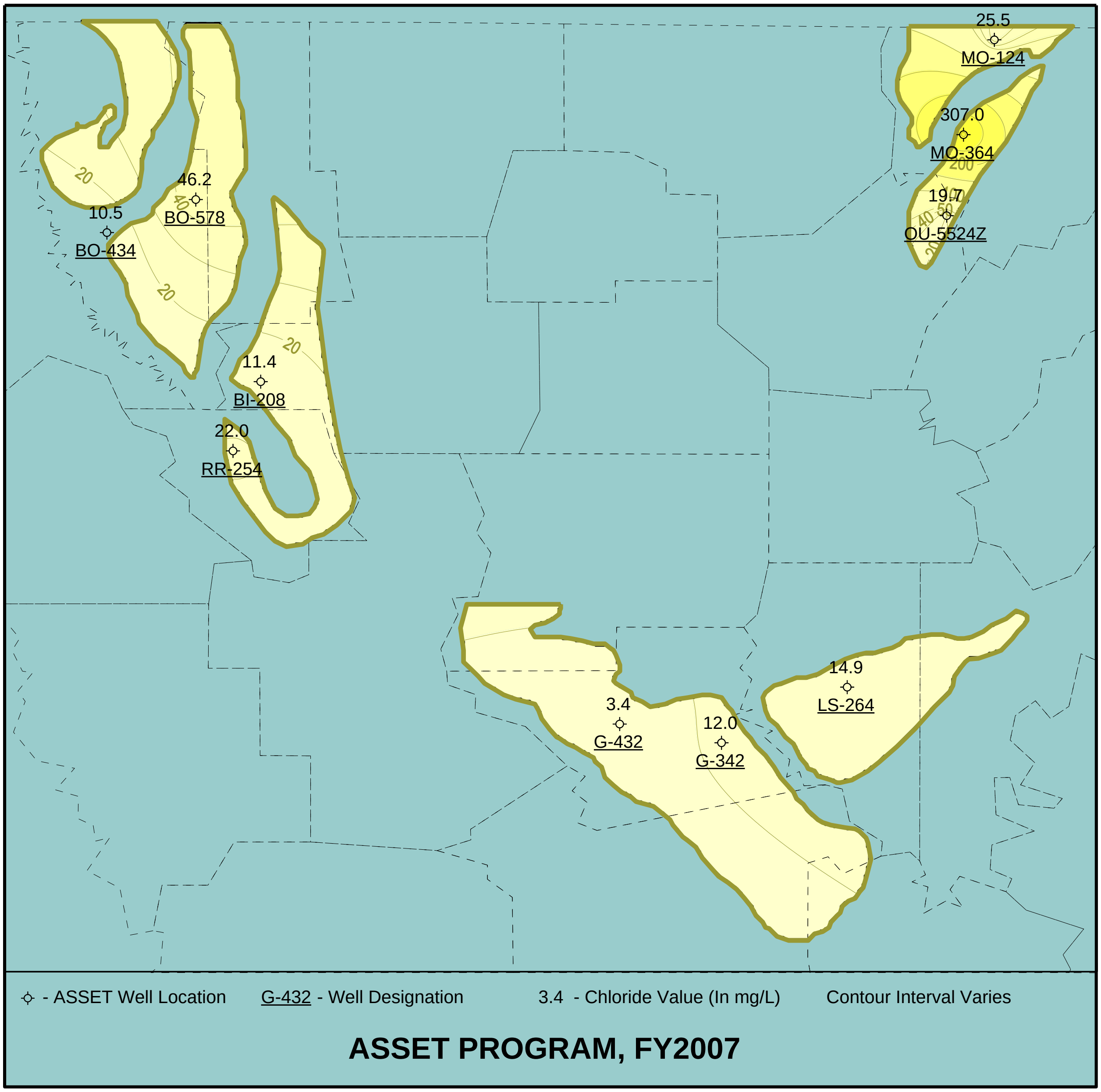

Figure 6-5: Map of Iron Data

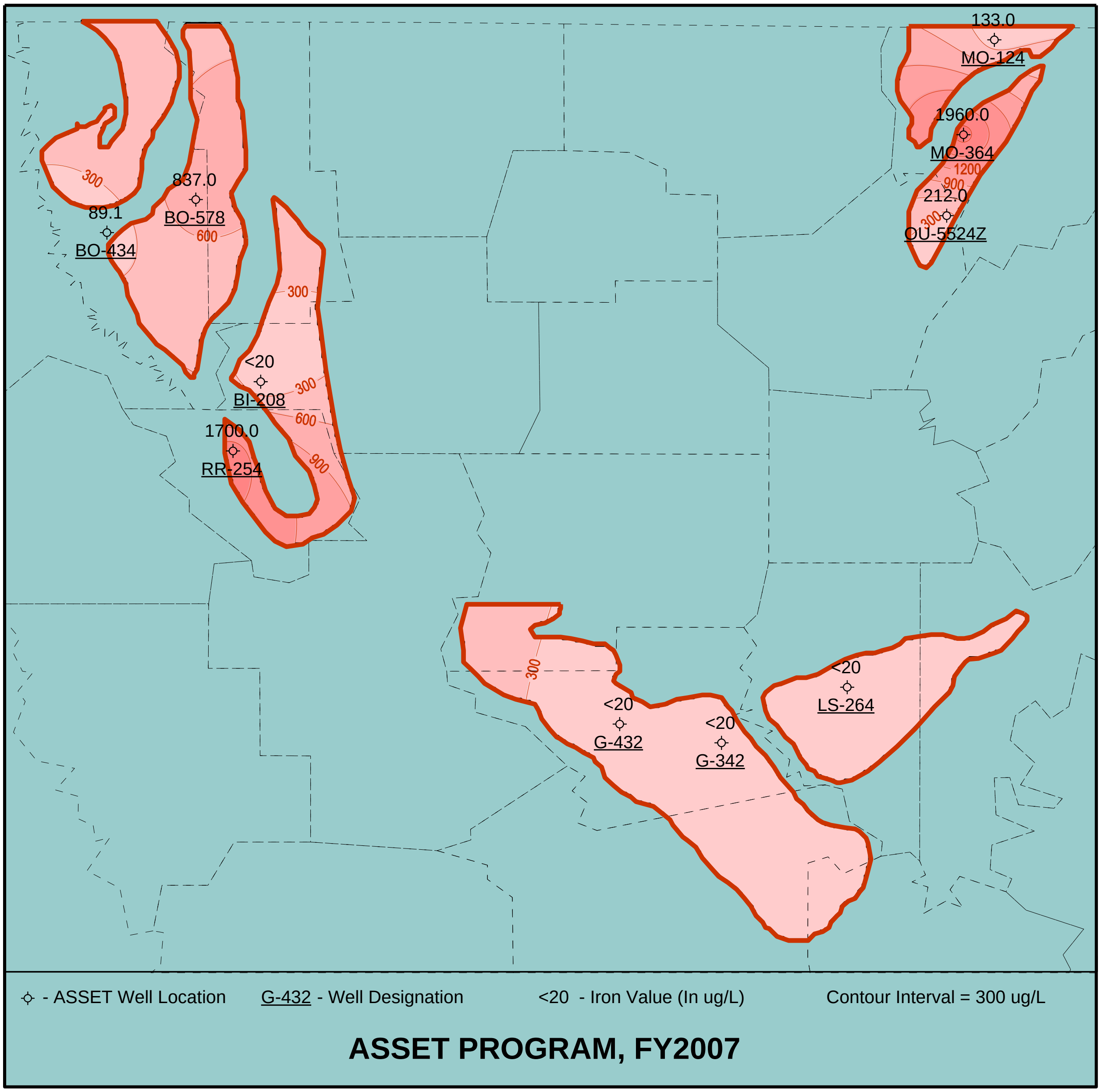

Chart 6-1: Temperature Trend

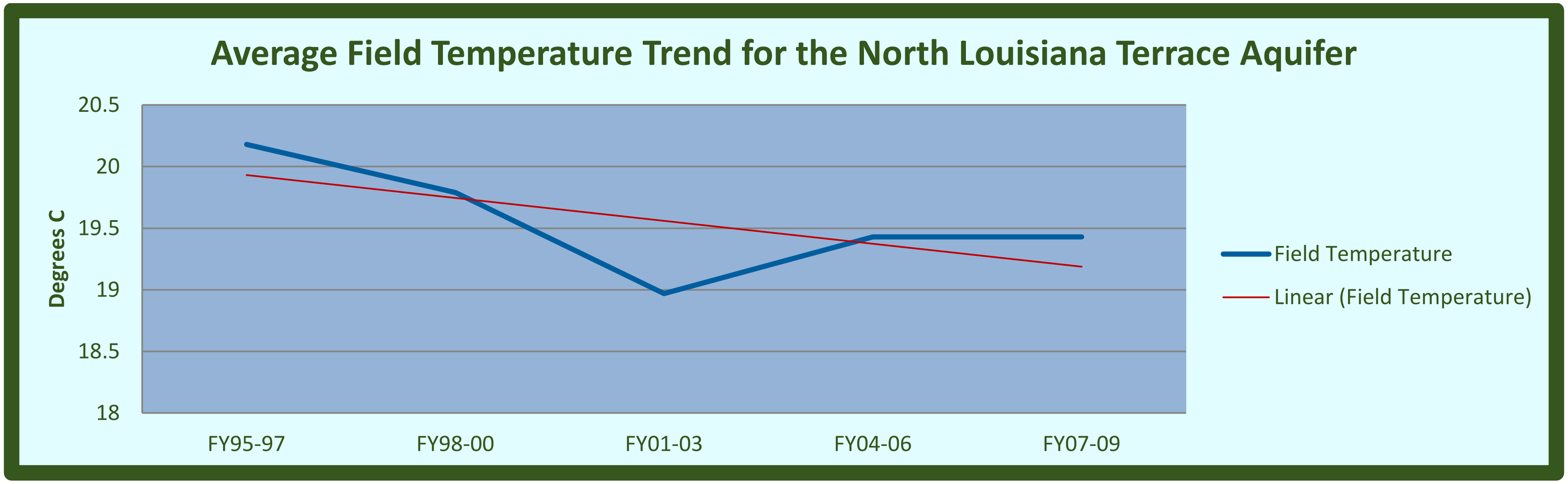

Chart 6-2: pH Trend

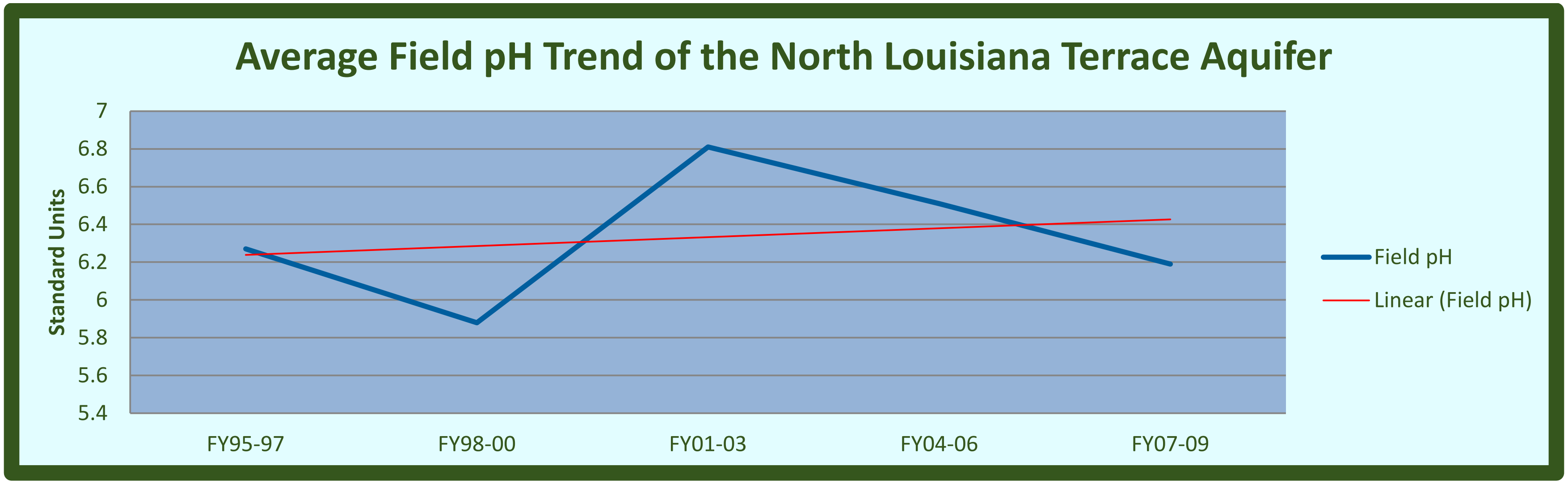

Chart 6-3: Field Specific Conductance Trend

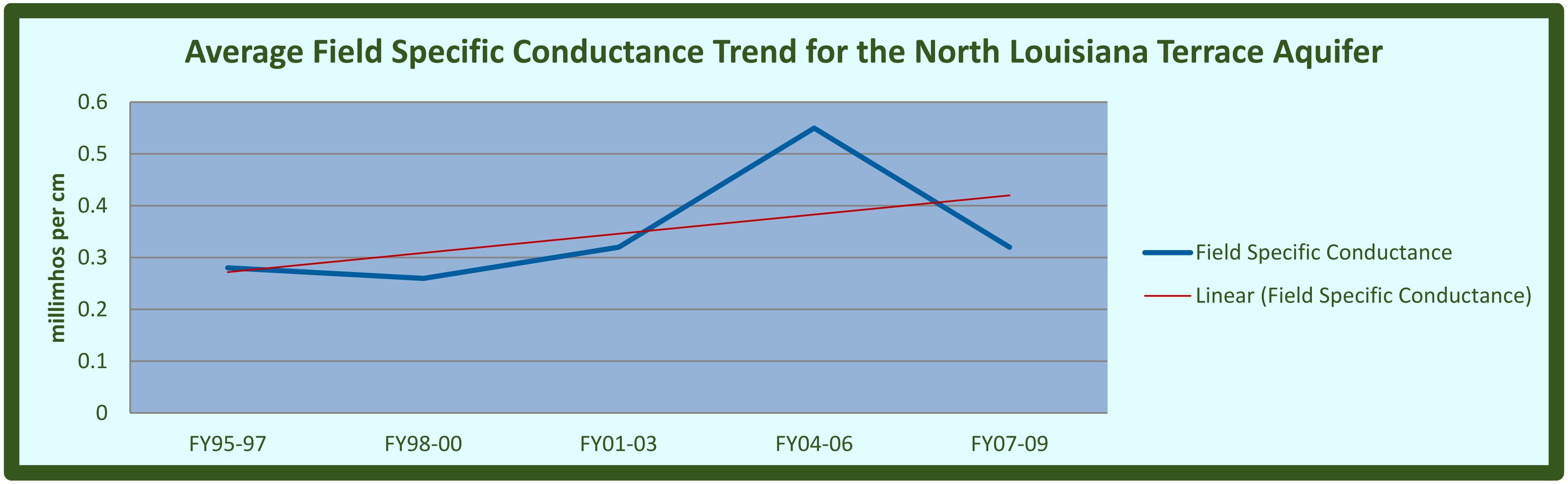

Chart 6-4: Lab Specific Conductance Trend

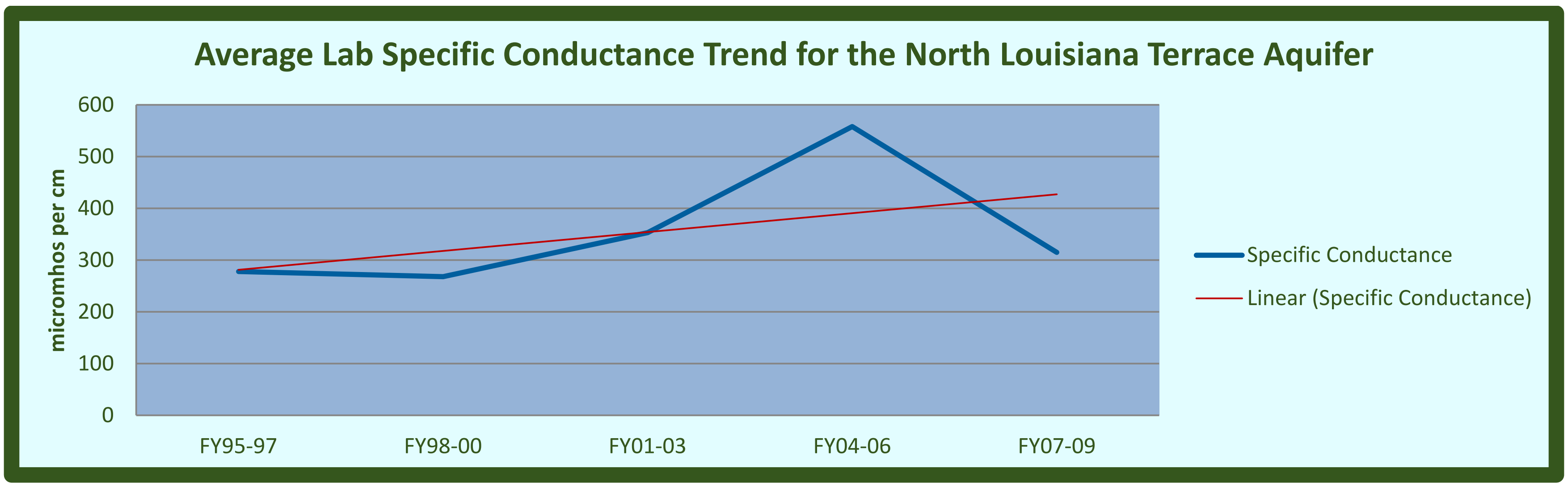

Chart 6-5: Field Salinity Trend

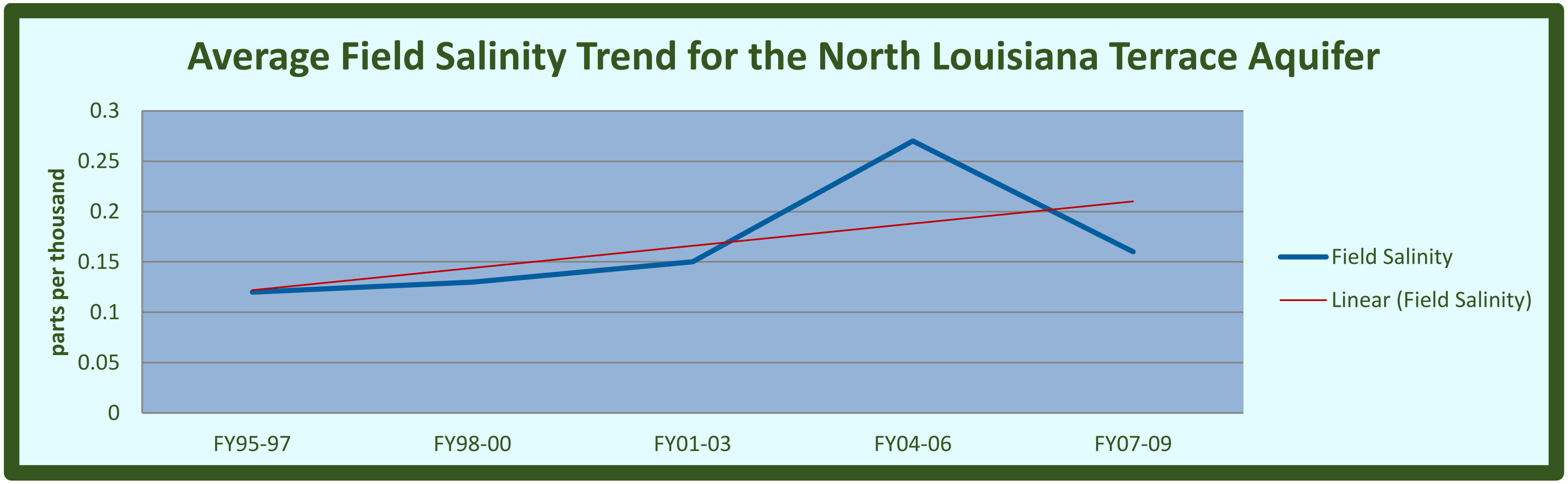

Chart 6-6: Alkalinity Trend

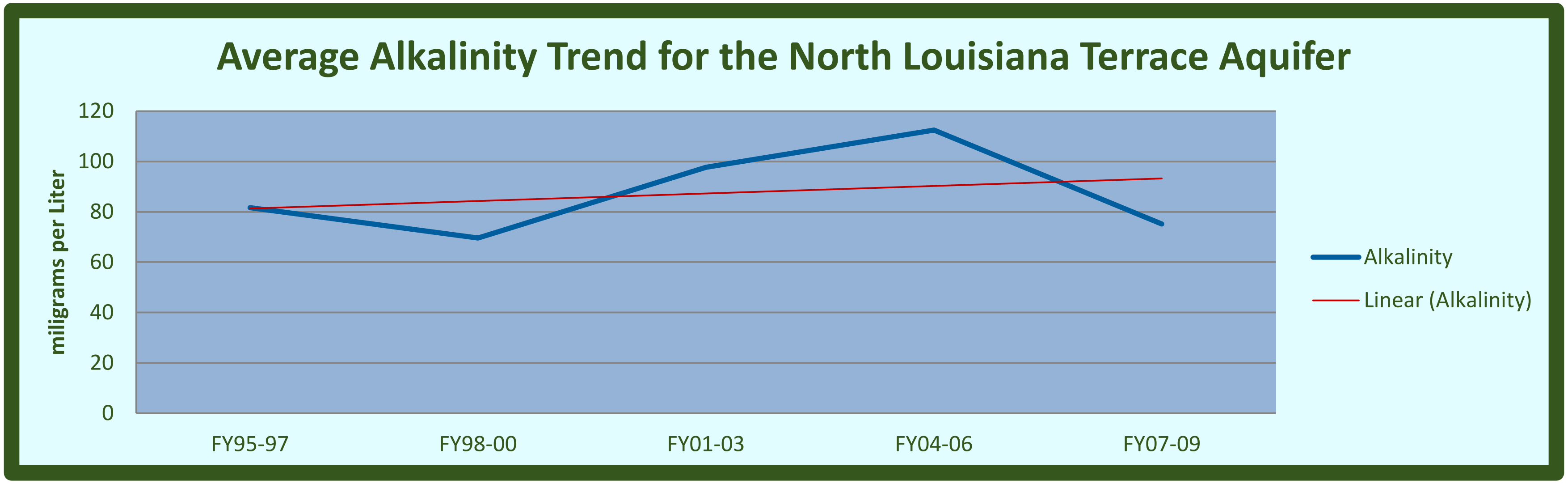

Chart 6-7: Chloride Trend

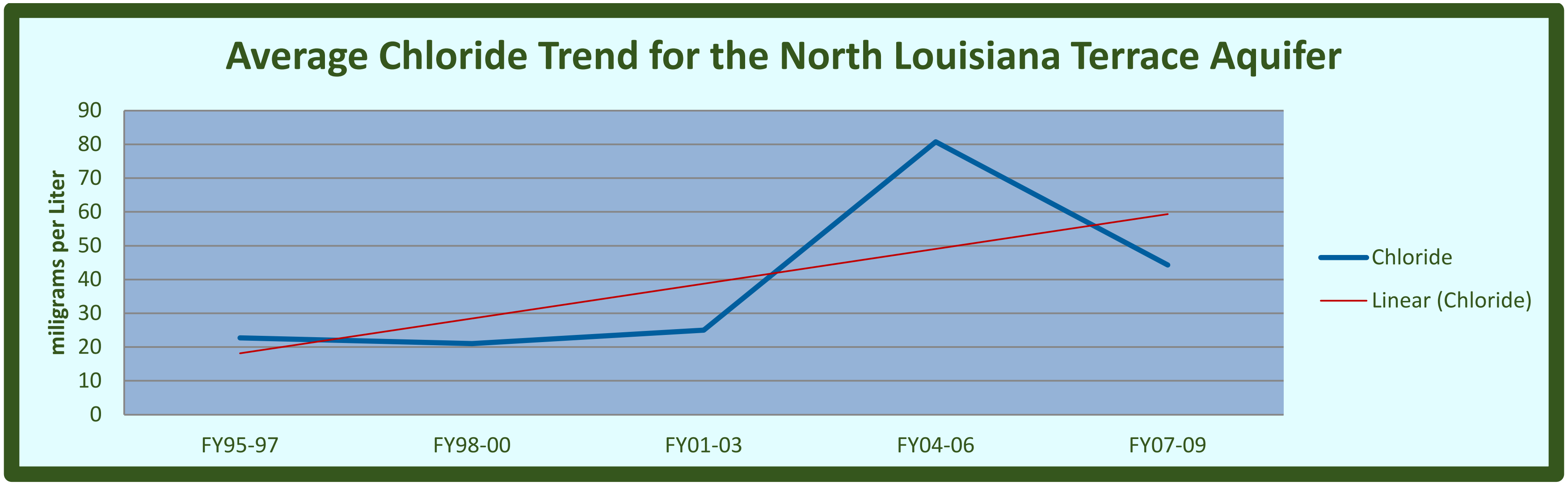

Chart 6-8: Color Trend

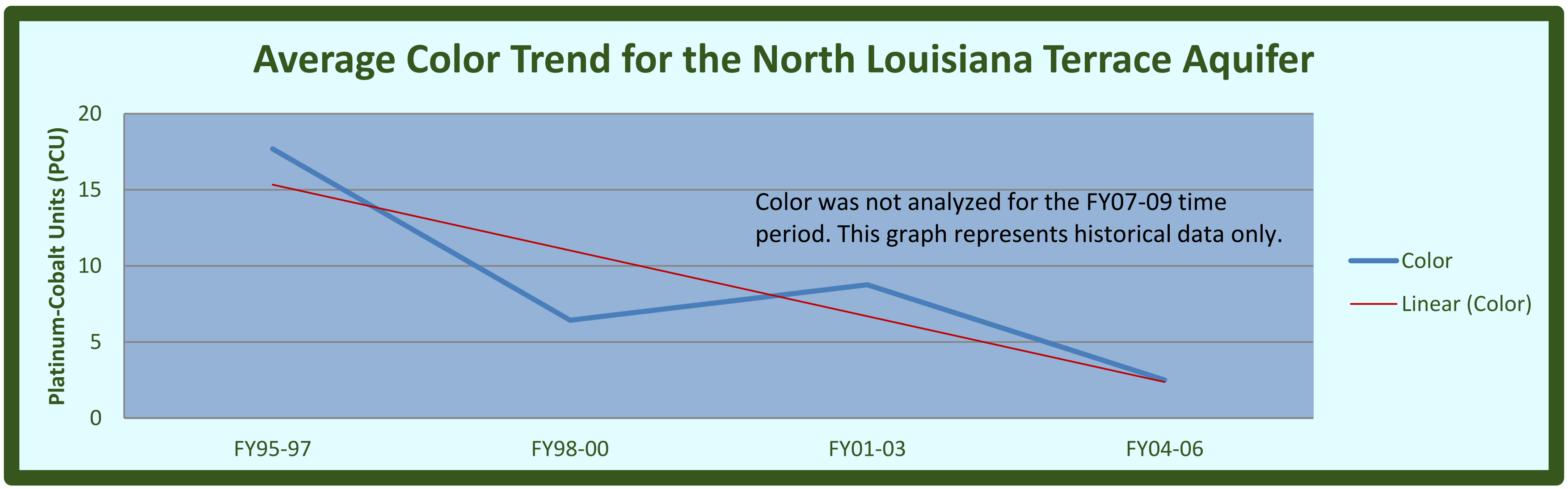

Chart 6-9: Sulfate (SO4) Trend

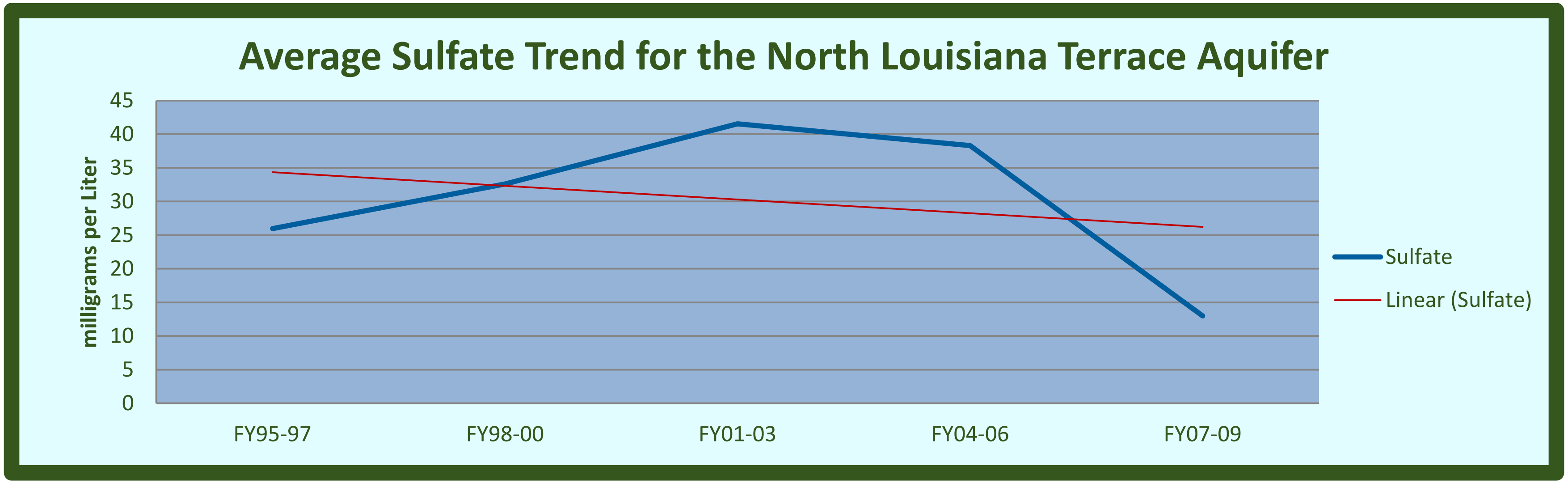

Chart 6-10: Total Dissolved Solids (TDS) Trend

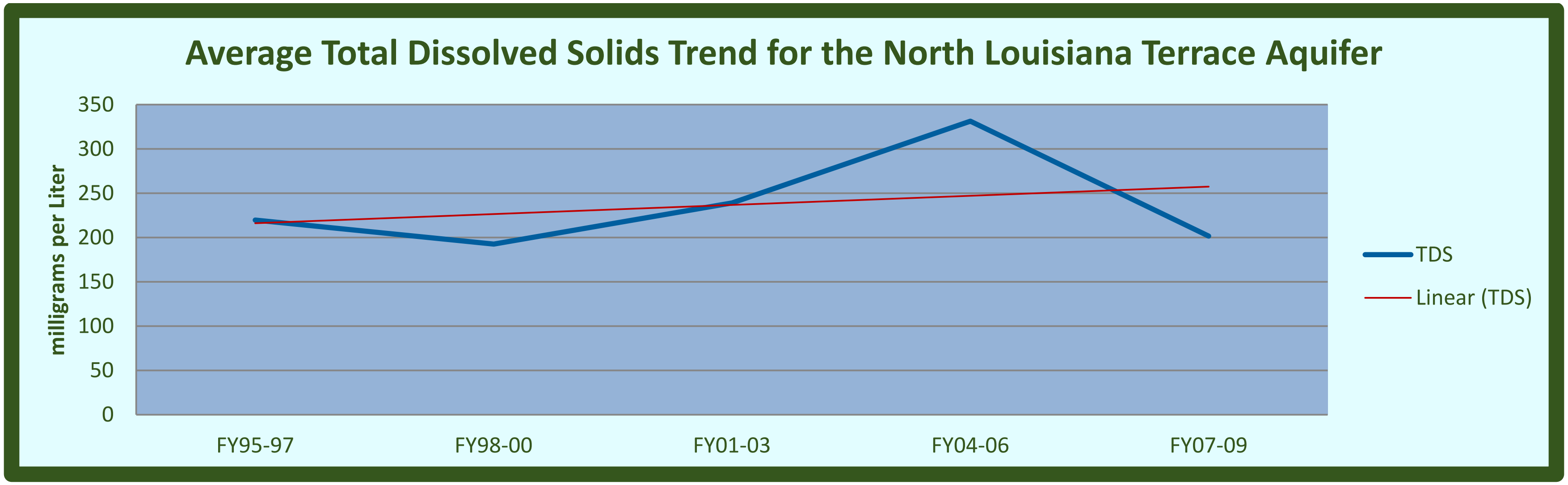

Chart 6-11: Ammonia (NH3) Trend

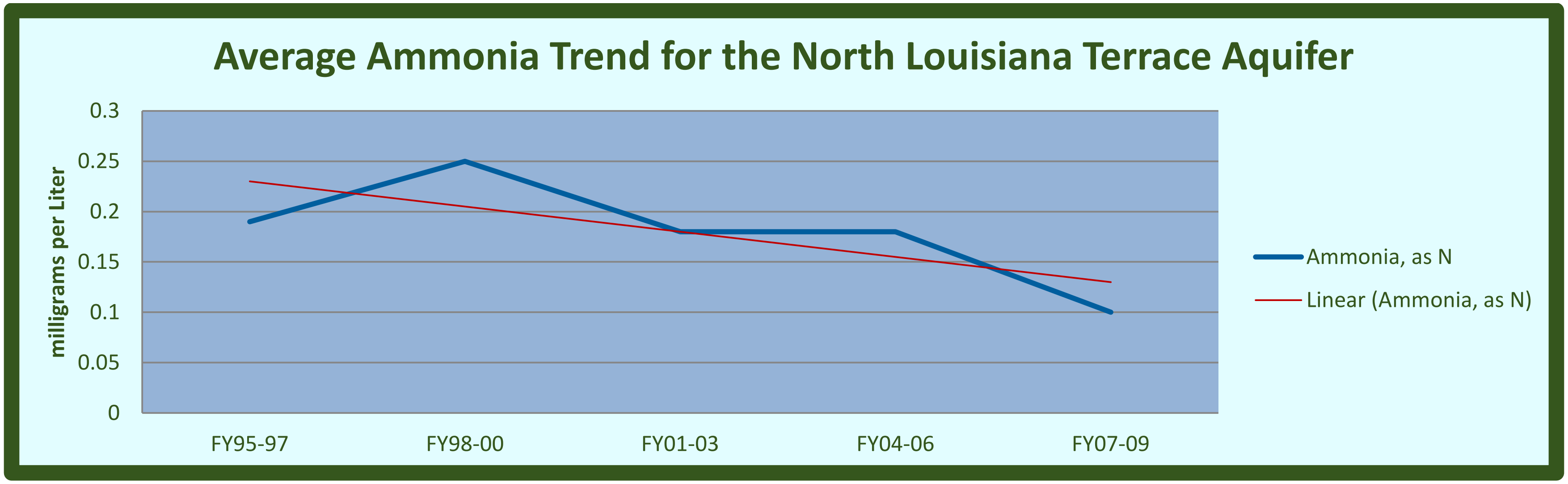

Chart 6-12: Hardness Trend

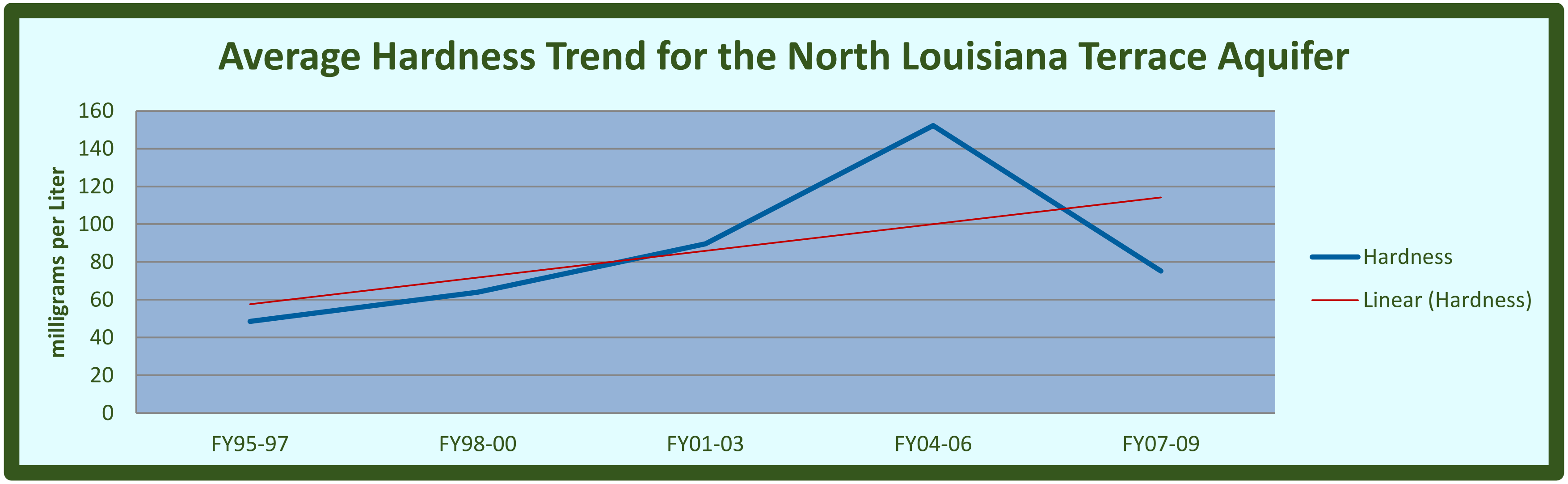

Chart 6-13: Nitrite – Nitrate Trend

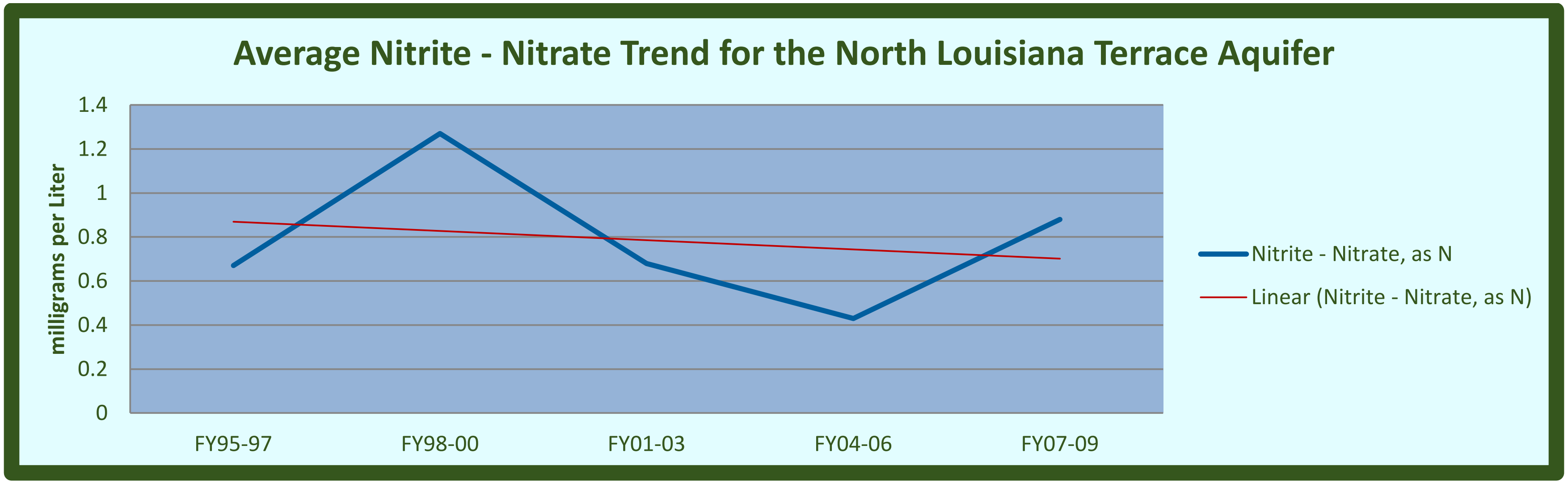

Chart 6-14: TKN Trend

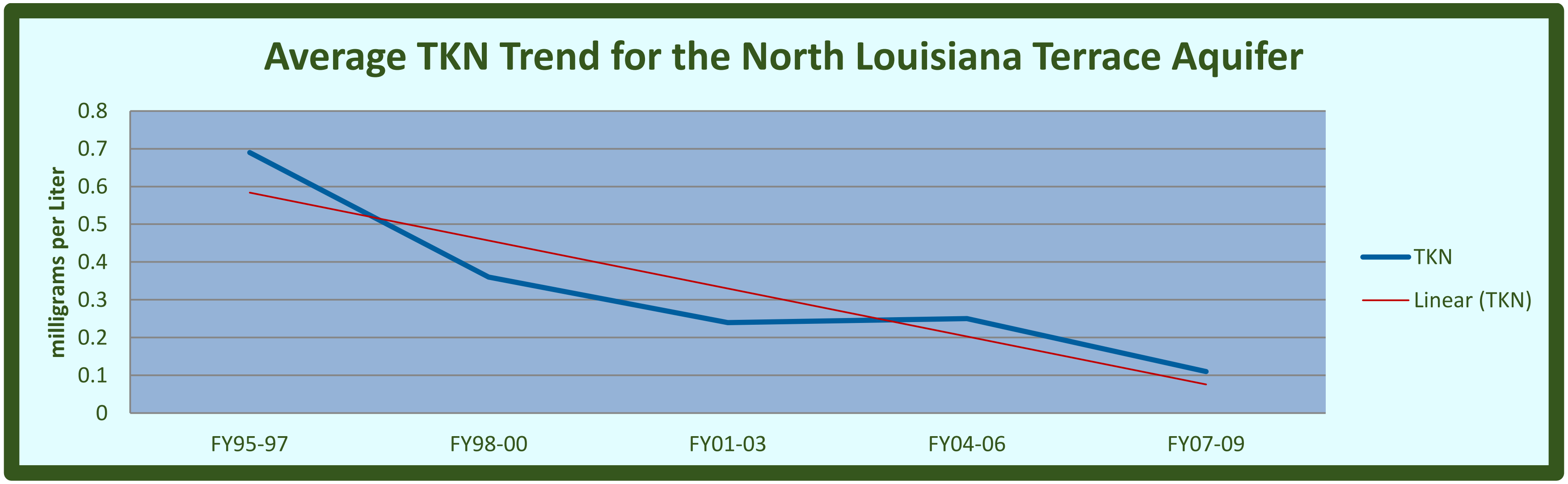

Chart 6-15: Total Phosphorus Trend

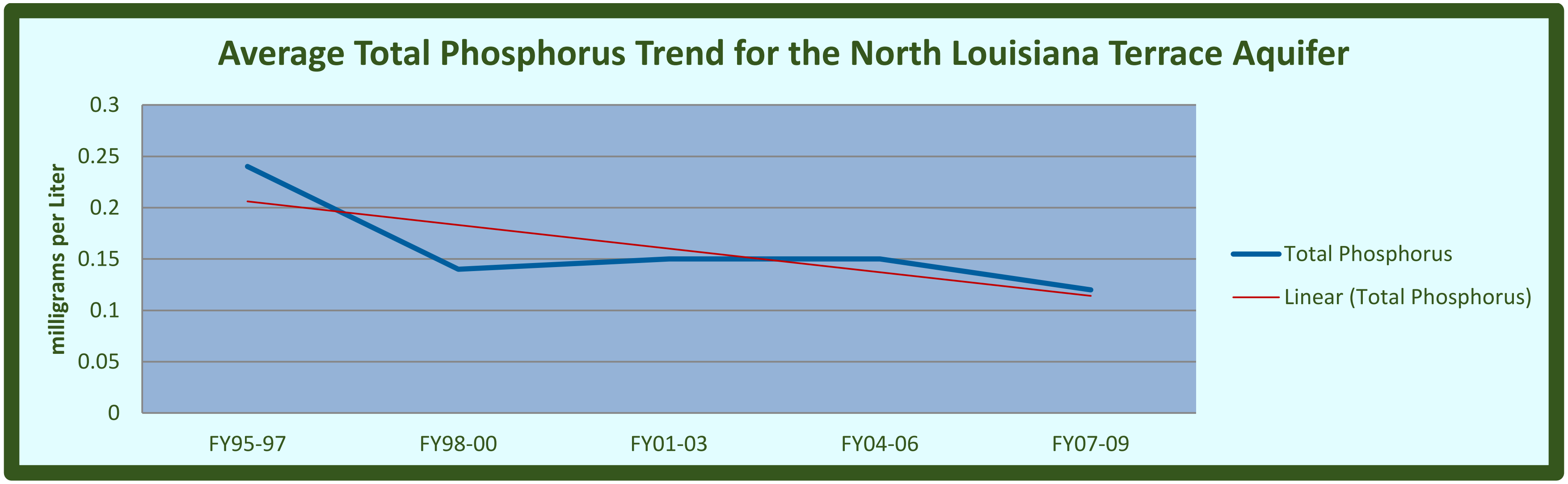

Chart 6-16: Iron Trend