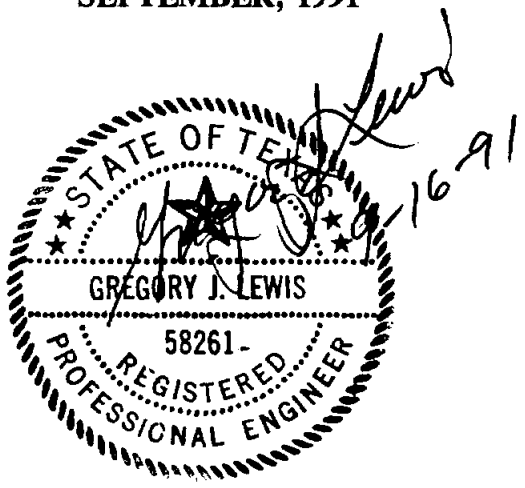
UPPER LEON RIVER
MUNICIPAL WATER DISTRICT
REGIONAL WASTEWATER STUDY
WATER QUALITY MONITORING PROGRAM
VOLUME II

SEPTEMBER, 1991



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SECTION 1.0
EXECUTIVE SUMMARY

1.0 EXECUTIVE SUMMARY

The following report documents the completion of the first three tasks of the Upper Leon River Municipal Water District (ULRMWD) Regional Wastewater Facilities Plan for the Lake Proctor Watershed. The study includes an initial assessment of water quality from existing data sources, a coordinated water quality monitoring program for Lake Proctor and its tributaries, a survey plan for development of water quality model calibration data, recommendations on data management, and a quality assurance/control plan for the monitoring program. the purpose of this plan is to support efforts of ULRMWD in controlling and enhancing water quality in the Lake Proctor Watershed.

As expected, the available data on Lake Proctor water quality are not strictly adequate to base any firm conclusions on water quality trends. Several problems were encountered in the evaluation of the data. The available data has several limitations resulting from an ad hoc approach to monitoring over the period of record. The limitations reduce the value of the data for use with most common exploratory statistical methods. These problems include missing values, sampling frequencies that change over the period of record, multiple observations within one sampling period, uncertainty in the location of the samples, uncertainty in the measurement procedures, and a relatively small sample size for many important parameters. The above characteristics result in the violation of many population assumptions required to properly apply parametric statistical procedures. In addition, several assumptions of non-parametric statistics are violated by the data.

In addition to the past monitoring practices, the data itself exhibits several limitations for trend and seasonal analyses. The seasonal component does not appear to be consistent over the monitoring period. Several outliers and unexplained results for the parameters of concern were noted.

The initial assessment of the historical water quality data for Lake Proctor included descriptive statistics, tests for normality of data, trend analysis, and analysis of variance. Because of the short monitoring period, the U.S. Geological Survey (USGS) data was not used in the analysis. For the Texas Water Commission (TWC) data, the indicator parameters with the most promising

number of distribution of values included dissolved oxygen, conductivity, chlorophyll-a, phaeophytin, secchi depth, and total phosphorous. The descriptive statistics and test for normality indicate that the data for chlorophyll-a and total phosphorous, two of the most important trophic state indicators, departed significantly from normality. The trend analysis resulted in several inconsistent trends. For example, the total phosphorous was forecast to increase, yet the chlorophyll-a was forecast to decrease. When examining the forecast summaries, significant values for mean squared error, mean absolute error, and mean percentage error indicate that the trends are inconclusive. The analysis of variance showed no significant difference between sample locations at a confidence level of 95 percent for most parameters. Significant difference was shown between the arm stations for secchi depth values and total dissolved solids. The arm stations were found to have a more shallow secchi depth (lower transparency) and a correspondingly higher dissolved solids level than the main body station. This conclusion is consistent with the settling properties of the lake body and with the anticipated higher levels of phytoplankton expected in nutrient enriched coves and arms of the lake. However, these conclusions were not supported by the other indicator parameters in the data set.

The proposed water quality monitoring program includes the compilation of data for model calibration and for interpretation of trends in water quality as the watershed develops. Three major divisions in the monitoring program are proposed for the watershed; long-term lake sampling, short-term intensive surveys, and special non-point source studies.

Major tributaries feeding into Lake Proctor will be sampled through diurnal intensive surveys. In addition, an intensive survey of the Leon River below Lake Proctor is proposed. The surveys will provide sufficient information to calibrate simple steady state water quality models. The models will be used to simulate the dissolved oxygen response of the tributaries and Leon River to variations in the watershed development, discharger location, and effluent limitations.

In addition to the intensive surveys, monthly sampling of Lake Proctor stations and immediate tributary inflows is proposed. This data will be used to calibrate a dynamic model of the lake to simulate dissolved oxygen responses in the lake to variations in watershed development, discharger location, and effluent limitations. The model will also be used to simulate changes in trophic state brought about by nutrient addition from point source dischargers and non-point

source pollution. The final monitoring program is the long term reconnaissance of Lake Proctor through consistent periodic sampling of key locations in the lake body and at major tributaries.

Additional studies related to the monitoring program include a non-point source survey and a lake bathymetry survey. The non-point source monitoring will be addressed in a separate report including preliminary analysis of non-point sources based on land use distribution. Bathymetric mapping of the Lake Proctor body is required in order to develop a hydraulic model. The hydraulic model will be required for use in dissolved oxygen and eutrophication modeling. Existing data from the U.S. Army Corps of Engineers (USACOE) sedimentation survey will be used if possible.

The quality assurance and control (QA/QC) program of the ULRMWD monitoring plan includes specific guidance on sample collection, sample preservation, sample transportation, sample storage, and sample analyses. The QA/QC program also addresses training and certification for ULRMWD personnel to perform the sampling and analyses in the plan. Information management and creation of a database for all future data compilation is addressed in the monitoring program.

SECTION 2.0
INTRODUCTION

2.0 INTRODUCTION

The ULRMWD has the responsibility for providing drinking water to more than 15,000 residents in four counties of north central Texas. Members in the District include Comanche, Hamilton, DeLeon, Dublin, Gorman, and incorporated areas and communities in Comanche, Eastland, Erath, and Hamilton counties. The sole source of water for the number cities in the ULRMWD is Lake Proctor. The lake was constructed in 1963 by the USACOE. The Brazos River Authority (BRA) maintains Water Rights Permit No. 2107 authorizing storage of water in the lake. The ULRMWD has contracted with BRA for diversion of Lake Proctor water for municipal purposes. Water quality is managed by the ULRMWD as the designated planning agency for the four county area encompassing the majority of the watershed. The location of the watershed in relation to the TWC segmentation of the Brazos River Basin is shown in Figure 1.

Existing data on water quality in Lake Proctor is inadequate for use in predictive models or other planning exercises. Quarterly samples are taken by the TWC and a three year monitoring program was carried out for baseline data by the USGS. Although limited monitoring of water quality in the lake is performed by ULRMWD at the raw water intake structures to its water treatment plant, no other coordinated monitoring has been performed on the lake.

2.1 Purpose

In order to provide wastewater treatment services to its members and to insure that appropriate measures will be identified for water resource protection, ULRMWD has undertaken a regional wastewater facilities plan for the Lake Proctor Watershed. A major component of the facilities plan will be the determination of wastewater effluent restrictions to be placed on a regional facility. In order to ascertain the suitability of the water bodies in the watershed for effluent discharge and to determine effluent limitations for a regional facility, a water quality management plan is proposed to augment the facilities plan. The water quality management plan will incorporate the results of the proposed monitoring program outlined in this report.

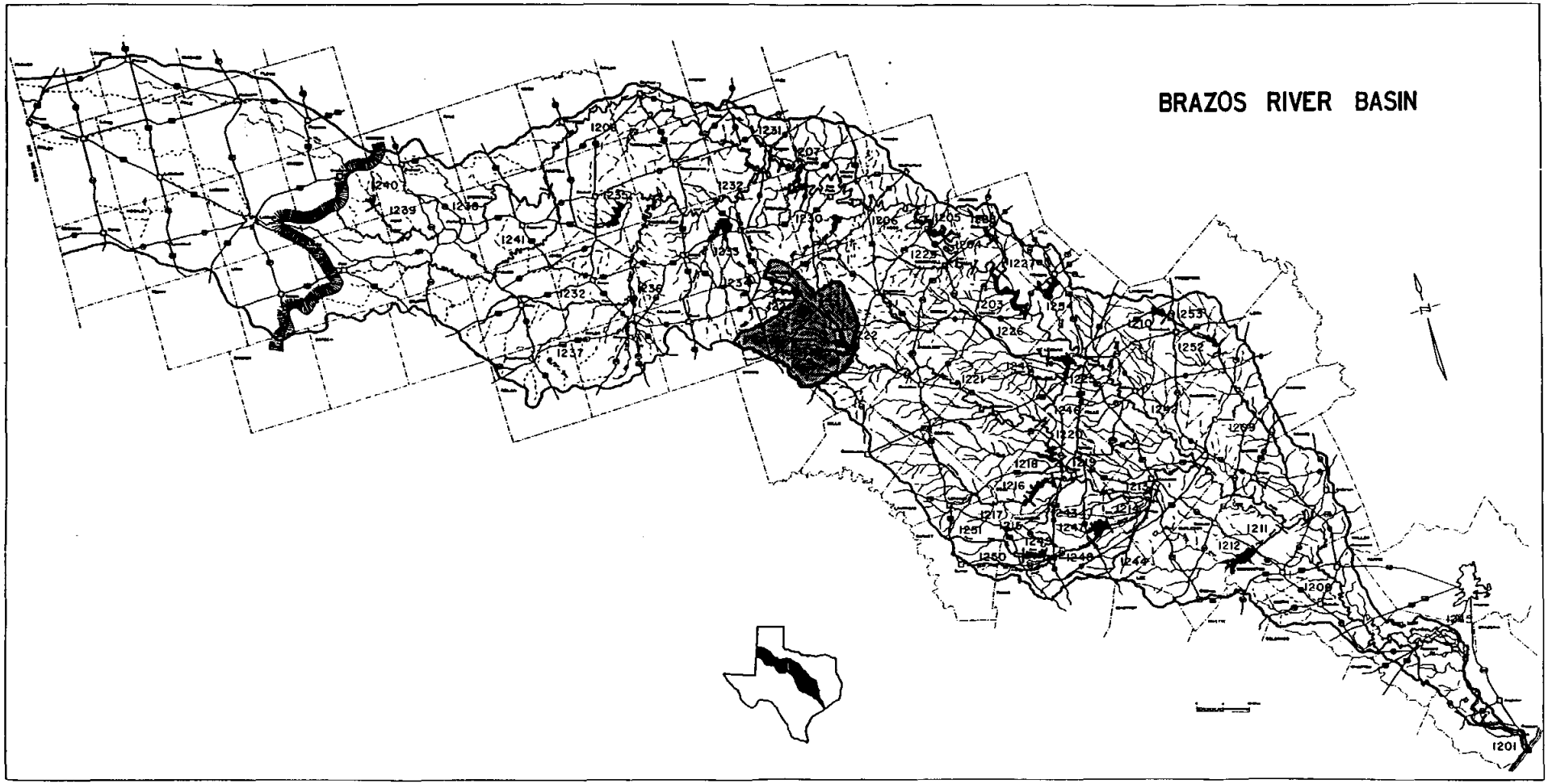

FIGURE 1
BASIN LOCATION MAP

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The purpose of this study is to evaluate the current water quality situation in Lake Proctor and develop a plan for long term monitoring of the lake and its tributaries. The goal of the monitoring program is to provide enough data for future use in water quality modeling of the lake and major tributaries. An additional goal is to provide data for use in trend analysis, planning for regional wastewater treatment, non-point source pollution control, and water supply protection.

2.2 Scope of Study

In accordance with the scope of work submitted to the ULRMWD, the following tasks are to be included in the initial phase of the water quality monitoring program:

- Compilation of historical water quality data, discharger data, and watershed data for Lake Proctor and its tributaries.
- Selection of monitoring parameters and sampling stations based on watershed characteristics, shoreline development, location of point source discharges, and location of raw water intakes.
- Selection of appropriate water quality criteria, statistics, and indices to assess monitoring data.
- Planning for field equipment, laboratory equipment, laboratory services, and personnel requirements for the monitoring program.
- Preparation of a summary report detailing the analysis and monitoring program.

The second phase of the monitoring program is to include the following activities:

- Development of a database management system for water quality data and selection of appropriate software for ULRMWD.

- Assistance during the initial sampling events and periodic quality control review of the data obtained in the program.

In order to expedite the inception of the monitoring program, a preliminary assessment of non-point source pollution included in the initial phase scope will be documented in a later report. This will allow the refinement of non-point source monitoring strategies after the receipt of additional aerial a photography of the watershed.

2.3 Participants

Funding for the monitoring program development is shared by the ULRMWD and the Texas Water Development Board (TWDB) through the Research and Planning Fund for Regional Water Supply and Wastewater Planning. Additional funding for the laboratory and field equipment to be used in the monitoring program was provided by the TWDB through a 75 percent grant for evaluations of the suitability of water for irrigation, rural domestic, livestock, and agricultural uses.

In addition to the funding authorities, several other agencies potentially impacted by Lake Proctor water quality have expressed interest in a coordinated monitoring effort. Coordination with the following entities will be made as appropriate during the monitoring program:

Brazos River Authority
U.S. Geological Survey
Texas Water Commission
U.S. Army Corps of Engineers
Tarleton State University

Although the role o each agency has not been determined at this time, the logistics of the sampling stations and frequency will be coordinated to avoid duplication of efforts among the agency data collection activities.

In addition to these agencies, the following regional planning authorities and planning agencies, cities, and counties affected by the proposed plan were notified of the project:

Councils of Government

North Central Texas Council of Governments
West Central Texas Council of Governments
Central Texas Council of Governments

County Governments of:

Comanche County
Eastland County
Erath County
Hamilton County

City Governments of:

City of Comanche
City of DeLeon
City of Gustine
City of Carbon
City of Cisco
City of Eastland
City of Gorman
City of Ranger
City of Rising Star

This portion of the Regional Wastewater Study, the Water Quality Monitoring Program was performed by Jones and Neuse, Inc., (JN) an environmental and engineering consulting firm, under contract with the ULRMWD.

SECTION 3.0
WATER QUALITY ASSESSMENT FROM EXISTING DATA

3.0 WATER QUALITY ASSESSMENT FROM EXISTING DATA

3.1 Sources of Data

In order to compile existing water quality data on the watershed, several agencies routinely involved in such data collection were contacted. In most cases, little data was available on the lake. in the cases where some data was generated, the frequency of samples, sample location, or the parameters chosen for analyses made the data of little use in model calibration or water quality projections. The following agencies were contacted in compiling water quality and background data.

3.1.1 Upper Leon River Municipal Water District

The ULRMWD has not performed any ambient water quality monitoring of Lake Proctor to date. They maintain a water treatment facility on Lake Proctor which is required to analyze raw water lake samples for turbidity, alkalinity, and pH on a monthly basis. The water treatment plant also test for turbidity, alkalinity, coliform, chlorine residual, and pH in water produced form the plant and discharged to the distribution system. Finished water is also monitored annually for a wide range of water quality parameters including those with Texas Department of Health (TDH) standards. This data is not particularly useful in the lake monitoring program because it is taken after chemical treatment and is therefore not representative of ambient water quality.

3.1.2 U.S. Geological Survey

The USGS performed a quarterly water quality sampling program of seven (7) stations located in Lake Proctor. USGS stations in Lake Proctor are shown on Figure 2. The sampling program was performed from 1980 to 1983 in order to provide a baseline of data on the lake. Samples were taken at up to five (5) depth intervals for a variety of field and laboratory water quality parameters. No water quality samples have been taken by the USGS since the conclusion of the program in 1983. Reports from these three years of data collection were obtained from the USGS for use in this study. Appendix A includes summaries of this data.

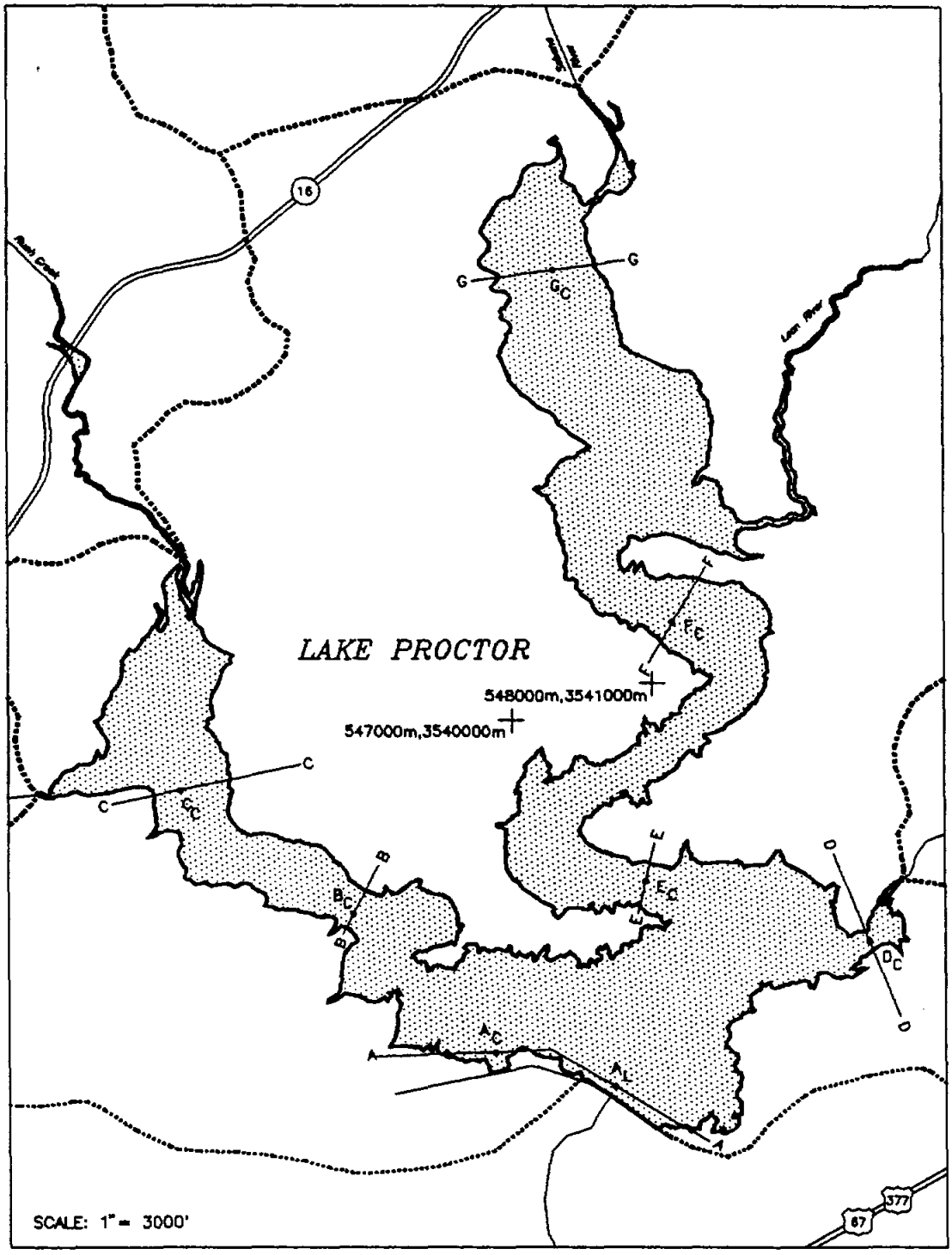

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FIGURE – 2
UPPER LEON MUNICIPAL
WATER DISTRICT
LAKE PROCTOR USGS MONITORING STATIONS

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In addition to the short term water quality sampling, the USGS also publishes data from a recording level gage on Lake Proctor. The USACOE provides the data to the USGS in order to determine reservoir contents. The gage is located in the intake structure to the Lake Proctor spillway.

3.1.3 Texas Water Commission

The TWC maintains three main monitoring stations on Lake Proctor. the monitoring stations are operated out of the TWC District 3 - Waco office. The period of record from these samples extends from November 1973 to the present. Sample frequency at these stations has varied over the years. Initially, monthly samples were taken for a limited number of field and laboratory parameters. After a few years, quarterly samples were continued at the same locations. Finally, the TWC resorted to semi-annual sampling in order to continue the data collection. Recently, quarterly sampling has been resumed as the interest and resources required for sampling Lake Proctor have increased. The majority of the events included samples taken at five or ten foot depth increments.

In addition to the lake samples, the TWC also mains a Statewide Monitoring Network Station (SMN) on the Leon River above Lake Proctor, two in the Leon Reservoir above Lake Proctor, and several on the leon River below Lake Proctor. The locations of the SMN stations of interest are shown on Figure 3. Data obtained from the SMN database for these stations are included in Appendix B. The station on the Leon River above Lake Proctor is important in determining mainstem impacts to the reservoir. The stations below Lake Proctor are important because a regional facility in the watershed may discharge into this segment more readily than to the reservoirs above it. Therefore, any predictive modeling performed to determine appropriate effluent limitations for such a plant must include a calibration of the Leon River below Lake Proctor.

3.1.4 Texas Water Development Board

The TWDB was contacted concerning potential population growth in the watershed which could affect water quality in Lake Proctor. The Board develops countywide and larger city estimates

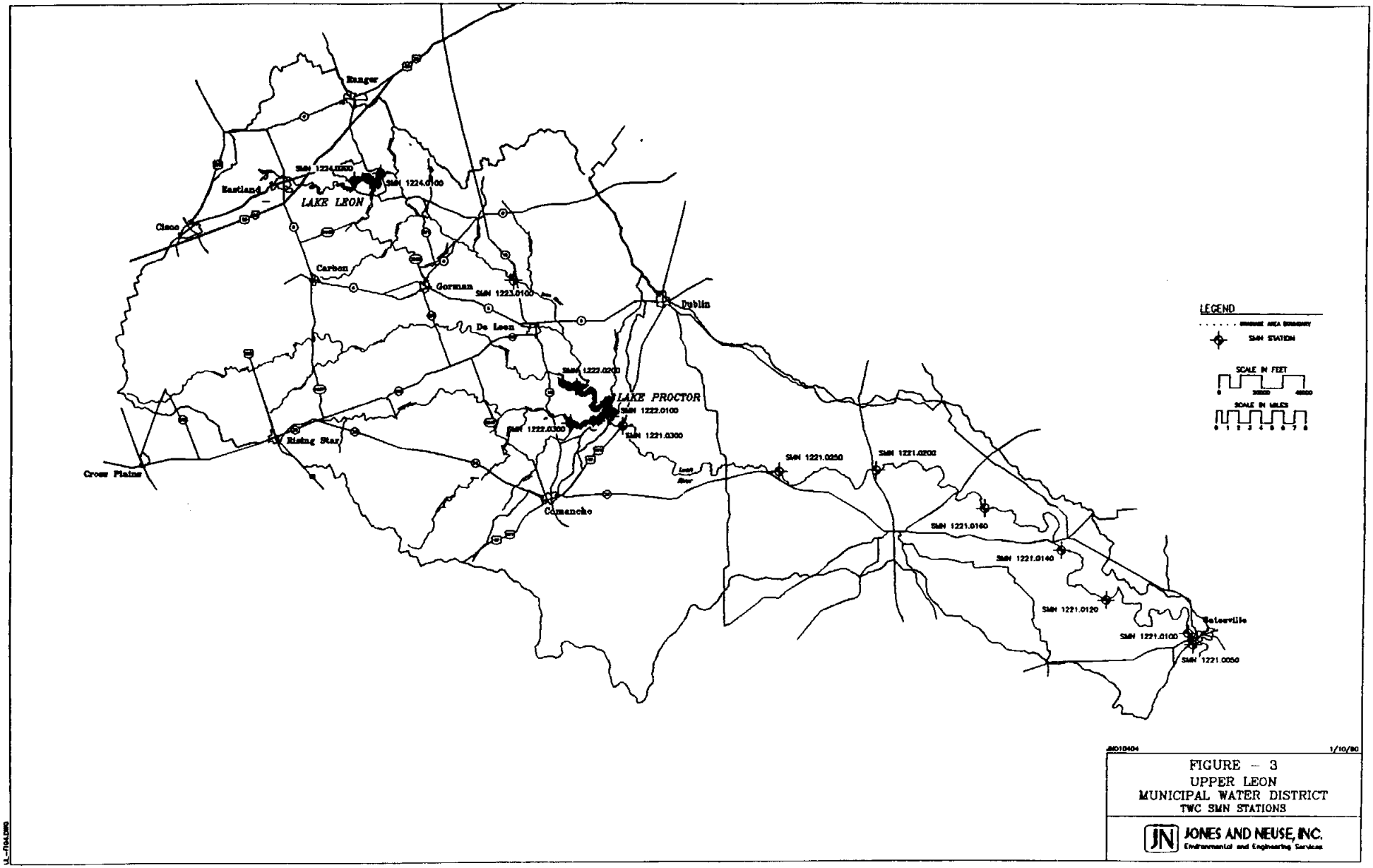

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FIGURE – 3
UPPER LEON
MUNICIPAL WATER DISTRICT
TWC SMN STATIONS

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for population increases. The model used to generate these estimates is a cohort survival program based on age groups determined form census data and economic parameters developed through commerce data. this data is more useful for the facility planning portion of the regional study, but it is also needed to determine water quality sample density as a function of population density.

3.1.5 USDA Soil Conservation Service

The SCS was contacted primarily concerning information on agricultural watersheds and non-point source pollution. The involvement of the SCS in water quality monitoring is limited to data developed on soil loss and erosion potential. The majority of this data is contained in published soil survey. Soil surveys were obtained for Comanche, Eastland, and Erath Counties. A current survey was not available for Hamilton County; however, a general soil map for the county was obtained.

3.1.6 U.S. Army Corps of Engineers

The USACOE is responsible for river basin and lake management in relation to flood control. In this responsibility, the USACOE has the task of determining the change in capacity of the lake due to sedimentation. The most recent sedimentation re-survey of Lake Proctor was performed in May 1986. This survey was reviewed in relation to additional data needs on bathymetry for model calibration. Relative siltation rates also provided information on sedimentation potentially from non-point sources. The bathymetric data from the sediment re-survey will potentially be valuable for segmentation of a hydrodynamic model of Lake Proctor for use in making water quality predictions. The re-survey report was obtained, but the raw bathymetric data will be necessary in model development.

3.2 Background Watershed Information

Background watershed information pertinent to water quality in lake proctor include the physical characteristics of the watershed, construction and operation of the lake, and the urbanization and land uses prevalent in the watershed. These influences were briefly researched using sources

including those above. A more detailed evaluation of watershed influences will be performed upon receipt of the complete aerial photographs of the watershed for the non-point source determination.

3.2.1 Physical Water Quality Influences

Physical and hydrological influences on water quality include geographic and atmospheric influences, bottom substrate and watershed geologic influences, lake shape and circulation influences, and instream flow and water level influences. The upper reaches of the Leon River Watershed are in the Osage Plains section of the Central Lowland physiographic province of Texas. The watershed area in the lower reaches above Proctor Dam is in the West Gulf Coastal Plains physiographic province. Substrate geology in the headwaters of the lake is composed of carboniferous rocks of the Pennsylvania Period including the Strawn, Canyon, and Cisco Groups of formations. The Leon river channel is characterized by steep slopes, rocky substrate, and a channel capacity which is relatively small for the extent of the watershed. Total gradient of the Leon stream bed is approximately 970 feet to Lake Proctor at an average slope of 3.25 feet per mile. Tributaries to the Leon River also have typical steep gradients and rocky substrates.

Atmospheric influences include the effects of precipitation, evaporation, wind direction and speed, and incident radiation on the lake water balance and heat budget. The mean maximum July temperature at the nearest National Weather Service Station is 95°F with a record maximum of 108°F. The mean minimum January temperature was 32°F with a record minimum of 9°F. Watershed minimum temperature was recorded at Gatesville at -6°F and watershed maximum was recorded at Eastland at 115°F. The average annual precipitation on the lake surface is 28.45 inches with a seasonal minimum of 1.44 inches in August and a seasonal maximum of 4.45 inches in May. Heavy precipitation during 1989-1990 has resulted in abnormal lake level and releases in recent periods. Pan evaporation has averaged 90.63 inches per year in the watershed. A pan coefficient of 0.69 for the area results in an estimated 62.53 inches per year lake surface evaporation. prevailing wind direction is from the south during the spring, summer, and fall months and from the north during winter months. Annual average wind speed is approximately 10.8 miles per hour in the watershed. The temperature distribution within the lake is important to determine the degree and stability of vertical stratification of the lake. The

temperature stratification has a significant impact on aquatic life as it also indicates dissolved oxygen, nutrient, and biological differences between the hypoliminion and epilimnion.

The morphological influences on lake water quality include surface area, volume, inflow and outflow, mean depth, length, length of shoreline, depth-area relationships, depth-volume relationships, and bathymetry. Mean depth is often used as a gauge of primary productivity with shallower lakes seen as more productive due to effective light penetration and relative volume of the photic zone for algae production. Lake currents due to wind stress, inflow, and outflow also determine the mixing and distribution of nutrients and sediment in the lake. This information is also necessary to determine transport terms in water quality modeling of the lake. Indirectly, prevailing lake currents can be ascertained by bathymetry and conservative tracer calibration in modeling.

3.2.2 Construction and Operation of Lake Proctor

Lake Proctor is formed from impoundment of the Leon River by a rolled earth fill dam with concrete spillway in a right abutment ridge. The spillway is an ogee type crest with a length of 440 feet. The outlets from the dam consist of two 36 inch diameter gate controlled conduits. Control of releases from Lake Proctor give some flexibility in water quality management through seasonal timing of releases. Gate controlled releases from the hypoliminion may also be used to control downstream water quality and vertical stratification in the lake itself. In addition, the dilution/flushing action of release regulation can be used to reduce the concentration of limiting nutrients or phytoplankton biomass.

Another operational activity which influences lake water quality is artificial aeration/circulation. Artificial aeration/circulation devices were noted on TWC monitoring reports during several periods. These devices may have been installed for hypolimnetic aeration to improve anaerobic conditions below the thermocline or for aeration induced mixing to improve lake circulation and reduce algal blooms. No information was obtained as to the purpose of the aerators in the TWC monitoring reports.

3.2.3 Watershed Development and Historical Land Uses

The watershed of Lake Proctor is primarily agricultural and rural in nature. The primary historical land use in the watershed is rangeland. The predominant secondary land uses are for pastureland and cropland. A relatively small proportion of the watershed is used in urban land use, farmsteads, roads, and other development.

Development in Comanche County began in 1851 with the settlement of the Indian Creek Community east of Comanche and continued with settlement of Troy (Gustine) in 1854. Eastland County developed along with similar land uses as Comanche with the exception of a temporary rapid increase in population during the 1920's as a result of the oil boom and related petroleum exploration and development. Erath County also developed along rangeland and cropland uses with little urbanization other than minor population centers such as Stephenville.

The majority of agribusiness done in the watershed is dairying and beef cattle. Also sheep, poultry, and mohair goats are sources of income in the watershed. The main crops of the watershed are grain sorghum, peanuts, cotton, and small grains. In Erath County, orchards, truck crops, and nursery crops are of importance. Improved pasture land, mainly Coastal bermuda grass and weeping love grass continues to increase in the watershed. These grasses have been planted on many idle fields and area brushlands.

3.3 Water Quality Criteria and Uses

Current water quality criteria have been set through analyses of existing data from the TWC statewide monitoring network stations and the existing uses of the major water bodies. The specific criteria are documented in the Texas Water Quality Standards. The majority of the watershed is composed of undesignated tributaries which are regulated by the general criteria in the standards and site specific reviews of stream uses made during TWC regulatory actions. The waterbodies with unique criteria include Lake Proctor, Lake Leon, Leon River below Lake Leon, and Leon River below Lake Proctor.

3.3.1 Segment 1222 - Lake Proctor

Lake Proctor is designated as segment 1222 in the Texas Water Quality Standards. The designated uses of the lake include public water supply, contact recreation, and high quality aquatic life uses. Water quality criteria for this segment are identified in Table 1. Attainment of these criteria is documents in the TWC 305(b) Water Quality Inventory. The 1990 edition of this document indicates that attainment was made over the last three years of monitoring data for all monitoring parameters except for dissolved oxygen and fecal coliforms. Four excursions of the dissolved oxygen criteria were observed with a mean value of 2.6 mg/L. One excursion of the fecal coliform criteria was observed with a value of 224 organisms/100mL. No significant water quality problems were known to exist in the segment, and no potential problems were identified.

3.3.2 Adjoining Segments

Adjoining segments in the vicinity of Lake Proctor include Segment 1221 - Leon River below Lake Proctor, Segment 1223 - Leon River below Lake Leon, and Segment 1224 - Lake Leon. The water quality criteria for these segments is included in Table 2. The recent attainment of the criteria from the Water Quality Inventory indicates that no significant water quality problems are known to exist in Segments 1223 or 1224. However, insufficient data were available to examine the standards compliance for Segment 1223.

Segment 1221 was noted for five violations of the dissolved oxygen criteria. Suspected sources for these violations are algal photosynthesis and respiration. Occasional high nitrogen and periodic high phosphorous levels in this segment contribute to the algal production and wide fluctuations of dissolved oxygen level over the diurnal period. The fecal coliform criteria, total dissolved solids, chloride and sulfate criteria are also occasionally violated.

The period on this segment indicates that existing point or non-point sources of pollution have had an impact upon water quality. This historical data gives a preliminary indication that this segment may not support an additional treatment plant discharge without advanced treatment. However, this conclusion is dependent upon the proposed site location and assimilative capacity

TABLE 1

TEXAS WATER COMMISSION WATER QUALITY CRITERIA

LAKE PROCTOR - SEGMENT 1222

Variable	*Criteria*
Dissolved Oxygen	Minimum of 5.0 mg/L
pH Range	6.5 S.U. to 9.0 S.U.
Total Dissolved Solids	Annual average not to exceed 500 mg/L
Fecal Coliform	Thirty-day geometric mean not to exceed 200 #/100 ml
Chloride	Annual average not to exceed 200 mg/L
Sulfate	Annual average not to exceed 75 mg/L
Temperature	Maximum not to exceed 93°F

TABLE 2

TEXAS WATER COMMISSION WATER QUALITY

ADJOINING SEGMENTS 1221, 1223, 1224

	Leon River Below Proctor 1221	*Leon River Below Leon Reservoir 1223*	*Leon Lake 1224*
Dissolved Oxygen (min)	5.0 mg/L	5.0 mg/L	5.0 mg/L
pH Range	6.5 - 9.0	6.5 - 9.0	6.5 - 9.0
Total Dissolved Solids (max)	500 mg/L	1240 mg/L	500 mg/L
Fecal Coliform (max)	200/100 ml	200/100 ml	200/100 ml
Chloride (max)	150 mg/L	480 mg/L	150 mg/L
Sulfate (max)	75 mg/L	130 mg/L	75 mg/L
Temperature (max)	90°F	93°F	93°F

of the Leon River below the discharge point. This information will be developed through the models proposed as an end result of the monitoring program.

3.3.3 Undesignated Tributaries

Major undesignated tributaries in the Lake Proctor Watershed include the Copperas Creek/Rush Creek system, the Sabana River, and Armstrong Creek. All of these tributaries were found to be flowing during a reconnaissance visit to the watershed and are presumed to be perennial. Many of the major tributary flow are supplemented by discharges from relatively small municipal wastewater treatment plans. The proposed revisions to the Texas Water Quality Standards raised the presumptive aquatic life use of perennial unclassified waters from limited to intermediate uses.

Other smaller tributaries draining directly to the lake include Sowells and Duncan Creeks. In addition, many secondary tributaries form the bulk of the lake drainage area. no major springs or seeps are found on the secondary tributaries and each drainage area is relatively small. Therefore, most of the secondary tributaries are intermittent in flow regime. The unclassified waters which are intermittent in flow regime are presumed to have limited aquatic life uses.

Assessment of site specific unclassified stream uses is currently practiced during regulatory actions of the TWC. These actions include wastewater discharge permit renewals, amendments, or applications, water rights permit actions, and enforcement actions taken over unauthorized discharges. The actions taken by the TWC to date have not resulted in the development of any site specific uses or criteria for the unclassified tributaries in the Lake Proctor Watershed.

3.4 Wastewater Discharger Data

The wastewater discharges in the Lake Proctor Watershed were compiled from the TWC permit database for the subject counties. Locations of the treatment plants and discharge points were obtained from the permit files at the TWC. Many of the municipal plants in the watershed maintain no-discharge permits authorizing irrigation disposal of the treated wastewater on

designated land application areas. These areas are a potential non-point source of pollution if proper tailwater control and application rates are not maintained.

3.4.1 Discharger Locations

A summary of the permitted wastewater treatment plants and discharge locations in the watershed is provided as Table 3. Dischargers in the ULRMWD jurisdiction but not in the Lake Proctor Watershed are also included. The current permitted effluent limits are also shown. discharge locations are also shown on the individual survey maps provided in subsequent sections.

3.4.2 Pretreatment Status

The participation of each of the municipalities in the EPA pretreatment program indicates the degree of control maintained over indirect industrial discharges in the watershed. The pretreatment program is designed to provide a permitting program for sewer system users which discharge industrial type wastewaters incompatible with domestic sewage treatment plants. in this manner, the problems of interference or pass-through of industrial wastewaters can be minimized through controlled pretreatment plants. As the present time, none of the cities in the watershed are known to operate an EPA approved pretreatment program. Many maintain sewer used ordinances which restrict industrial discharges, but the enforcement of these ordinances is uncertain. However, the lack of significant industrial activity in the watershed indicates the degradation of lake water quality. As the watershed develops, the more industrial activity is relocated, the need for pretreatment programs will increase.

3.5 Water Usage and Commitments

The primary water uses for divisions out of Lake Proctor are for domestic water supply and irrigation. Domestic water treatment plants using such diversions are located in Proctor and Hamilton. The ULRMWD owns and operates both plants and the distribution and storage system; however, the City of Hamilton is contracted for debt retirement for the Hamilton Water Treatment Plant. In addition to these plants, several irrigation authorities and individuals have

TABLE 3

WASTEWATER TREATMENT PLANTS - LAKE PROCTOR WATERSHED

				30-Day Average Effluent Limits		
Treatment Plant	*TWC Permit No.*	*Segment*	*Receiving Stream*	*Flow MGD*	*BOD mg/L*	*TSS mg/L*
City of Comanche	10719-01	1221	Inidan Cr. L. Leon R.	0.73	20	20
City of Dublin	10405-01	1221	Mid Leon R. L. Leon R.	0.25	30	90
City of Gustine	10841-01	1221	S. Leon R. L. Leon R.	0.082	20	20
City of Hamilton	10492-01	1221	Pecan Cr. L. Leon R.	0.25	20	20
City of Gorman	10091-01	1222	UT Shinoak Br. Sabana R.	0.12	30	90
ULRMWD	11764-01	1222	ND	0.06	100	NA
City of Rising Star	10072-01	1222	Copperas Cr.	0.14	20	20
City of DeLeon	10078-01	1223	UT U. Leon R.	0.166	30	90
City of Eastland	10637-01	1224	South Fork Leon R. Leon Res.	0.40	20	20
City of Hico	10188-01	1226	N. Bosque R.	0.20	20	20
City of Stephenville	10290-01	1226	N. Bosque R.	1.85	20	20
City of Ranger	11557-01	1230	L. Palo Pinto	0.43	20	20
City of Cisco	10424-01	1233	UT Sandy Cr. Hubard Cr. Res.	0.44	30	90

commitments from the Brazos River Authority for a portion of the authorized diversions and releases from the lake. A summary of the water commitments is provided as Table 4.

3.6 Statistical Analyses of Available Water Quality Data

3.6.1 Descriptive Statistics

Descriptive statistics include parametric and non-parametric measurements of central tendency, variation, and extreme conditions. These statistics may be used to make inferences of the population from a limited number of samples. Inferences may also include tests for distribution shape and degree of normality of the data. The calculation of descriptive statistics can also be used to determine the appropriate sample size needed to make additional inferences about the population and perform various hypothesis tests.

From the three TWC stations on Lake Proctor, the main parameters of interest with enough data to calculate statistics included dissolved oxygen, conductivity, chlorophyll-a, and total phosphorous, Tables 5 through 8 summarize the descriptive statistics. The descriptive statistics were calculated for the period of record data for the surface samples at each SMN station. The designations; #1, #2, and #3, refer to TWC SMN stations 1222.001, 1222.002, and 0111,003 respectively. From the standardized skewness and kurtosis, it appears that the distributions for chlorophyll-a and total phosphorous are significantly non-normal in shape. To verify this conclusion, the data was plotted on normal probability axes. These plots are provided as Figures 4 through 9. The data plotted on these axes shows relatively normal distribution for all of the parameters except for chlorophyll-a and total phosphorous. Therefore, parametric statistics performed on these parameters should be used with caution.

3.6.2 Spatial Variations

The adequacy of the data to detect spatial variations can be determined in several ways. tests of spatial adequacy include direct parametric tests of differences between two means, analysis of variance, graphical methods, and indirect regression and correlation analyses (Whitlatch 1989).

TABLE 4

WATER COMMITMENTS FROM LAKE PROCTOR

Commitment	*Primary Usage*	*Allocation (acre-ft/year)*
ULRMWD	Domestic	4,835
Lake Proctor Irrigation Authority	Irrigation	6,800
North Leon Rive Irrigation Authority	Irrigation	4,926
Sears Brothers	Irrigation	230
Brad Hammonds	Irrigation	45
Jess Hansen Estate	Irrigation	100
Dwight G. Land	Irrigation	30
Terry Mathis	Irrigation	35
Elton McDonald	Irrigation	160
Norman W. Sides	Irrigation	30
Sherman L. Sides	Irrigation	70
Taylor Farms	Irrigation	40
Local Reserve	NA	10
		17,311 acre-ft/year

TABLE 5

SUMMARY STATISTICS - DISSOLVED OXYGEN

TWC LAKE PROCTOR STATIONS

Variable	*DO #1*	*DO #2*	*DO #3*
Sample size	44	38	32
Average	8.77159	9.39737	9.53125
Median	9	9.25	9
Mode	9	7.6	9
Geometric mean	8.42847	9.10825	9.26875
Variance	5.55923	5.49432	5.21512
Standard deviation	2.3578	2.344	2.28366
Standard error	0.355452	0.380246	0.403699
Minimum	3.9	5.7	5.9
Maximum	13.7	14	14.6
Range	9.8	8.3	8.7
Lower quartile	7	7.5	7.6
Upper quartile	10.9	12	11.75
Interquartile range	3.9	4.5	4.15
Skewness	-0.148541	0.135214	0.344383
Standardized skewness	-0.40225	0.340282	0.795318
Kurtosis	-0.625682	-1.3068	-0.816152
Standardized kurtosis	-0.847178	-1.64436	-0.942411

TABLE 6

SUMMARY STATISTICS - CONDUCTIVITY

TWC LAKE PROCTOR STATIONS

Variable	*Cond #1*	*Cond #2*	*Cond #3*
Sample size	44	38	32
Average	708.455	705.711	741.5
Median	710	704.5	745
Mode	730	800	800
Geometric mean	686.179	674.77	715.663
Variance	31785.7	36521.3	35651.4
Standard deviation	178.285	191.106	188.816
Standard error	26.8775	31.0014	33.3782
Minimum	387	190	327
Maximum	1100	1100	1100
Range	713	910	773
Lower quartile	599	600	640
Upper quartile	785	830	830
Interquartile range	186	230	190
Skewness	0.305812	-0.333696	-0.116357
Standardized skewness	0.828143	-0.839784	-0.268716
Kurtosis	-0.218048	0.363234	-0.0382817
Standardized kurtosis	-0.295238	0.45706	-0.0442039

TABLE 7

SUMMARY STATISTICS - CHLOROPHYLL-a

TWC LAKE PROCTOR STATIONS

Variable	*Chl a #1*	*Chl a #2*	*Chl a #3*
Sample size	37	33	27
Average	26.7919	28.8303	29.7333
Median	25	23.5	28
Mode	28	11	41
Geometric mean	21.7931	22.048	25.3223
Variance	327.142	353.006	247.219
Standard deviation	18.0871	18.7885	15.7232
Standard error	2.9735	3.27065	3.02593
Minimum	4	0.8	7
Maximum	78	73.2	71.4
Range	74	72.4	71.4
Lower quartile	13.2	13	20
Upper quartile	32.7	38.1	41
Interquartile range	19.5	25.1	21
Skewness	1.38448	0.795006	0.61129
Standardized skewness	3.42806	1.86446	1.29674
Kurtosis	1.7604	-0.17763	0.38741
Standardized kurtosis	2.18579	-0.20829	0.41091

TABLE 8

SUMMARY STATISTICS - TOTAL PHOSPHOROUS

TWC LAKE PROCTOR STATIONS

Variable	*T Phos #1*	*T Phos #2*	*T Phos #3*
Sample size	33	26	23
Average	0.175758	0.231154	0.233043
Median	0.12	0.18	0.15
Mode	0.09	0.12	0.14
Geometric mean	0.13671	0.202053	0.200094
Variance	0.0344439	0.0151626	0.022104
Standard deviation	0.185591	0.123137	0.148674
Standard error	0.0323072	0.0241491	0.0310007
Minimum	0.06	0.08	0.09
Maximum	1.1	0.49	0.73
Range	1.04	0.41	0.64
Lower quartile	0.09	0.12	0.14
Upper quartile	0.21	0.32	0.28
Interquartile range	0.12	0.2	0.14
Skewness	4.12706	0.739697	1.94694
Standardized skewness	9.67881	1.5398	3.8119
Kurtosis	20.0267	-0.782762	4.72454
Standardized kurtosis	23.4834	-0.814724	4.62507

FIGURE 4

DISSOLVED OXYGEN NORMAL PROBABILITY PLOT

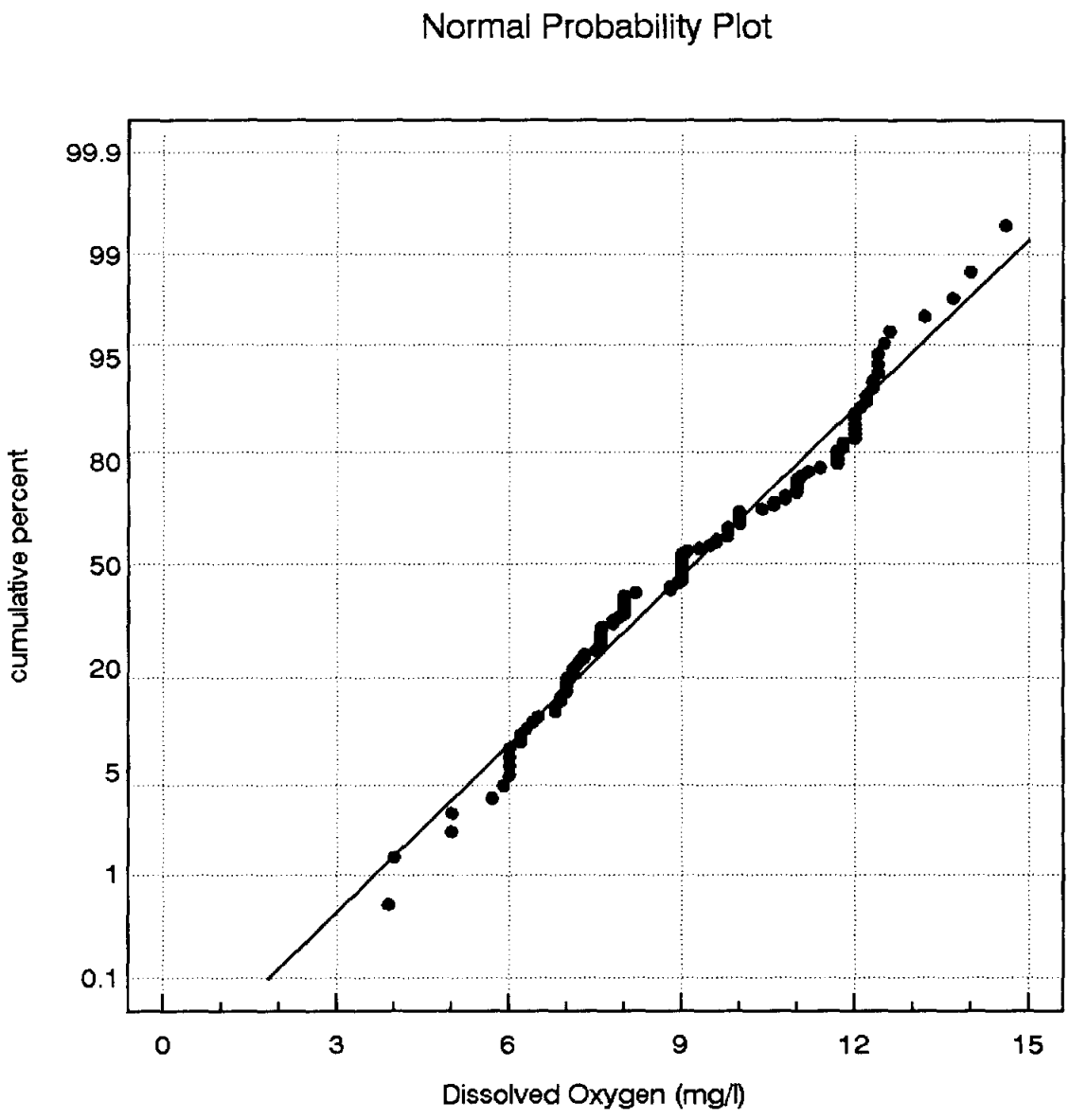


FIGURE 5

CONDUCTIVITY NORMAL PROBABILITY PLOT

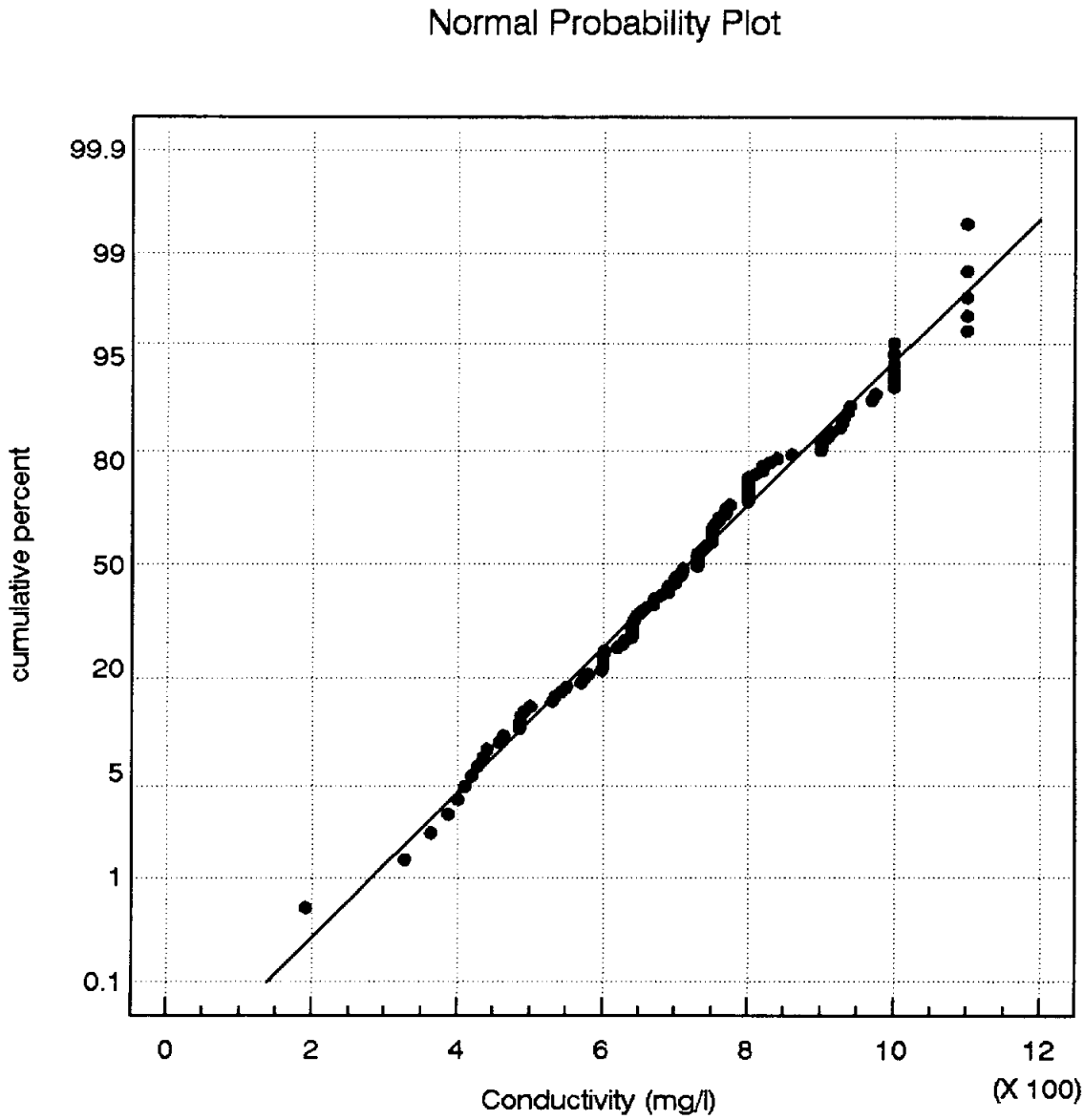


FIGURE 6

TOTAL ORGANIC CARBON NORMAL PROBABILITY PLOT

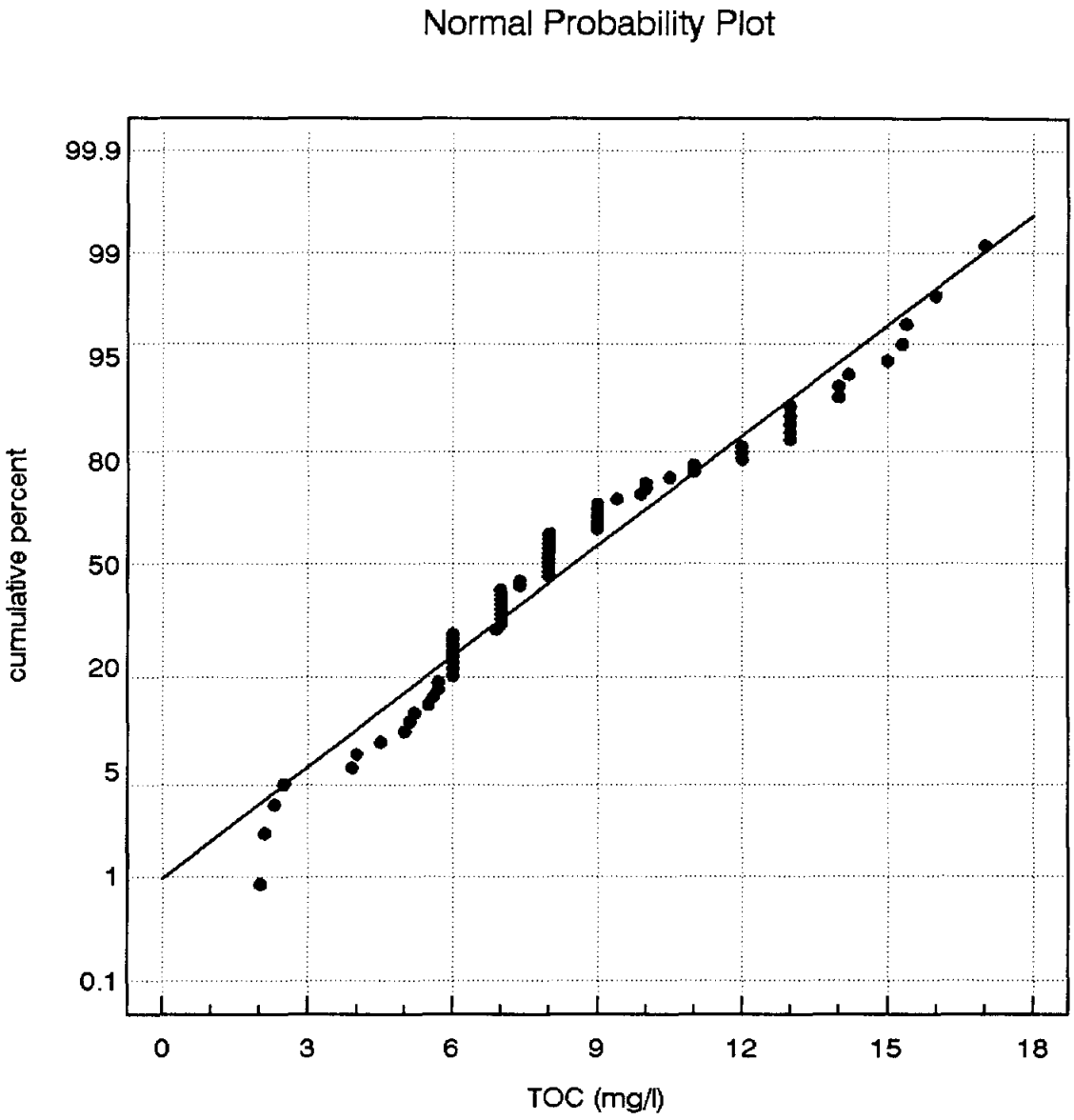


FIGURE 7

SECCHI DEPTH NORMAL PROBABILITY PLOT

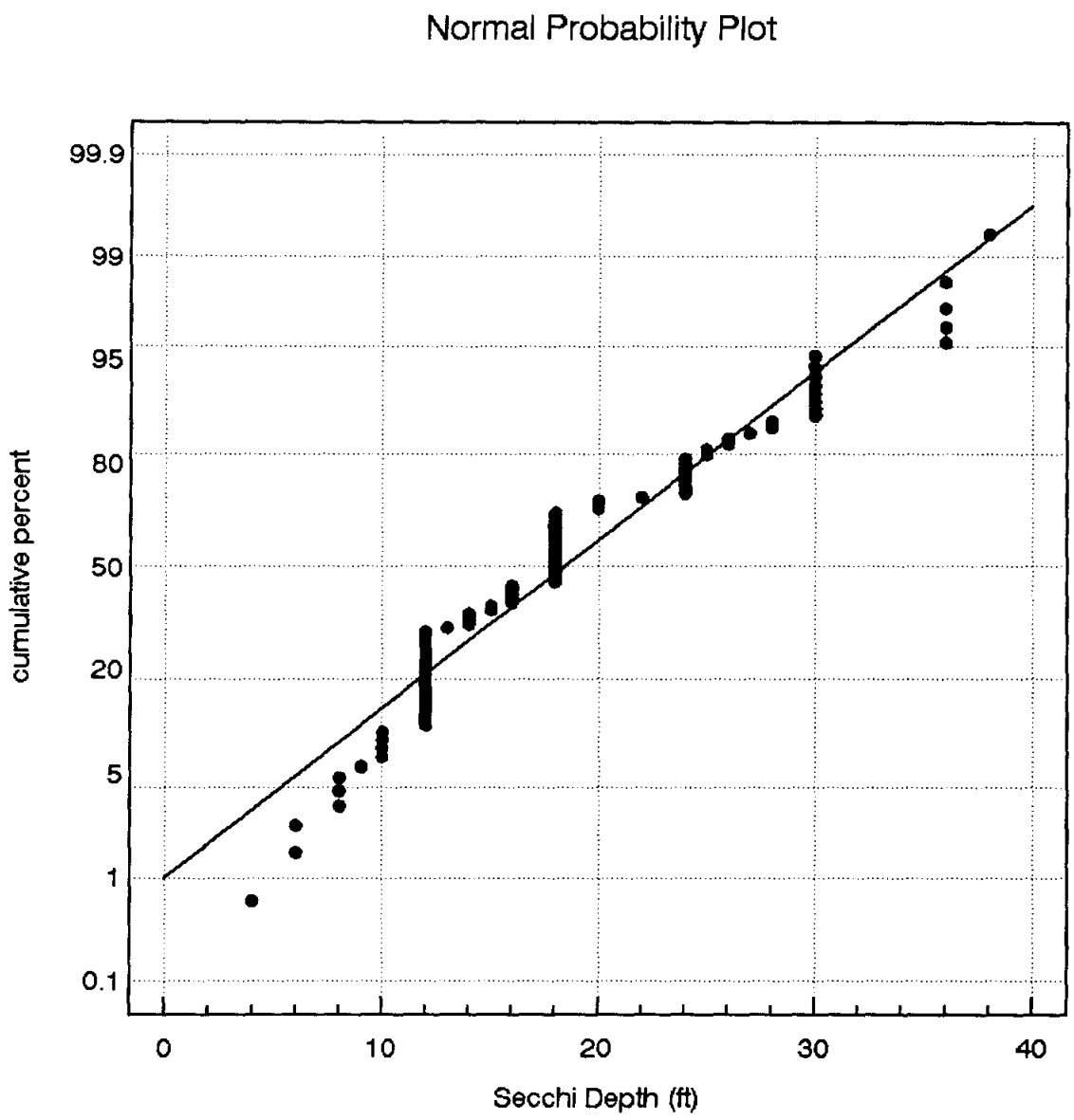


FIGURE 8

TOTAL PHOSPHOROUS NORMAL PROBABILITY PLOT

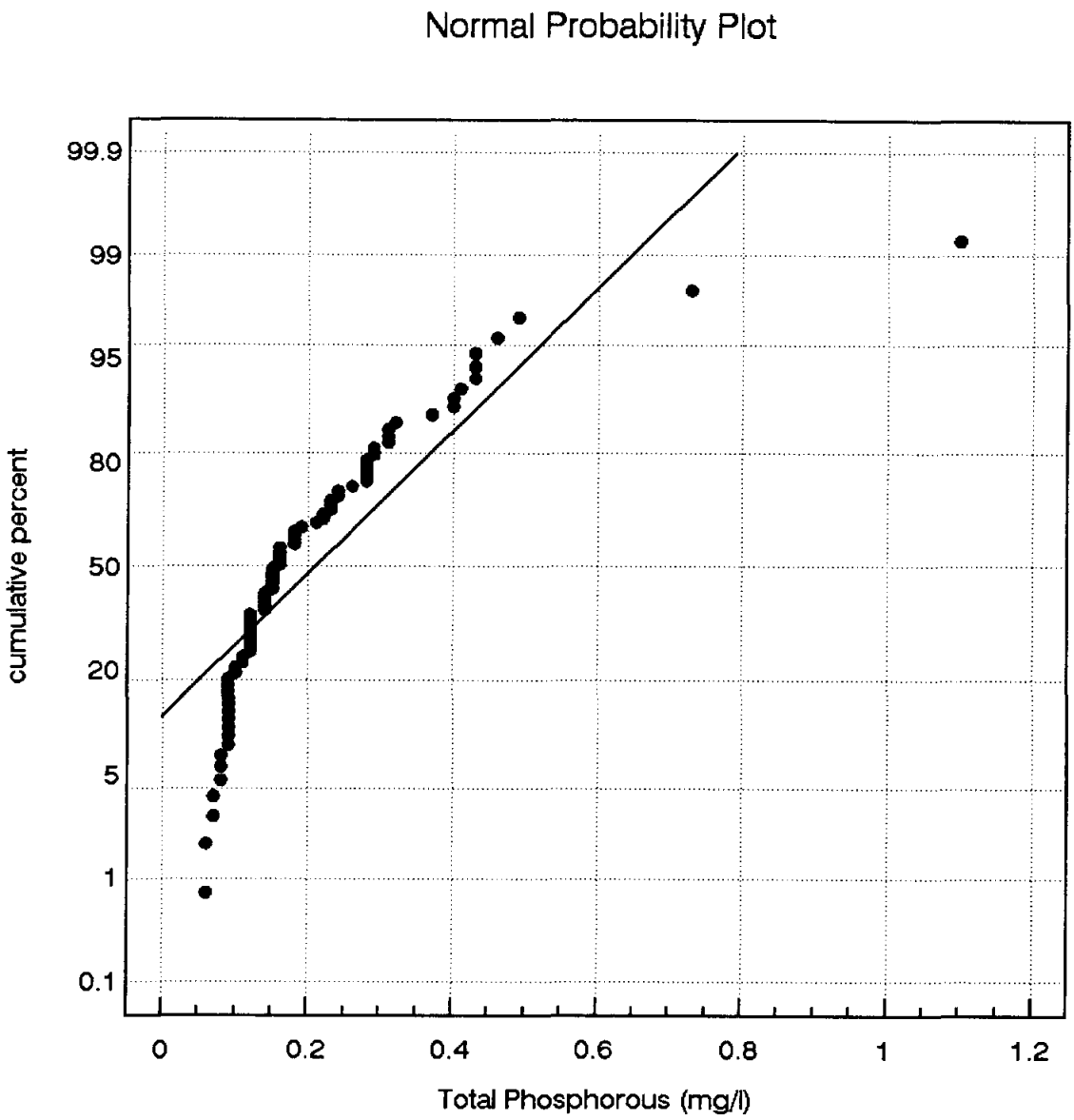
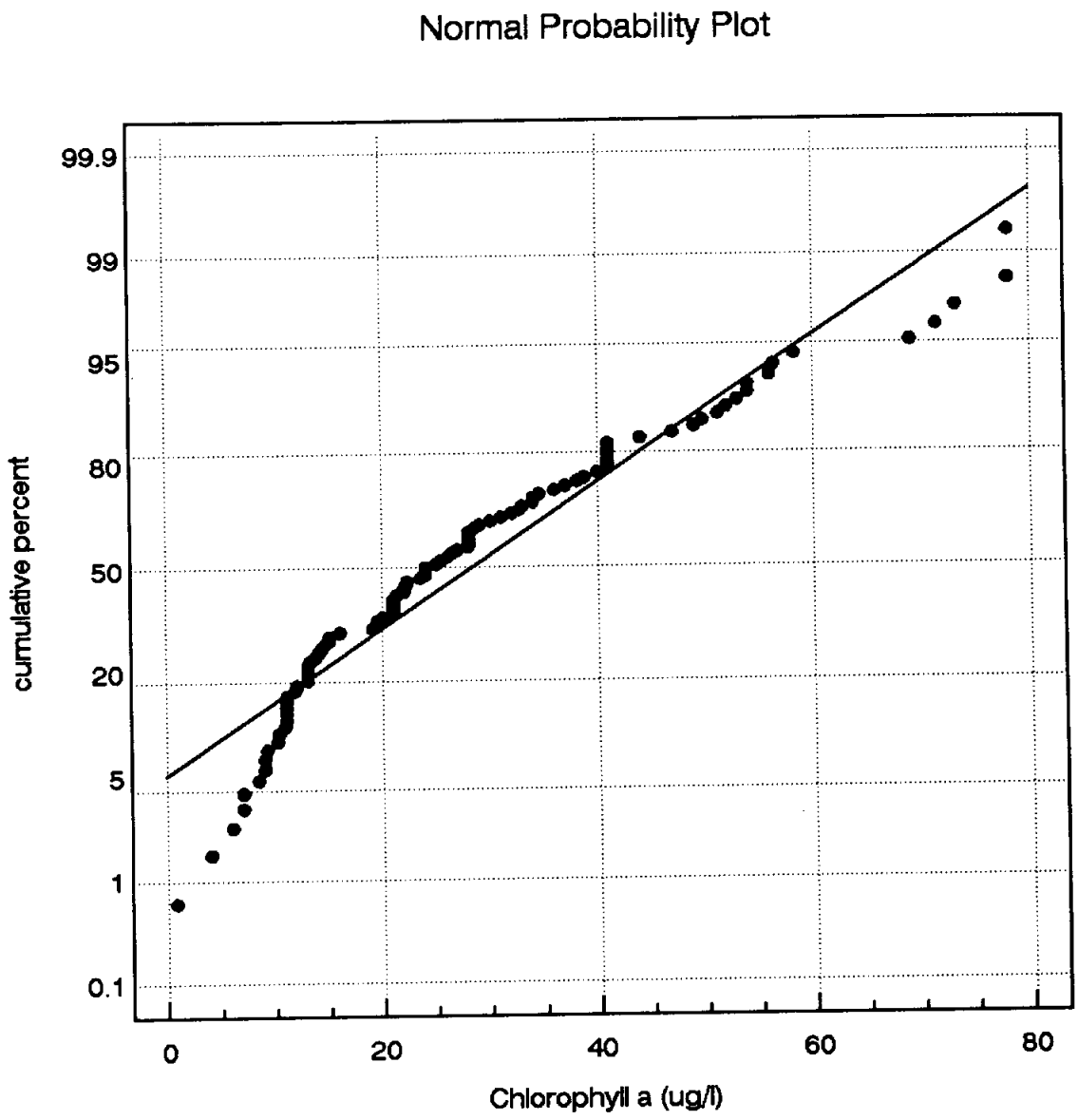


FIGURE 9

CHLOROPHYLL-a NORMAL PROBABILITY PLOT



A graphic description of the data commonly used in water quality analyses is the box and whisker plot. In these plots, the range of data is represented by vertical lines ("whiskers"), the 95 percent confidence interval is represented by the box. A horizontal line through the box represents the median and the relative area on each side of the box represents the degree of skewness in the data. Box and whisker plots for several parameters are provided in Figures 10 through 15 for the surface samples (except secchi depth) taken at three SMN stations in Lake Proctor. From these plots, little difference in median or confidence intervals was noted for most parameters. However, the plots for total dissolved solids (non-filterable residue) and secchi depth transparency did show some variation between stations. Total dissolved solids was shown to be slightly lower in the main body of the lake and transparency was shown as higher in the main body station.

The difference in water quality between lake stations was also analyzed using a one way analysis of variance. In this analysis, the groups compared were the SMN stations in Lake Proctor and the means compared were the parameters of interest from the database. The result of this analysis confirmed the low level of difference between sampling stations for almost all of the parameters containing sufficient data. However, a significant difference was found for secchi depth data and non-filterable residue. Summaries of the analyses of variance data is provided in Appendix C.

3.6.3 Indications of Trophic State

Individual indicators of trophic state include phosphorous concentration, chlorophyll-a concentration, turbidity, secchi depth transparency, primary productivity, and nitrogen series concentrations. in order to determine the rate of eutrophication in the lake, trend analyses are commonly used to determine the increase or decrease in these parameters over time. Trends were calculated for all of the parameters of interest with sufficient data. Plots of the trend analyses for chlorophyll-a, total phosphorous, dissolved oxygen, and secchi depth are included as Figures 16 through 19 for SMN Station 1222.001. Additional trend plots are provided in Appendix D. As shown in these plots, a wide scatter of data is present, and any calculated trend is suspect. In addition, the trends in water quality parameters appear inconsistent to the expected progression of eutrophication. Total phosphorous is increasing over time and the

FIGURE 10

DISSOLVED OXYGEN BOX AND WHISKER PLOT

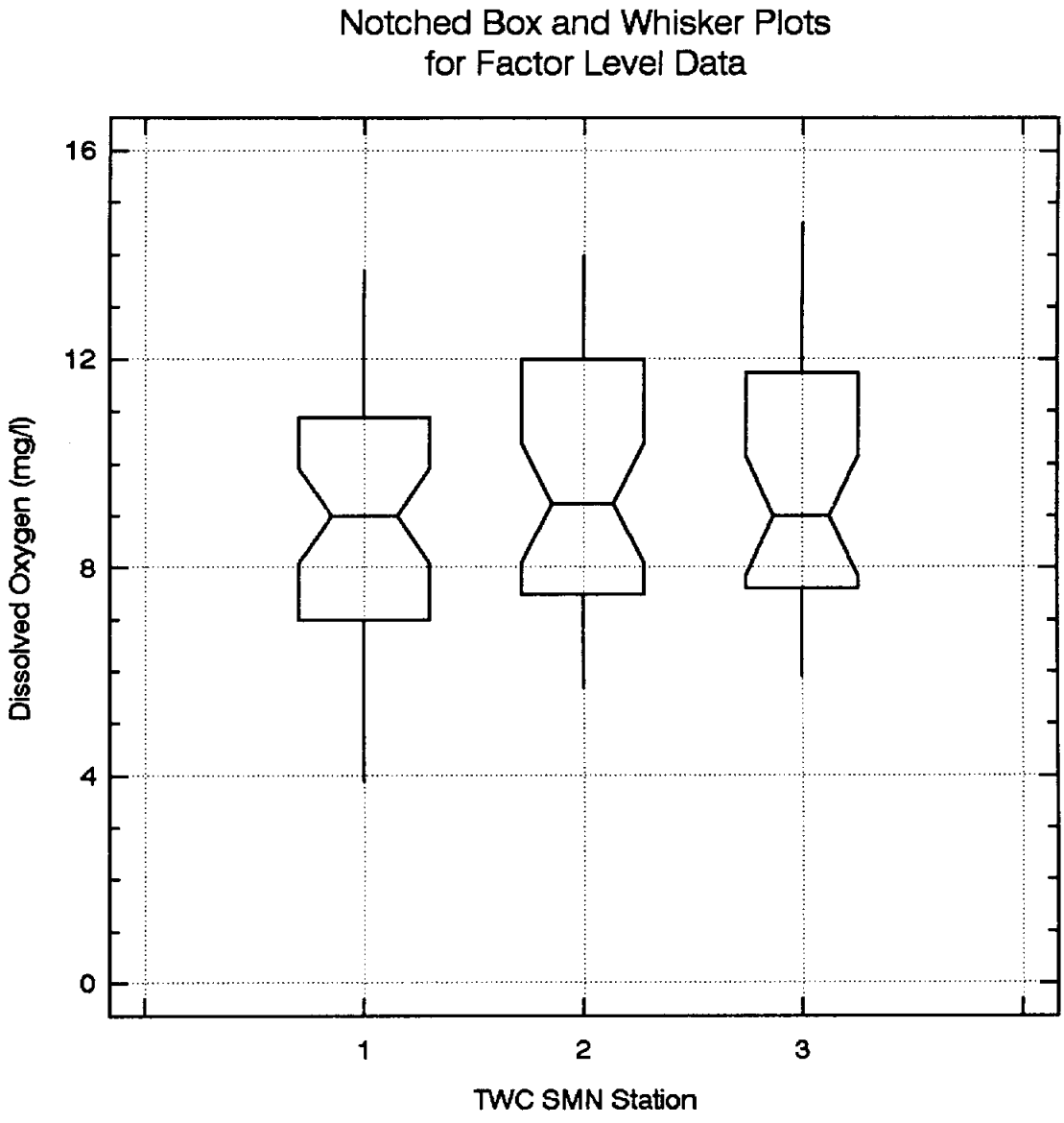


FIGURE 11

TOTAL ORGANIC CARBON BOX AND WHISKER PLOT

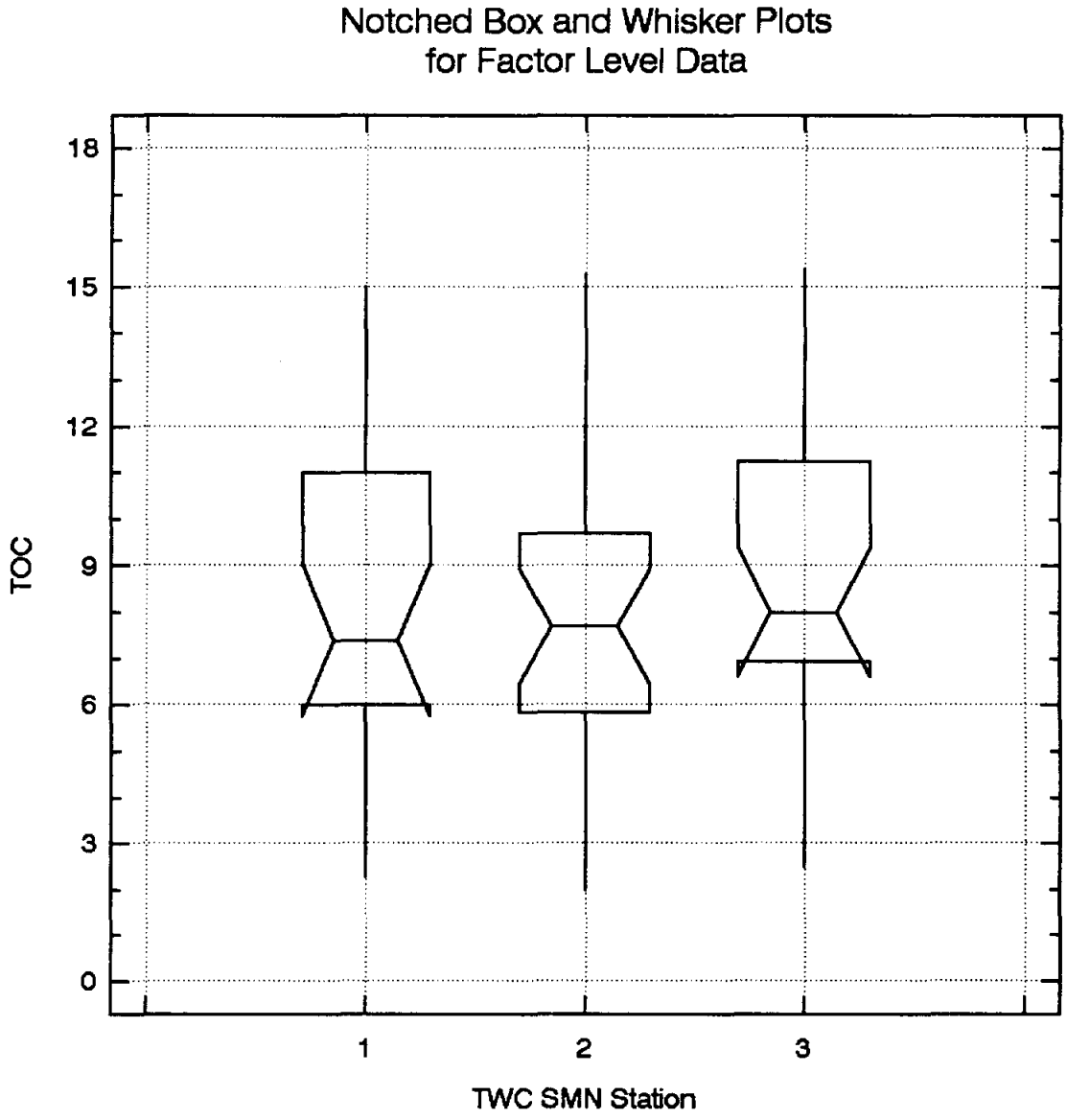


FIGURE 12

CONDUCTIVITY BOX AND WHISKER PLOT

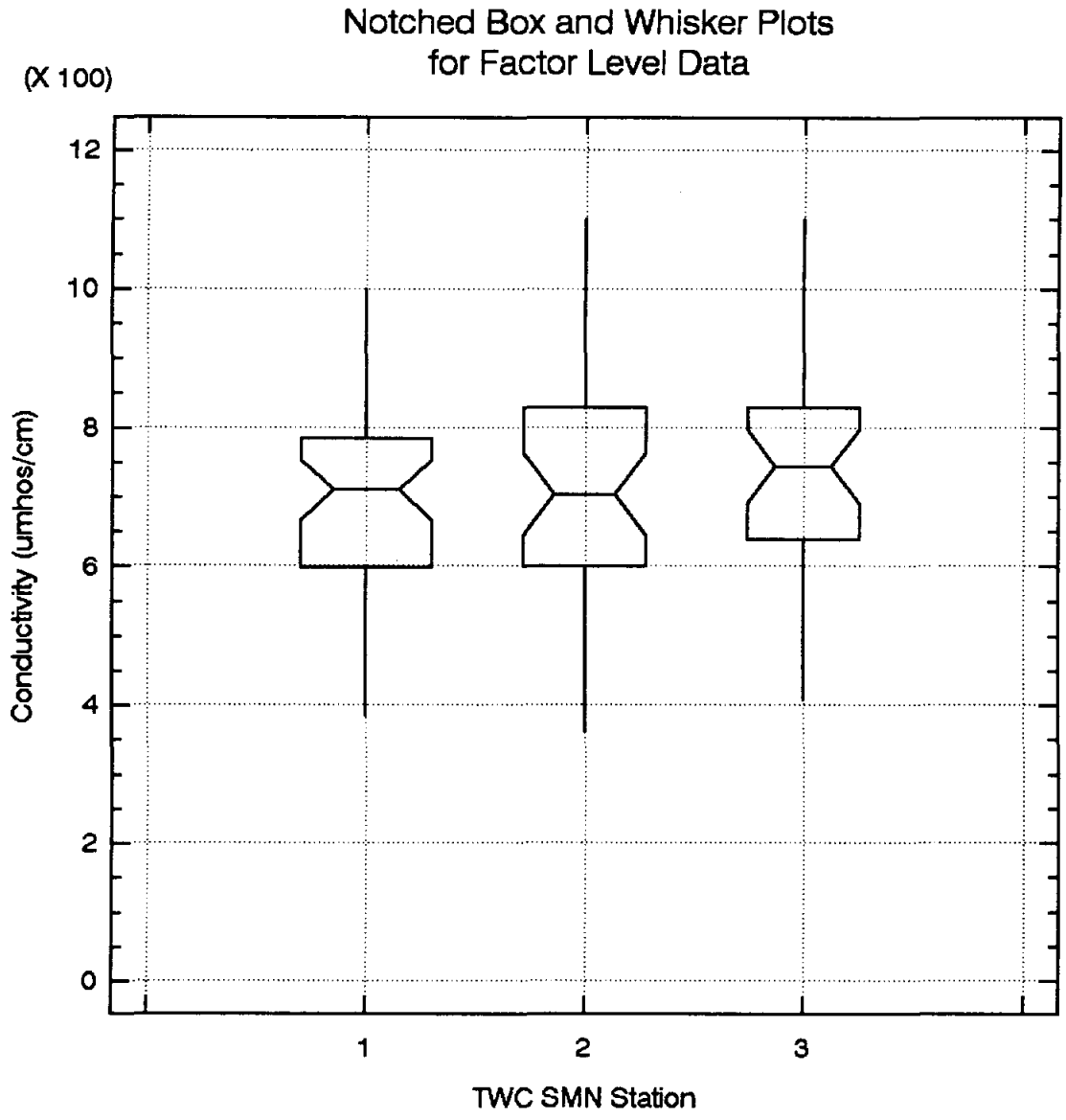


FIGURE 13

TOTAL PHOSPHOROUS BOX AND WHISKER PLOT

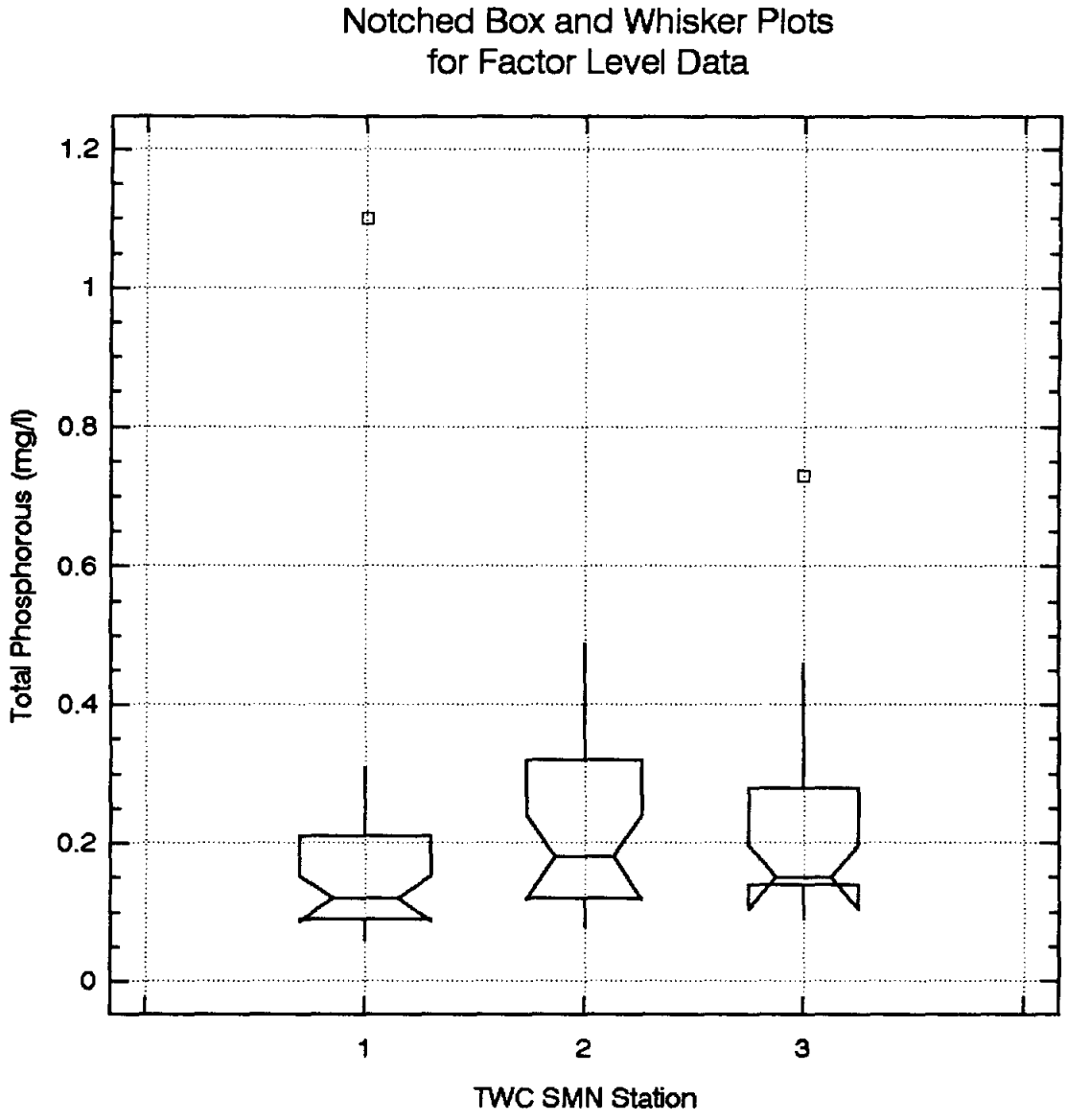


FIGURE 14

TOTAL DISSOLVED SOLIDS BOX AND WHISKER PLOT

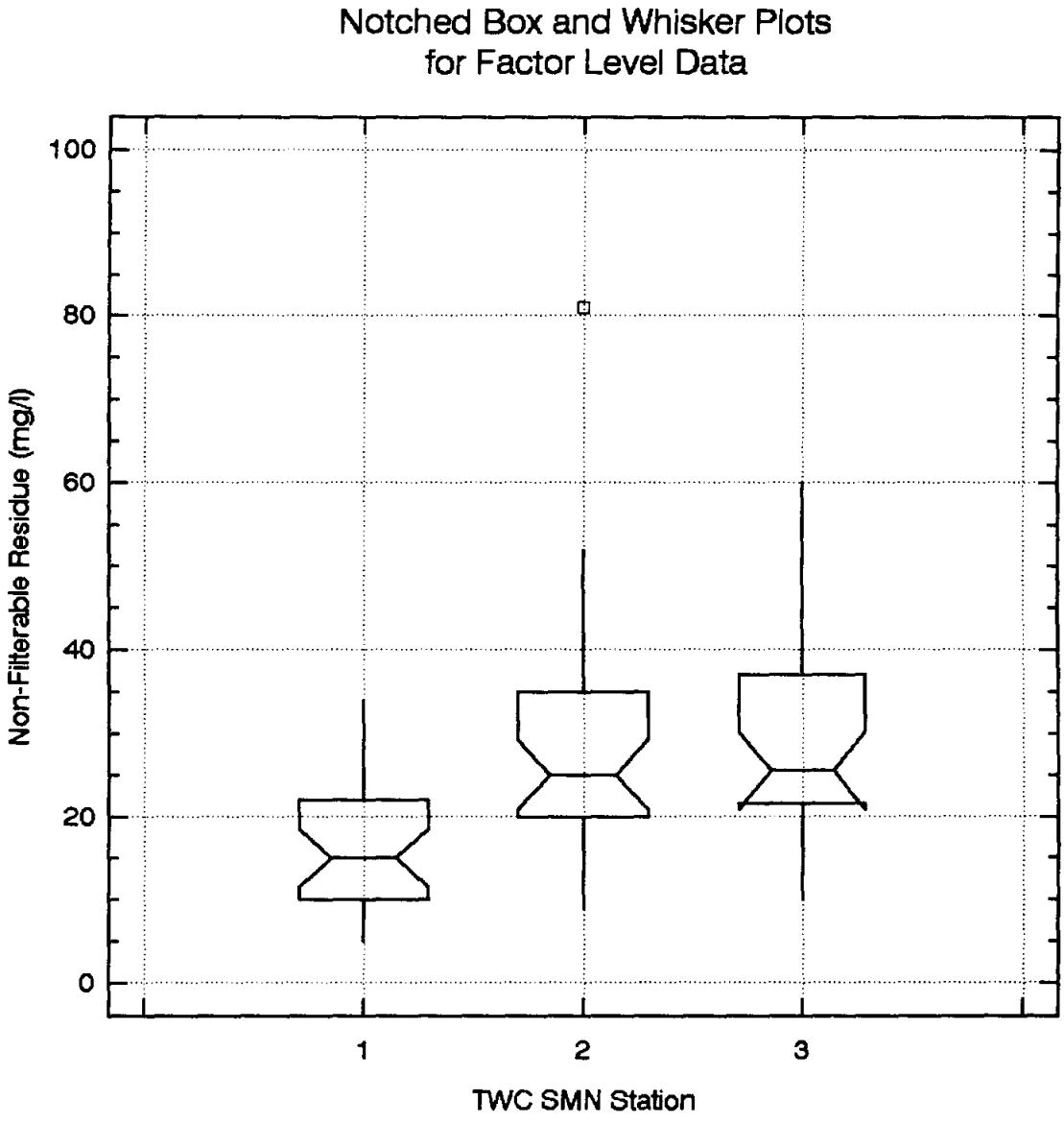


FIGURE 15

SECCHI DEPTH BOX AND WHISKER PLOT

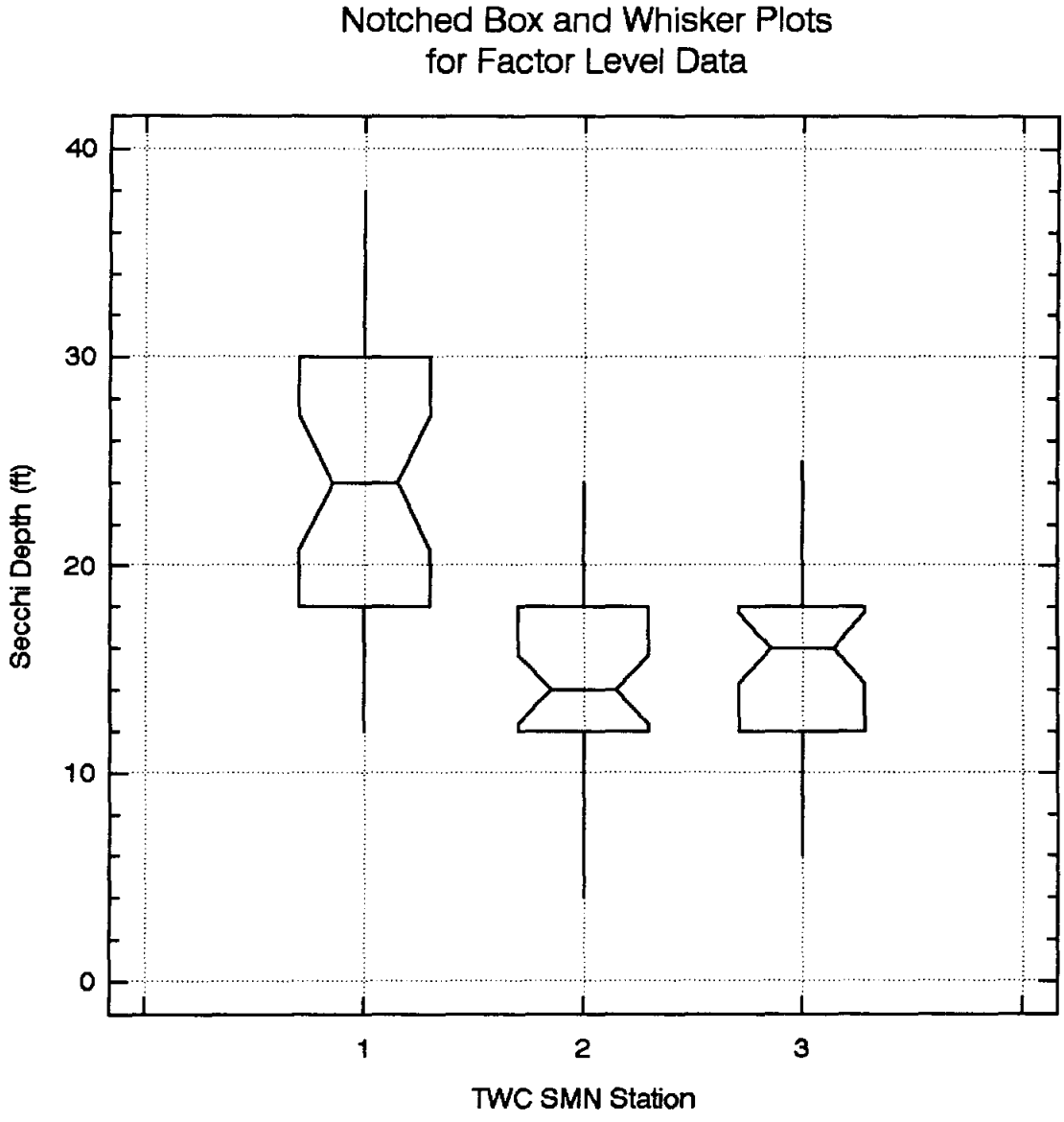


FIGURE 16

CHLOROPHYLL-a TREND ANALYSIS

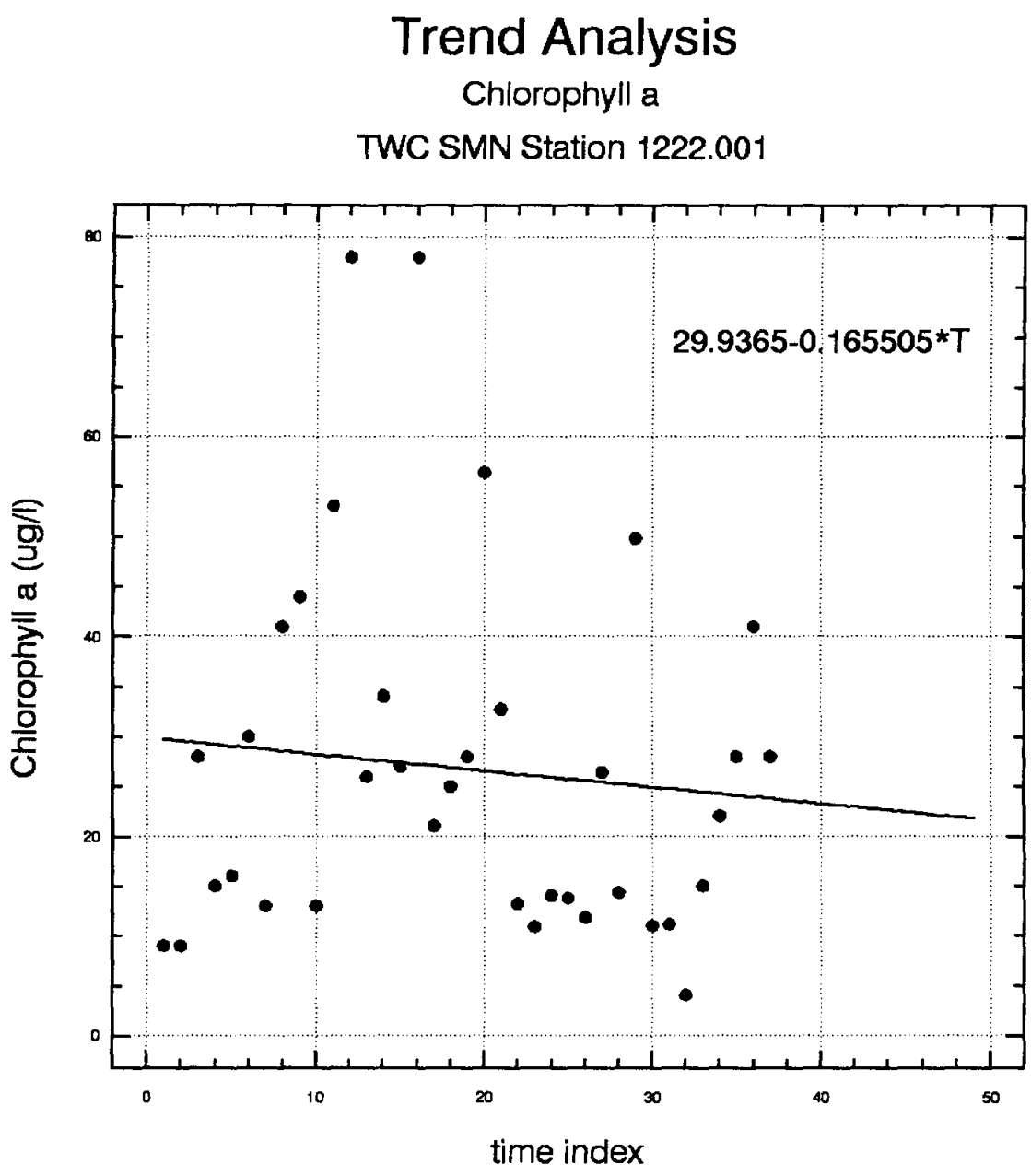


FIGURE 17

DISSOLVED OXYGEN TREND ANALYSIS

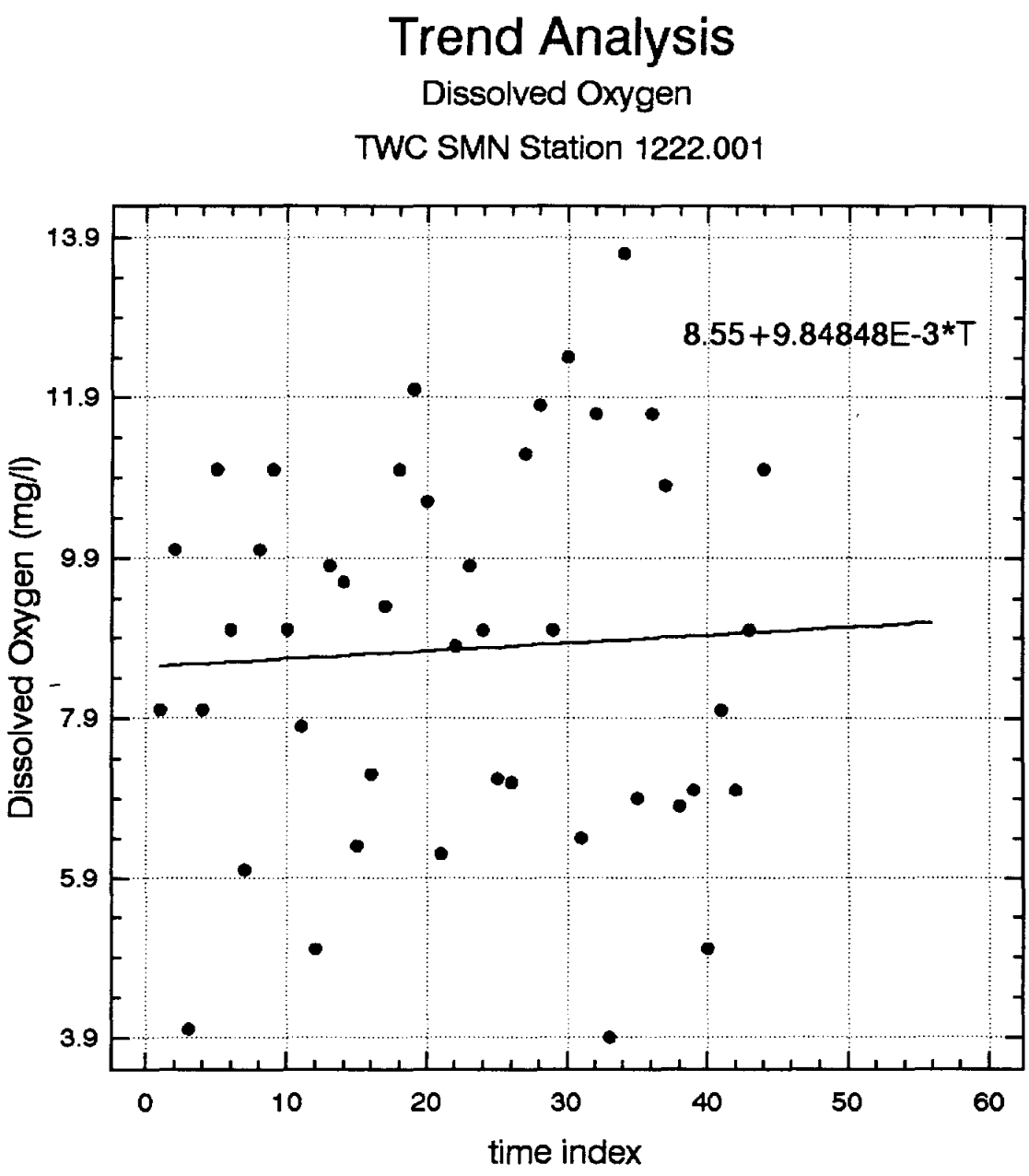


FIGURE 18

TOTAL PHOSPHOROUS TREND ANALYSIS

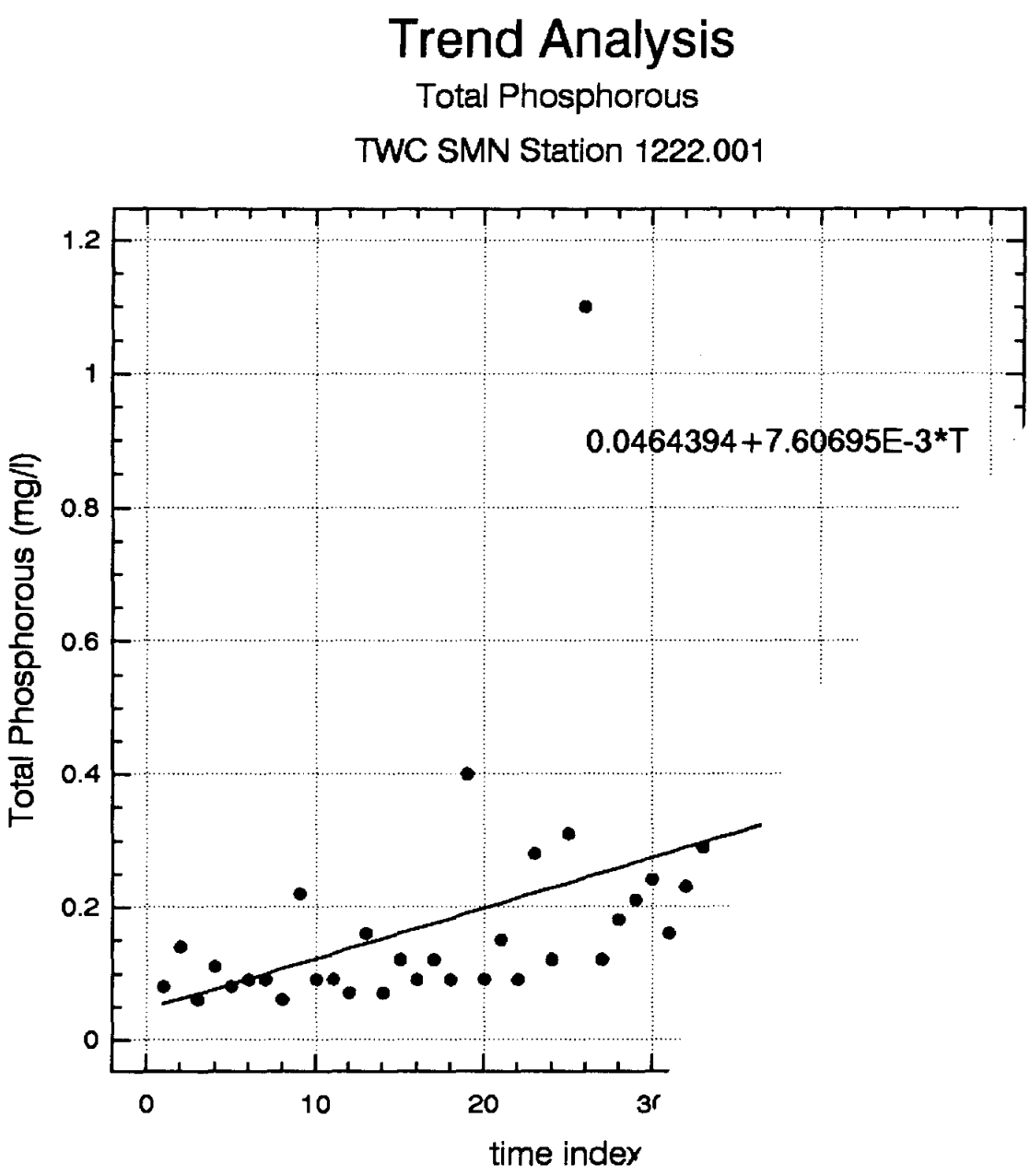
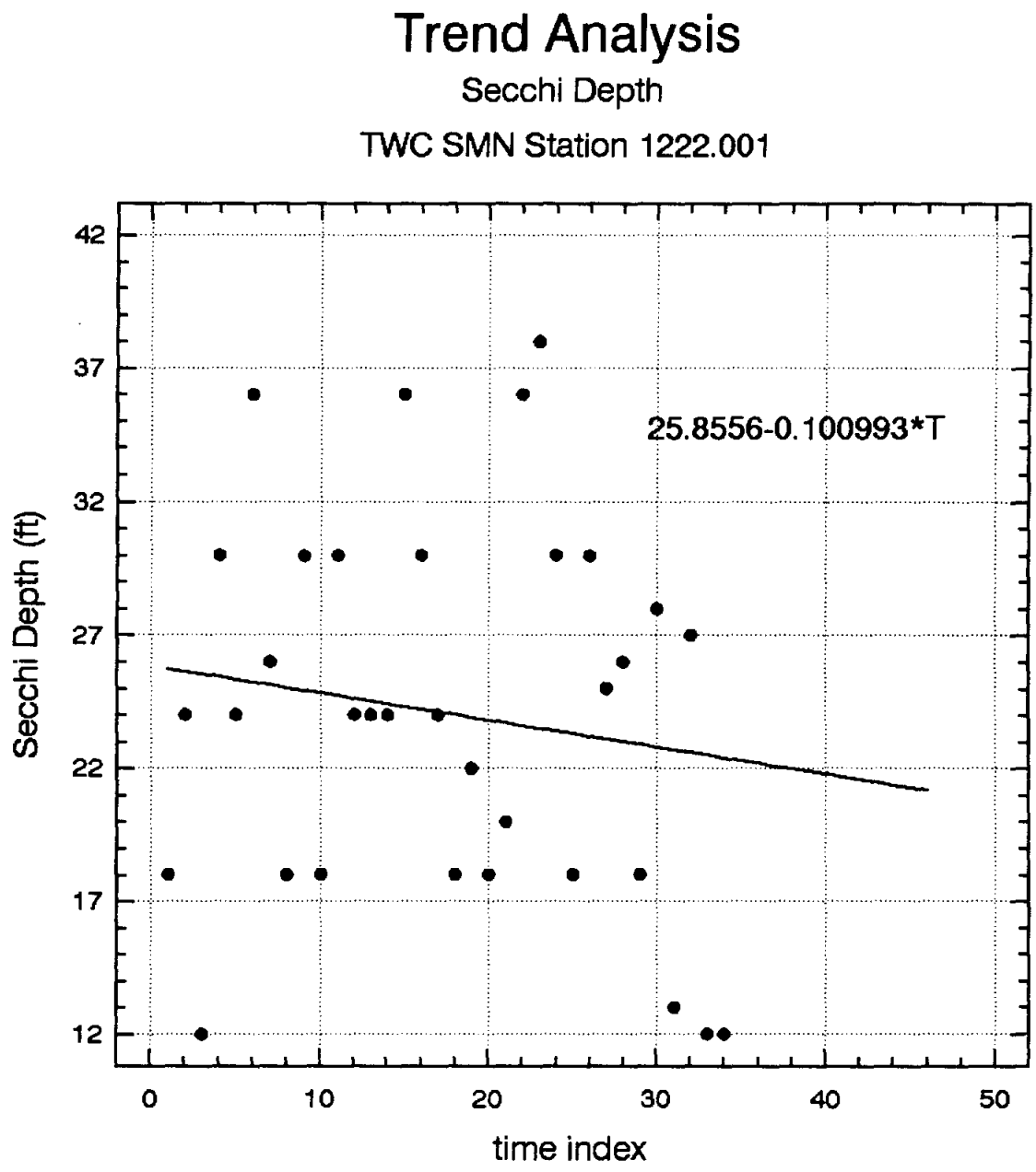


FIGURE 19

SECCHI DEPTH TREND ANALYSIS



transparency is decreasing indicating more phytoplankton growth, but the chlorophyll-a is decreasing indicating reduction in phytoplankton biomass.

Also included in the trend analysis was a calculation of mean squared error, mean absolute error, mean percentage error, and mean absolute percentage error. The results of these calculations are included in Appendix E. As shown in the summary tables, the error of the trend line in predicting past data is extremely large relative to the mean of the data for all of the parameters of interest. For this reason, the trends are inconclusive.

3.6.4 Water Quality Indices

The calculation of a water quality index is a common method of summarizing the results of monitoring into a single statistic. In this manner, the relative health of a water body can be compared when data from individual parameters may not be descriptive enough. Water quality indices can be divided into biological indices and physical/chemical indices. Biological indices refer to such statistics as species diversity, species richness, and habitat quality index. These are calculated based on an objective rating system combined with species counts and subjective habitat observations. Such species counts are currently unavailable for Lake Proctor and are not anticipated as part of the monitoring program.

Physical/chemical indices include a number of statistics designed to combine individual indicators of trophic state or another characteristic and the variability of the parameter measurement. Several indices of trophic state combine one or several of the individual indicators described above and categorize the water body based on historical ratings of lakes can be compared with other lakes and compared in time with previous lake conditions. The most common index used in assessing water quality is the Carlson Trophic State Index (TSI) (Reckhow 1984) which relates chlorophyll-a, total phosphorous, and secchi depth transparency to a sliding scale of trophic state based on empirical data from a number of northern temperate lakes.

From the period of record mean values associated with the lake stations, chlorophyll-a values would result in a TSI of approximately 65. Total phosphorous levels would indicate a TSI value

of approximately 80. The secchi depth summary statistics were not used because of the inconsistencies in the index for southern lakes which commonly contain a higher level of inorganic suspended material. This index value would indicate that Lake Proctor is eutrophic to hypereutrophic compared with northern temperate lakes. This value should be compared with other Texas reservoirs. The trend in TSI over time was not calculated due to the change in sampling frequency which made seasonal corrections impossible.

3.6.5 Nutrient Limitations

Nitrogen and phosphorous are the two most common nutrients controlling algal proliferation and subsequent water quality degradation. The limiting nutrient is the one found in shortest supply relative to algal requirements for growth and reproduction. Nutrient limitations can be determined through spikes in the primary productivity tests, estimations from Michaelis-Menton kinetics, or simple comparisons of the nitrogen to phosphorous ratios to algae stochiometric ratios. Because the nitrogen series data was very limited on most Lake Proctor stations, a lake-wide limitation could not be determined. In addition, very little orthophosphate or available phosphorous data was found in the database. This data should be obtained in the planned monitoring program.

3.7 Indications for Monitoring Design

The statistical analyses performed above indicate that both the number of sampling locations and the frequency of sampling should be increased. The descriptive statistics indicate that the sample size is inadequate to base reliable yearly determinations of mean and extreme values and variance for many variables. In addition, the sample size and inconsistent frequency was shown to be inadequate for determination of long term trends for most parameters.

The proposed short term lake sampling should also include a refinement of sample locations to account for cove impacts and coverage of the entire lake body. The use of three lake sample locations such as the TWC SMN stations is insufficient for evaluation of wasteload allocations. The USGS data is more refined, but the number of sample locations is still too limited for a model segmentation scheme.

From the statistical analyses it is evident that parameters of interest are not consistently used across all sample locations. Parameters used to determine trophic status such as turbidity, secchi depth, phosphorous concentrations, chlorophyll-a, or primary productivity have either not been measured or were measured inconsistently across the sampling locations and period of record. The proposed monitoring program should determine which parameter set to sue for meeting the objectives discussed in Section 2.0 and consistently measure these parameters as appropriate.

SECTION 4.0
MONITORING NETWORK DESIGN

4.0 MONITORING NETWORK DESIGN

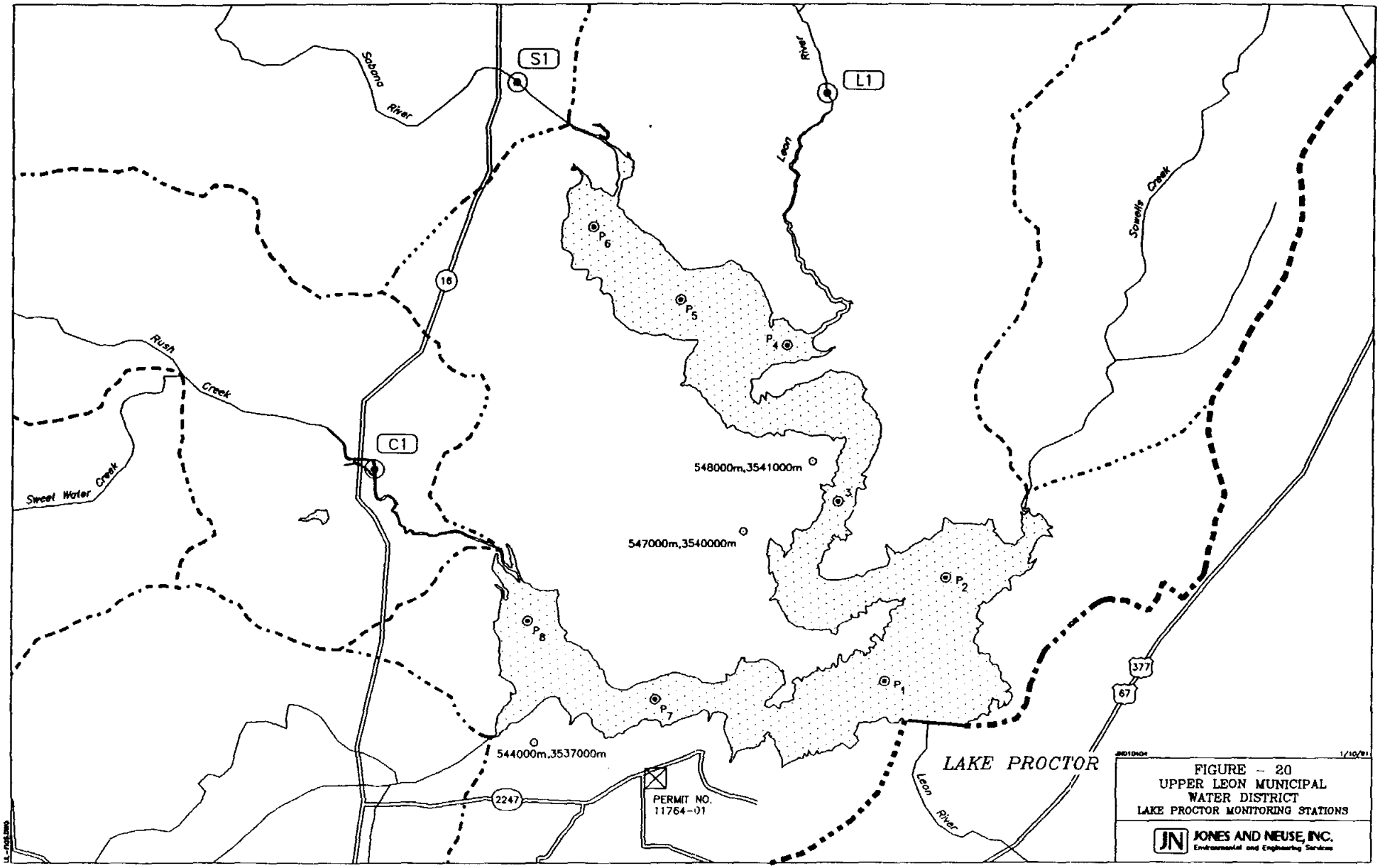
The design of a relatively large monitoring effort requires integrating the information goals of the field and laboratory analyses with the logistics of the study period and ULRMWD resources. The monitoring program includes both fixed station long term sampling locations in Lake Proctor and short term intensive survey stations located in tributaries to the Lake. The choice of monitoring stations should include adequate spatial coverage for wasteload allocation and model development at a reasonable expenditure of field and laboratory resources. Although the proposed monitoring network is ambitious in terms of stream surveys, these are necessary to localize water quality impacts which may affect the long term use of the lake as a drinking water resource. These surveys with the accompanied calibrated models will also give ULRMWD a technical basis for evaluation of new discharge permits in the watershed which may impact lake proctor water quality.

4.1 Initial Year(s) Monitoring Program

The initial year sampling proposed for Lake Proctor is designed to detect both spatial and temporal trends in water quality. The sample locations, frequency and type were selected to provide enough detail to calibrate a model simulating dissolved oxygen and eutrophication impacts in the lake. The initial year monitoring program may be more intensive than necessary for a long term reconnaissance program. Therefore, after the initial year of sample data is assessed, the number of locations for long term sampling may be modified. If sufficient resources are available at the end of the first year of sampling, the monthly sampling should continue at least one more year to provide a verification data set to the Lake Proctor model as well as a calibration data set.

4.1.1 Sample Locations

Sample locations can be divided into main body samples, cove samples, tributary samples, and lake arm samples. The proposed sample locations are shown on Figure 20. Field temperatures will be taken at depths to locate the thermocline if appropriate. Field data will be obtained at each five foot interval. Afterwards, a hypolimnion and epiliminion composite sample will be


Sabine River
S1
Leon River
L1
Sowells Creek
16
P6
P5
P4
Rush Creek
C1
Sweet Water Creek
548000m,3541000m
3
547000m,3540000m
P2
P8
P7
P1
377
67
544000m,3537000m
2247
PERMIT NO.
11764-01
LAKE PROCTOR
Leon River
FIGURE - 20
UPPER LEON MUNICIPAL
WATER DISTRICT
LAKE PROCTOR MONITORING STATIONS
JONES AND NEUSE, INC.
Environmental and Engineering Services

taken for laboratory analyses. Sample locations are also described in Table 9. Locations of sample points in the lake will be approximated on the first sampling trip through bank curve land marks visible on Figure 20. During the first trip, exact locations will be specified by landmarks easily discernible from the sampling boat. Records of the landmarks will be retained in the sample logs. The subsequent sampling trips will return to these landmarks to ensure that representative and comparable samples are taken.

4.1.2 Sample Frequency and Type

Monthly sampling trips are scheduled for at least the initial year of the monitoring program. Light bottle/dark bottle tests of phytoplankton productivity are to be performed quarterly due to the time consuming nature of the test. Samples will be taken at four separate times during one diurnal cycle. These times should be spread across a period of time from just before daybreak to early evening if possible.

4.1.3 Field Measurements

Field measurements will include temperature, pH, conductivity, depth, and dissolved oxygen concentration. An additional field set up for primary productivity will be required. With the exception of primary productivity, all parameters will be measured using the Hydrolab Surveyor II water quality meter. Calibration procedures for the Hydrolab are provided with the instrument. Primary productivity will be measured quarterly using a suspended BOD bottle cage and portable dissolved oxygen meter or the Winkler DO methodology. Field parameters and required accuracy parameters are provided in Table 10.

4.1.4 Laboratory Analyses

A defined parameter list for laboratory analyses is provided as Table 11. This list includes the measurement parameter, both EPA and Standard Method references, reporting units, recommended method description, anticipated lower detection limit, and maximum holding time. The parameters were chosen based on the requirements of each data need defined in Section 2.0. Conventional pollutants and water quality indicators were chosen due to the lack of significant

TABLE 9

LAKE PROCTOR SAMPLING STATIONS

Sampling Station	*Description of Location*
Mainstream Stations	
P1	Main Body Station Near Spillway
P2	Lower Leon River Arm Opposite to Sowells Creek Cove
P3	Upper Leon River Arm Between Sowells Creek and Leon River Coves
P4	Leon River Cove
P5	Sabana River Arm Between Leon River and Sabana River Coves
P6	Sabana River Cove
P7	Rush Creek Arm Between Main Body and Rush Creek Cove
Trubutary Stations	
C1	Rush Creek at SH 16 1.2 Miles South of Downing
S1	Sabana River at SH 16 near Ebenezer Comm.
L1	Leon River at Unnamed Road 1 Mile West of FM 1496

TABLE 10

FIELD PARAMETER TABLE

Variable	*Units*	*Resolution*	*Accuracy*	*Method*	*Reference*
Dissolved Oxygen	mg/L	0.01 mg/L	±2%	Membrane Covered Polarographic Cell	Hydolab Spec.
Temperature	°C	0.1°C	±0.2°C	Metalic Composite Thermister	Hydolab Spec.
pH	S.U.	0.01 S.U.	±0.2 S.U.	Voltametric Sensor	Hydolab Spec.
Conductivity	mS/cm	1 mS/cm	±1% range	6-Electrode Amperiometric Cell	Hydolab Spec.
Depth	m	0.1m	±0.45m	Barometric Pressure Transducer (Strain Gauge	Hydolab Spec.
Transparency	m	0.25m	Var	Secchi Depth	NA

TABLE 11

LABORATORY PARAMETER TABLE

No.	*Measurement Parameter*	*40 CFR 136 EPA Ref.*	*WPCF/AWWA[3] Std. Meth.*	*Units*	*Method*	*Lower Detection Limit*	*Holding Time*
1	Biochemical Oxygen Demand	(1) 405.1	507	mg/L	Oxygen Electrode Dissolved O_2 Uptake	0.1 mg/L	48 hours
2	Soluble BOD	(1) 405.1	507	mg/L	Oxygen Electrode Dissolved O_2 Uptake	0.1 mg/L	48 hours
3	Chemical Oxygen Demand	(1) 410.1-.2	508A	mg/L	Reflux Method Titrimetric	5 mg/L	28 days
4	Total Suspended Solids	(1) 160.2	209C	mg/L	103°-105°C Gravimetric	0.5 mg/L	7 days
5	Total Phosphorous	(1) 365.2	424C(III) 424D	mg/L	Persulfate Digestion Vandomolybdophosphoric Acid-Spectrophotometric	10 ug/L	28 days
6	Soluble Phosphorous	(1) 365.2-.3	424C(III) 4240F	mg/L	Persulfate Digestion Vandomolybdophosphoric Acid-Spectrophotometric	10 ug/L	28 days
7	Total Ortho-phosphate	(1) 365.2-.3	424F	mg/L	Ascorbic Acid Spectropholometric	10 ug/L	48 hours
8	Soluble Ortho-phosphate	(1) 365.2	424F	mg/L	Ascorbic Acid Spectropholometric	10 ug/L	48 hours
9	Ammonia Nitrogen	(1) 350.2	417D	mg/L	Titrimetric Distillation	20 ug/L	28 days
10	Nitrate Nitrogen	(1) 352.1	NA	mg/L	Spectropholometric	20 ug/L	28 days
11	Nitrite Nitrogen	(1) 354.1	419	mg/L	Spectropholometric	20 ug/L	48 hours
12	Total Kjeldahl Nitrogen	(1) 351.3	417B	mg/L	Distillation-Titrimetric	5 mg/L	28 days
13	Bicarbonate Alkalinity	(1) 310.1	403	mg/L	Titrimetric	5 mg/L	14 days

TABLE 11

LABORATORY PARAMETER TABLE - CONTINUED

No.	*Measurement Parameter*	*40 CFR 136 EPA Ref.*	*WPCF/AWWA[3] Std. Meth.*	*Units*	*Method*	*Lower Detection Limit*	*Holding Time*
14	Carbonate Alkalinity	(1) 310.1	403	mg/L	Titrimetric	5 mg/L	14 days
15	Chlorphyll-a	NA	10026	ug/L	Spectropholometric	0.5 ug/L	48 hours
16	Fecal Coliform	(2) p 132	909C	#/100 ml	Membrane Filter Multiple Tube MPN	NA	24 hours
17	Total Coliform	(2) p 114	909A	#/100 ml	Membrane Filter Multiple Tube MPN	NA	24 hours
18	Plankton Primary Productivity	NA	1002I	gc/m²day	Light Bottle/Dark Bottle	NA	24 hours
19	Trubidity		214A	NTU	Nephelometric	1.NTU	48 hours

(1) "Methods for Chemical Analysis of Water and Wastes"
U.S. Environmental Protection Agency
Office of Research and Development
Environmental Monitoring and Support Laboratory
Cincinnati, Ohio. 1979

(2) "Microbial Methods for Monitoring the Environment, Water and Wastes"
U.S. Environmental Protection Agency
EPA-600/8-78-017
Office of Research and Development
Environmental Monitoring and Support Laboratory

(3) "Standard Methods for the Examination of Water and Wastewater"
16th Edition, APHA, AQQA, WPCF, Washington, D.C. 1985

industrial contributions to the watershed. Agricultural pesticides and herbicides may be added after completion of a non-point source analysis to be included in a separate report.

4.1.5 Tributary Stream Gages

Inflow measurements at the major tributaries are essential to the proper calibration of the lake model. The inflows are not currently recorded at any specific USGS gaging station. it is recommended that flow measurements be made on the Leon River, Sabana Creek, Rush Creek, and Armstrong Creek during each monthly sampling survey. Specific locations recommended for tributary flow measurements are listed in Table 9. The flows are to be measured by cross section velocity measurements using a March-McBirney flowmeter. Flow should also be measured at the release from Lake Proctor during the sampling period.

4.2 Permanent Monitoring Program

4.2.1 Sample Locations

Sample locations for the permanent monitoring of Lake Proctor should be the same as the initial year. As specified above, the sample stations for subsequent samplings of the lake body will be located through landmarks chosen during the initial sampling trip. The general locations of the stations are shown on Figure 20. The descriptions of the stations are provided in Table 9.

4.2.2 Sample Frequency and Type

The variability in lake monitoring data usually indicates that monthly monitoring be continued as long as possible. After the initial year of monitoring data is analyzed, a decision should be made as to the long-term sample frequencies in the lake. If necessary due to available resources, the frequency should be reduced to quarterly sampling of the lake body. Sample types should be composited as before during each individual sampling trip.

4.2.3 Field Measurements

Long term field measurements should include pH, conductivity, temperature, dissolved oxygen concentration, and depth. These measurements should be made a five foot intervals in order to determine the location of the thermocline in the water column.

4.2.4 Laboratory Analyses

Laboratory analyses for the long term monitoring program should continue as with the short term monitoring program. Laboratory parameters are provided in Table 11.

4.2.5 Tributary Stream Gages

Inflows from major tributaries should continue to be measured during each monitoring trip. The first free flowing station on Armstrong Creek, Sabana River, Rush Creek, and Leon River should be measured.

4.3 Intensive Surveys

In order to protect the downstream water quality in Lake Proctor, modeling of watershed impacts is proposed in the Wastewater Management Plan. In order to model watershed tributaries, calibration data should be obtained in the form of short term duration intensive water quality surveys. Surveys are proposed for Rush/Copperas Creeks, Armstrong Creek, Sabana River, Leon River above Lake Proctor, and Leon River below Lake Proctor. The last survey is proposed to document the water quality in the stream segment proposed for any discharge from an anticipated regional facility serving the Lake Proctor area. The following sections outline features of the surveys and the specific sampling locations recommended for each.

4.3.1 Sample Locations

Sample locations for intensive surveys of tributaries are located to characterize the impact of wastewater dischargers and provide calibration data for a steady state model of the system.

Figures are provided in the subsequent section which shown the locations anticipated to be sampled. It is possible that no discernible flows will occur at several of the upper stations during the survey. The absence of flow is probable if true low flow conditions are present during the survey period. In this situation, the fist free flowing station listed in the survey station location tables should be used as the headwater station.

Additional sample locations should be located at wastewater discharges into the stream. Knowledge of current wasteload impacts to the stream will allow the calibrated model to respond to further impacts in a manner closest to the actual stream response.

4.3.2 Field Measurements

Field measurements should include pH, temperature, depth, conductivity, and dissolved oxygen concentration. These parameters are to be measured at five foot increments at points in the stream greater than five foot depth to bottom. It is not anticipated that any of the stations on the tributaries will require depth sampling. Primary productivity and secchi depth measurements are not recommended on the tributary intensive surveys. With this exception, the tributary monitoring should be comparable to the field measurements taken during the lake monitoring trips. Diurnal measurements are recommended to determine daily variations and to calculate a time weighted average of field parameters.

4.3.3 Morphologic and Hydraulic Characterization

A morphologic characterization refers to the measurements made of the streamed structure and shape. Average reach cross sections and substrate conditions are a component of stream morphology. Hydraulic characterization includes flow measurements and time of travel studies. The goal of these characterizations is to develop a predictive equation relating flow, depth, and velocity for use in the dissolved oxygen models of the stream. Figures provided in a subsequent section show proposed dye injection and monitoring points to be used for time of travel studies. Typically, the fluorescent dye is placed in the stream in a batch release and monitored downstream through an automatic sequential sampler and fluorometer. it is not anticipated that

ULRMWD will purchase an automated sampler or fluorometer, but the equipment can be rented on a short term basis for use on the intensive surveys.

It is proposed that cross section data be obtained at each station. This data includes a description of the substrate composition (gravel, rock, silt, mud) and measurement of depth and width characteristics above and below each station. If possible, width should be measured at three transects above and below the station location. The transects can be spaced over a half mile distance above and below the station. If the cross section is highly variable, five transects should be used over a distance of one mile above and below the station. These recommendations are consistent with TWC protocols for site investigations, and may be modified for use in the monitoring plan.

4.3.4 Laboratory Analyses

The standard parameters list for laboratory analyses presented in Table 11 should be used for the tributary intensive surveys. Samples should be manually composited from four diurnal grab samples. Grab samples should be used for fecal coliform and total coliform to protect the integrity of the coliform bacteria.

4.3.5 Tributary and Individual Survey Features

The following sections describe individual tributary characteristics and the particular sampling stations required for the separate intensive surveys.

4.3.5.1 Rush/Copperas Creek

Rush/Copperas Creek system is a relatively lengthy intermittent stream system feeding into a cover in the southwestern arm of Lake Proctor. The creek originates as Copperas Creek with headwaters in the Rising Star area in southern Eastland County. The creek flows approximately 28 miles to the southeast before converging with Rush Creek. Rush Creek flows an additional four miles to the normal pool elevation of Lake Proctor. Major secondary tributaries of Rush and Copperas Creek include Sweetwater Creek, Martins Creek, and South Copperas Creek. The

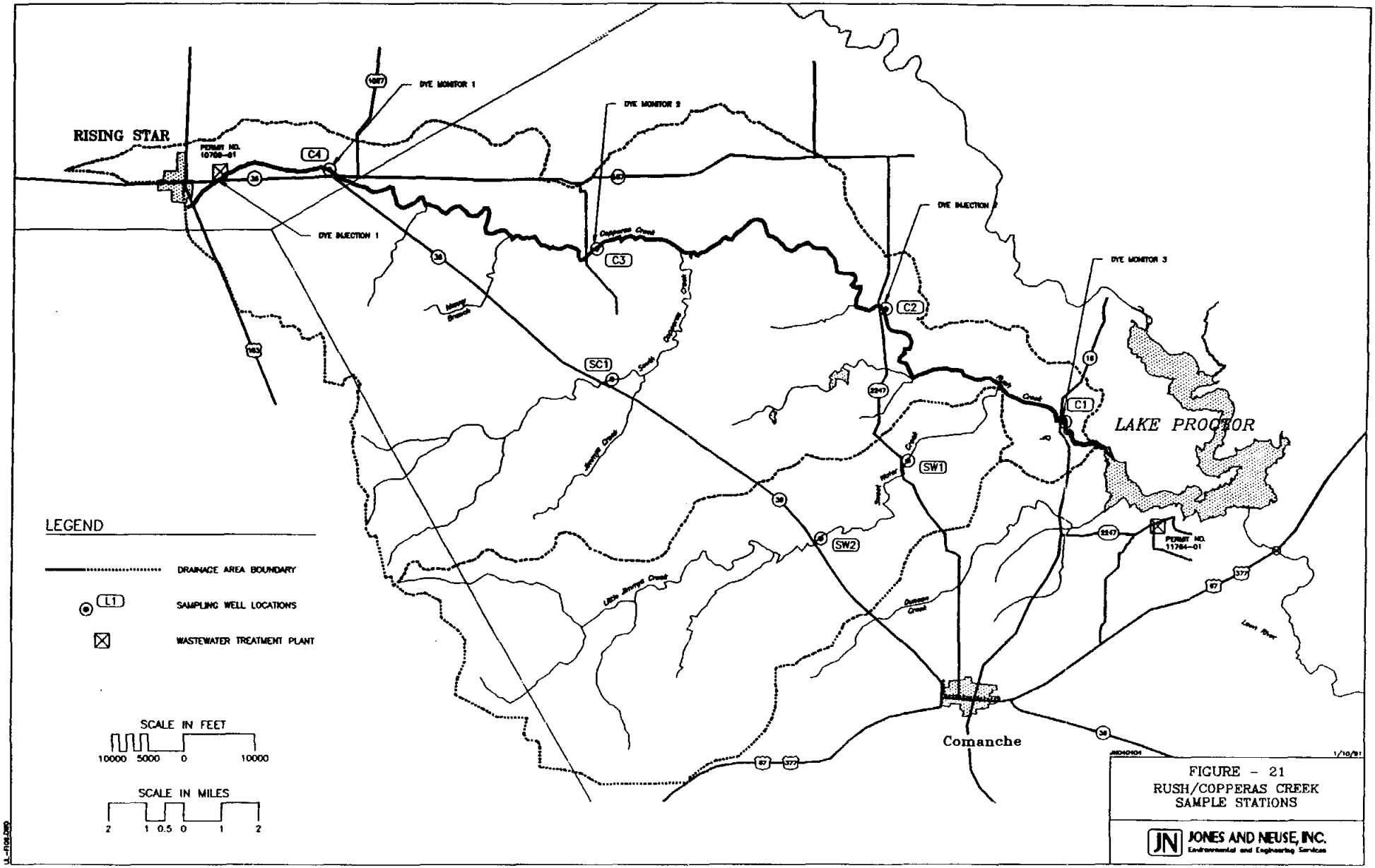


FIGURE - 21
RUSH/COPPERAS CREEK
SAMPLE STATIONS

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TABLE 12

COPPERAS/RUSH CREEK INTENSIVE SURVEY

SAMPLE LOCATIONS

Sampling Station	*Description of Location*
Mainstem/Stations	
C1	Rush Creek at SH 16 1.2 Miles South of Downing
C2	Copperas Creek at FM 2247 2.2 Miles North of Soda Springs Comm.
C3	Copperas Creek at FM 1477 1.0 Miles South Sipe Springs Comm.
C4	Copperas Creek at FM 587 4.0 Miles East of Rising Star
C5	Copperas Creek at SH 36 in Rising Star
Tributary Stations	
SW1	Sweetwater Creek at FM 2247 Near Sweetwater Comm.
SW2	Sweetwater Creek at SH 36 4.0 Miles East of Sidney Comm.
SC1	South Fork Copperas Creek at SH 36 near Stag Creek Comm.
Discharger Stations	
1	City of Rising Star

TABLE 13
SABANA RIVER INTENSIVE SURVEY
SAMPLE LOCATIONS

Sampling Station	*Description of Location*
Mainstem Stations	
S1	Sabana River at SH 16 Near Ebenezer Comm.
S2	Sabana River at FM 2318 Near Pounds Comm.
S3	Sabana River at FM 587 3.2 Miles East of DeLeon
S4	Sabana River at FM 679 2.9 Miles South of Gorman
S5	Sabana River at FM 1027 5.0 Miles Southwest of Carbon
S6	Sabana River at SH 206 Near Sabana Comm.
Tributary Stations	
TC1	Turkey Creek at FM 2318 near Pounds Comm.
EM1	Elm Creek at FM 1027 2.0 Miles North of Okra Comm.
HS1	Hunting Shirt Creek at Unnamed Road near Center Point Comm.
Discharger Stations	
1	City of Gorman Wastewater Treatment Plant

total drainage area of the system is approximately 284 square miles (181,760 acres). The nature of the drainage area is predominantly rural with minor population centers in Rising Star and Downing. The single wastewater discharger in the watershed is the City of Rising Star (TWC Permit No. 10072-01). The discharge of treated wastewater at the headwaters provides the majority of the base-flow in the tributary. Other smaller communities are presently served by on-site or community septic tanks systems.

Figure 21 shows the proposed sampling locations on the Rush/Copperas Creek system. Descriptions of the sampling locations are provided in Table 12. Potential dye injection and monitoring stations are also provided on Figure 21. These stations should be verified as to velocity and cross section prior to actual dye injection to ensure that the dye monitoring station will be able to detect the peak passage during the survey period.

4.3.5.2 Sabana River

To the northwest of Rush/Copperas Creek, the Sabana River flows into a relatively large cove in the Leon River arm of Lake Proctor. The river originates as an intermittent stream with headwaters to the northeast of the City of Cross Plains in Callahan County. The creek flows approximately 49 miles to the southeast before converging at the normal pool elevation of Lake Proctor. Major secondary tributaries of the Sabana River include Elm Creek, Shinoak Branch, Yellow Branch, Turkey Creek, Long Branch, Greer Creek, Hunting Shirt Creek, and Currycomb Branch. The total drainage area of the system is approximately 299 square miles (191,360 acres). The nature of the drainage area is predominantly agricultural and rural with minor population centers in Carbon and Gorman (partially in the watershed). The only wastewater discharge made into the watershed is from the City of Gorman Wastewater Treatment Plant (TWC Permit No. 10091-01). The discharge of treated wastewater provides the majority of the base-flow in the lower portion of the tributary. Other smaller communities in the watershed are presently served by on-site or community septic tank systems.

Figure 22 shows the proposed sampling locations on the Sabana River. Descriptions of the locations are provided in Table 13.

4.3.5.3 Leon River Above Lake Proctor

To the east of the Sabana River, the Leon River flows into a cove approximately equidistant from the Sabana River confluence and the main body of the lake. The river originates as the confluence of the north, mid, and south forks of the Leon River near the City of Eastland in Eastland County. The upper reaches of the river are impounded by Leon Lake. The middle reaches of the river are impounded by Lake Proctor and the lower portion is contained in Belton Lake. The entire watershed is a roughly rectangular area about 135 miles long and 30 miles wide having a drainage area of 3,583 square miles (2,293,120 acres).

The proposed monitoring plan will only address the portion of the Leon River above Lake Proctor to the release from Leon Lake. Monitoring provisions in the Leon Lake Watershed are outside of the present scope. The Leon River flows approximately 32 miles from Leon Lake in Eastland County to the normal pool elevation of Lake Proctor in Comanche County.

Major secondary tributaries of the Leon River above Lake Proctor include Colony Creek, Nash Creek, Hog Creek, Armstrong Creek, and Walker Creek. The total drainage area of the Leon River between Leon Lake and Lake Proctor is approximately 224 square miles (143,360 acres). The nature of the drainage area is predominantly agricultural and rural with major populations centers in DeLeon and Gorman (partially in the watershed). The only wastewater treatment plant operating int he watershed is the City of DeLeon (TWC Permit No. 10078-01) which disposes of effluent through slow-rate irrigation. Other smaller communities in the watershed are presently served by on-site or community septic tanks systems.

Figure 23 shows the proposed sampling locations on the Leon River above Lake Proctor. Descriptions of the locations are provided in Table 14.

4.3.5.4 Leon River Below Lake Proctor

Below Lake Proctor, the Leon River flows approximately 136 miles through Comanche, Hamilton, and Coryell counties before entering the normal pool elevation of Belton Lake. The proposed monitoring plan will only address the portions of the river from below Leon Lake to

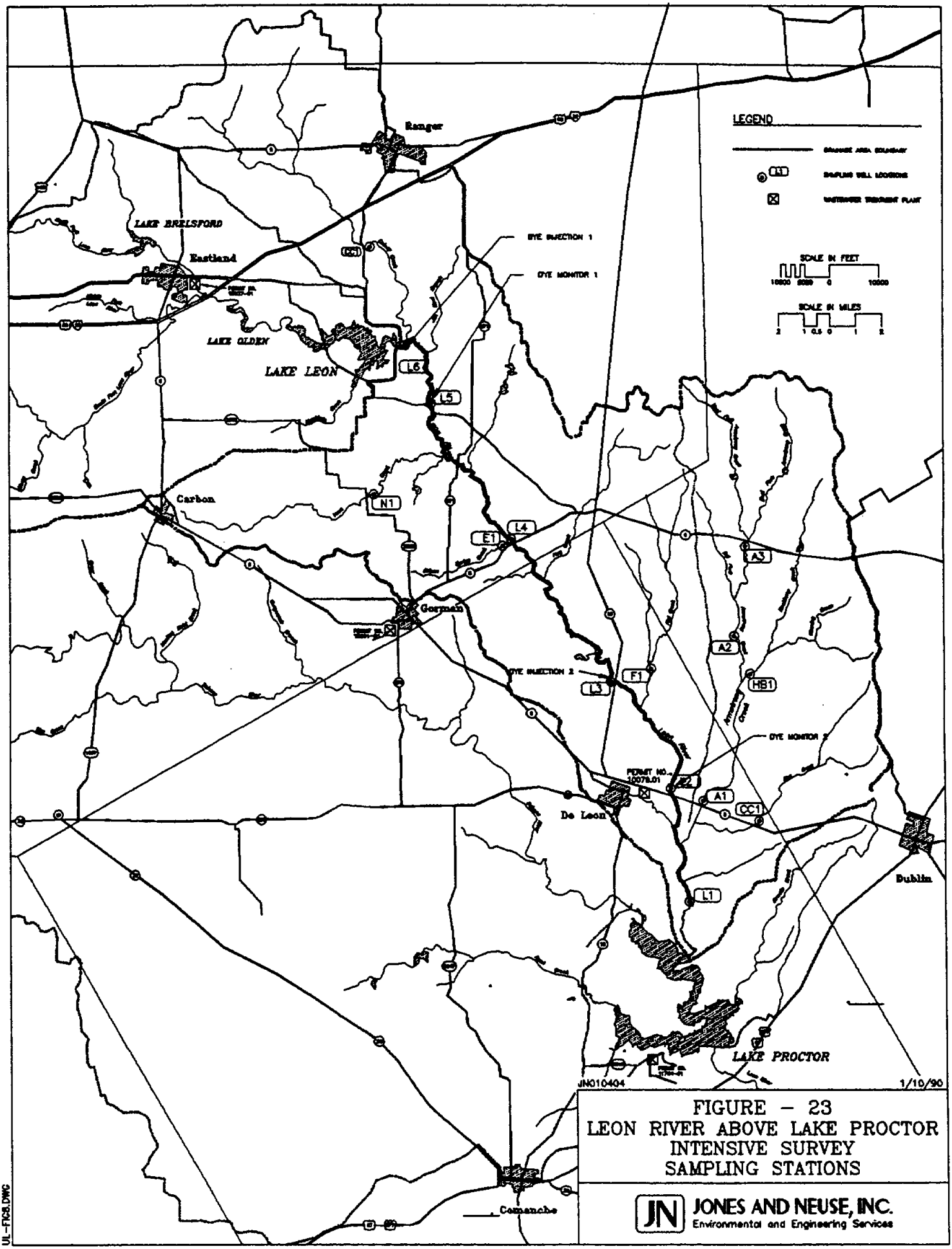

FIGURE – 23
LEON RIVER ABOVE LAKE PROCTOR
INTENSIVE SURVEY
SAMPLING STATIONS

JONES AND NEUSE, INC.
Environmental and Engineering Services

UL-FIG8.DWG

TABLE 14

LEON RIVER ABOVE LAKE PROCTOR INTENSIVE SURVEY

SAMPLE LOCATIONS

Sampling Station	*Description of Location*
Mainstem Stations	
L1	Leon River at Unnamed Road 1 Mile West of FM 1496
L2	Leon River at SH 6 1.5 Mile East of DeLeon
L3	Leon River at SH 16 4.0 Mile North of DeLeon
L4	Leon River at FM 8 4.4 Mile Northeast of Gorman
L5	Leon River at FM 2214 0.5 Mile South of Alameda
L6	Leon River at FM 2461 Below Lake Leon
Tributary Stations	
N1	Nash Creek at FM 2563 0.5 mi S of Kokomo Comm.
E1	Ellison Spring Creek at FM 8
F1	Flat Creek at Unnamed Road 4.5 Mile North of DeLeon
CC1	Colony Creek at FM 2461 2.5 Mile South of Ranger
A1	Armstrong Creek at SH 6 2.0 Mile East of DeLeon
A2	Armstrong Creek at Unnamed Road 2.5 Mile North of FM 2156
A3	Armstrong Creek at FM 8 Near E and W Fork Confluence
HB1	Hackberry Creek at Unnamed Road 1.0 Mile North of FM 2156
CO1	Cow Creek at SH 6 5.6 Mile West of Dublin
Discharger Stations	
1	City of DeLeon Wastewater Treatment Plant

above Gatesville. Monitoring and modeling studies have already addressed the portion of the river below Gatesville as part of the BRA Water Quality Management Plan for Belton and Stillhouse Hollow Lakes. Major secondary tributaries of the Leon River below Lake Proctor include Indian Creek, Halmsely Creek, South Leon River, Resley Creek, Mesquite Creek, Pecan Creek, Colony Creek, Nash Creek Hog Creek, Armstrong Creek, and Walker Creek. The total drainage area of the Leon River above Gatesville below Lake Proctor is 450 square miles (288,000 acres). The nature of the drainage area is predominantly agricultural and rural with major populations centers in Hamilton and Gustine. Several wastewater dischargers are operating in the Leon River Watershed between Lake Proctor and Gatesville. Dischargers within the jurisdiction of the ULRMWD include Comanche (Permit No. 10719-01), Dublin (Permit No. 10405-01), Gustine (Permit No. 10841-01), and Hamilton (Permit No. 10492-01). Other smaller communities in the watershed are presently served by on-site or community septic tank systems.

Figure 24 shows the proposed sampling locations on the Leon River below Lake Proctor. Descriptions of the locations are provided in Table 15.

4.4 Bathymetry Survey

In order to determine a proper segmentation scheme for modeling the lake, additional data may be needed relating to the subsurface structure and volume of the lake. Therefore, an outline for a bathymetric survey of the lake is included below for reference. The necessity of the survey will depend upon the resolution and availability of raw data from the USACOE sedimentation survey of 1986 (USACOE 1987).

4.4.1 Methodology

Bathymetric mapping involves simultaneous distance measurements in three directions. The process involves both data collection and reduction to yield two and three dimensional maps of the lake body. The most time consuming step is the collection of data from the survey. For a reservoir the size of Lake Proctor, several thousand data points are required for reasonable resolution. The most economical method to collect this data is to perform the survey by boat equipped with a survey grade fathometer for depth measurements and a radar navigation system

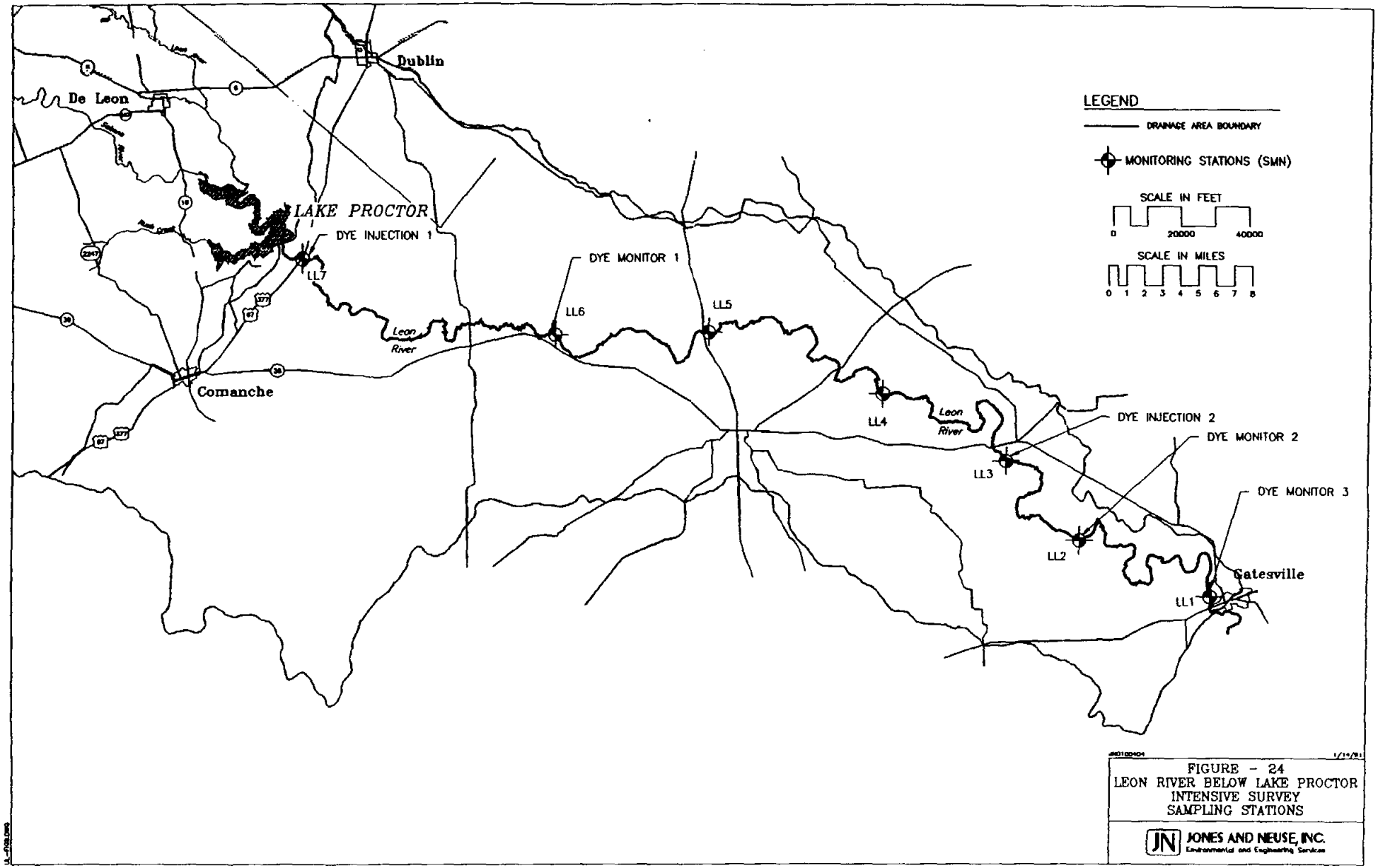

FIGURE - 24
LEON RIVER BELOW LAKE PROCTOR
INTENSIVE SURVEY
SAMPLING STATIONS

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TABLE 15

LEON RIVER BELOW LAKE PROCTOR INTENSIVE SURVEY

SAMPLE LOCATIONS

Sampling Station	*Description of Location*
Mainstem Stations	
LL1	Leon River at abandoned bridge 0.2 miles downstream of US 84 in Gatesville
LL2	Leon River 0.2 Km Upstream CR 174
LL3	Leon River at Road 1.6 Km Downstream SH 36
LL4	Leon River 0.4 Km Downstream of Alexander Cr
LL5	Leon River at US 281 North of Hamilton
LL6	Leon River Northeast of Lamkin
LL7	Leon River at US 67-377 Northeast of Hasse
Tributary Stations	
None	None
Discharger Stations	
1	City of Comanche Wastewater Treatment Plant
2	City of Dublin Wastewater Treatment Plant
3	City of Gustine Wastewater Treatment Plant
4	City of Hamilton Wastewater Treatment Plant

to provide x/y (east/west, north/south) location data. The 1986 sedimentation survey performed by the corps of engineers made use of such a system. The data can be collected by an on-board computer system for later analyses. During the survey, careful records of the lake surface elevation must be maintained to allow the depth data, taken relative to the water surface, to be converted to a consistent altitude datum. In addition, horizontal control of the water surface locations must be maintained to superimpose the surveyed lake shape onto the contours.

4.4.2 Locations of Transects

Transects for the survey are dependent upon the resolution needed from the bathymetric map. For use in model segmentation, the resolution does not need to be as well defined as for other purposes. The location of degradation and sedimentation ranges in the USACOE resurvey of the lake in 1986 (USACOE 1987) should be sufficient for model segmentation. However, if the lake coves are to be modeled in any detail, more resolution in these areas should be obtained.

4.4.3 Development of Bathymetric Map

The location and depth data should be compiled and gridded into a Cartesian coordinate system. The gridding methodology proposed utilizes a minimum curvature algorithm to construct a regular grid of depths in the x/y plane from the non-uniformly spaced data points. From the data grid, lines of equal depth may be drawn resulting in two dimensional contour maps of the lake bottom. Three dimensional profiles may be generated by expanding a two dimensional mesh of constant x and y lines into three dimensions resulting in a three dimensional surface. The software required for such data transformations is readily available for the personal computer and can also be used to integrate the volumes for calculation of segmentation parameters in model development.

4.4.4 Use in Model Application

The WASP model allows a great deal of flexibility in programming hydraulic and transport routines. Because vertical segmentation is anticipated in the Proctor Lake model, reservoir bottom morphometry is necessary in applications of any of the options for transport modeling.

The bathymetry will be used in determining segment volumes for hydrodynamic calibration. Vertical and horizontal dispersion (bulk exchange rates) will be specified as outlined in "Methods for Applying WASP to Texas Reservoirs for Wasteload Allocation and Eutophicats Potential Analysis" (Cleveland 1988). This methodology is currently applied by TWC in wasteload evaluations and will be used for Lake Proctor for consistency.

4.5 Non-Point Source Sampling

A detailed plan for non-point source sampling is to be included in the preliminary non-point analyses once sufficient aerial photography of the watershed is obtained. The following sections include a brief discussion of the proposed sampling scheme.

4.5.1 Representative Single Land Use Watersheds

From aerial photography combined with on-site reconnaissance visits, several small watersheds will be selected which are representative of single land use types. Proposed land use categories include agricultural cropland, agricultural rangeland, rural undeveloped, urban commercial, and urban residential. Once several candidate watersheds are chosen, contacts with landowners can be made to obtain permission for sampling activities.

4.5.2 Sample Parameters

In order to characterize the stormwater discharge, samples will be taken from a hydraulic control point during runoff events. It is proposed that the watershed be sampled through a dedicated composite sampler to obtain an event composite sample. In addition, first thirty-minute grade samples should be obtained if possible. The laboratory analyses for these samples should be the same as those proposed in Table 11 for the lake monitoring program. However, chlorophyll-a samples are not required, and total coliform and fecal coliform analyses should be performed on grab samples only.

4.5.3 Recording Stream Gages and Hydrographs

In addition to the water quality samples taken during the stormwater sampling, continuous flow measurements should be recorded during runoff events. This can be accomplished through installation of a fiberglass flume at a hydraulic control point in the watershed. A recording level meter can be positioned in the flume to measure depth of flow for conversion of volumetric flowrate. If the response of the meter is accurate enough, the records will comprise a hydrograph of stormwater runoff from the watershed.

4.5.4 Non-Point source Assessment Report

The preliminary non-point source assessment report will attempt to estimate the present nutrient loadings from non-point source discharges and spatially locate the areas to receive attention in non-point sampling efforts. The need for non-point source controls will also be addressed.

SECTION 5.0
OPERATING PROCEDURES AND QUALITY ASSURANCE

5.0 OPERATING PROCEDURES AND QUALITY ASSURANCE

The following sections address the specific operation of the monitoring system. In addition, information on quality control and quality assurance procedures is included.

5.1 Project Organization

The management of the monitoring program will be the responsibility of ULRMWD with Jones and Neuse, Inc. (JN) providing training and support as required. Coordination of sampling efforts with the other agencies listed in Section 2.0 will be maintained to reduce manpower requirements if possible.

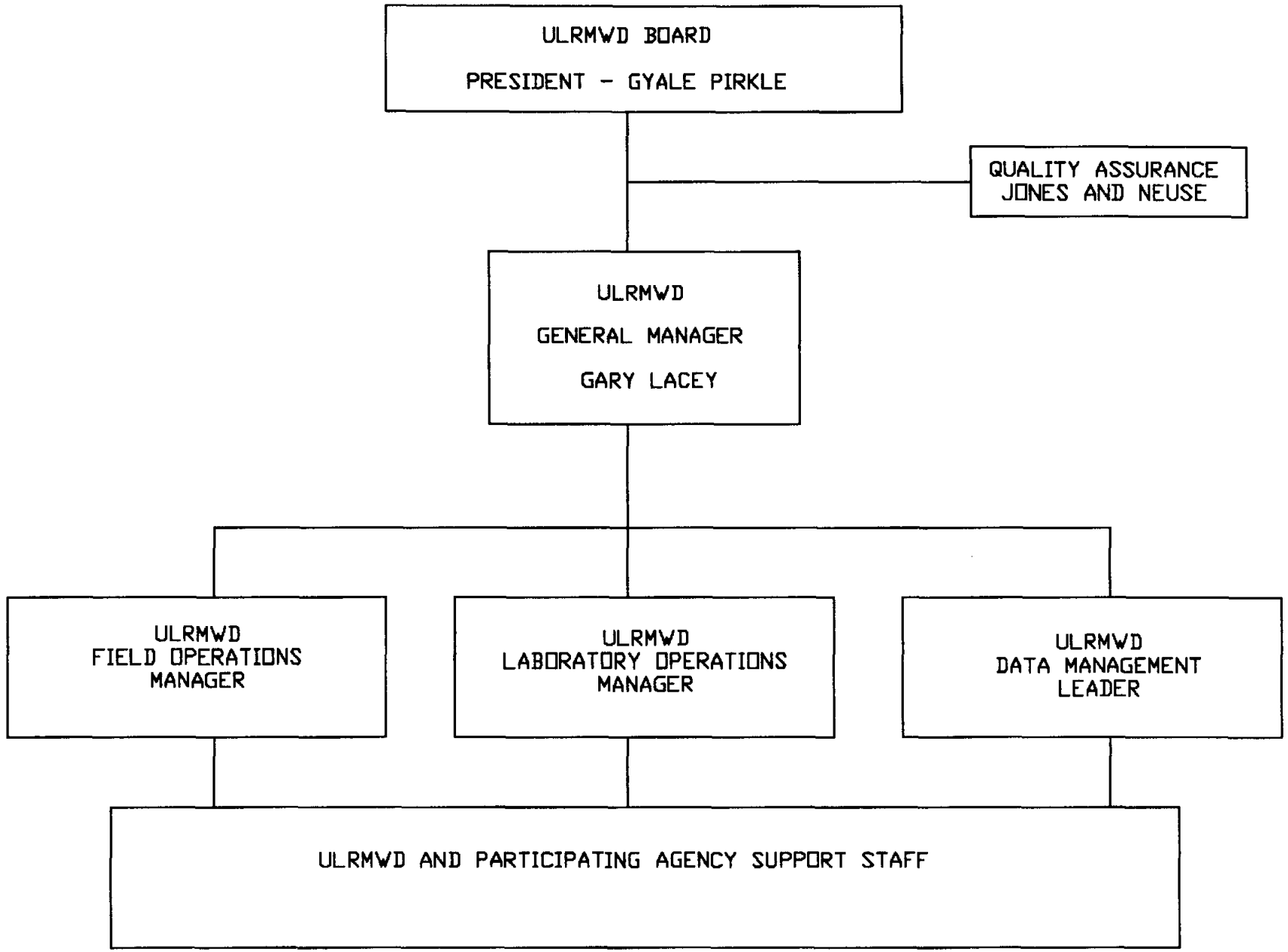
The specific responsibilities of ULRMWD personnel related to the monitoring program can be divided into field, laboratory, and data management tasks. It is recommended that each group of tasks be managed by one individual and coordinated with the ULRMWD project manager. The field manager should be responsible for sampling operations, field measurements, sampling quality control, and sample scheduling within the time frame of the monitoring program. The laboratory manager should be responsible for the coordination of sample storage, laboratory analysis, laboratory data reports, and laboratory quality control. The data management manager should be responsible for the processing of reports, generation of statistics, data quality review, and data reports disseminated to participating agencies. The project manager will oversee these activities and be responsible for personnel availability and overall project coordination. A schematic showing the proposed project organization is provided as Figure 25.

5.2 Quality Objectives

Quality assurance begins with definition of quality objectives selected for the monitoring program and planning of the monitoring to meet these objectives. In determining the requirements of the data consideration should be given to accuracy, precision, representativeness, comparability, and completeness.

FIGURE 25

PROJECT ORGANIZATION



The QA objectives for accuracy and precision are typically reported as laboratory control limits for data acceptance. Accuracy and precision for conventional pollutants are commonly measured by percent recovery and relative percent difference. Commonly accepted control limits for conventional pollutants include a 85% to 115% recovery range for spiked samples and a less than 25 percent relative percent difference between duplicates.

Representativeness is a measure of how closely the measured results reflect the actual concentrations or distribution of the chemical compounds in a sample. Representativeness is an objective that cannot be directly quantified but is essential in obtaining useable data. The sample type and frequency have been selected to ensure the relationship of the sample to the water body characteristics is preserved. The sampling, preservation, transportation, and storage protocols are also designed to preserve representativeness. In the lake sampling program, depth composites in the epilimnion and hypolimnion were chosen to represent the natural stratification of lake water quality parameters. Similarly, field measurements are to be taken over the diurnal cycle in order to represent the temporal variations in these parameters. Diurnal composite samples are taken in all situations possible to account for diurnal variations in chemical parameters as well.

Data comparability refers to consistency in analyses and reporting to ensure that the resulting data are comparable between sampling surveys and sample locations. The generation of comparable data is essential to use in statistical comparisons and calibration of models. In addition, the unit and method comparability are needed in providing data to other agencies. The reference to standard analytical methods commonly accepted in water quality monitoring is provided to ensure data comparability. These methods are well documented in Standard Methods (AWWA 1986) and EPA guidance documents (EPA 1979).

5.3 Sampling Procedures

Water samples will be taken using clean, unused sample containers suitable for the analyses to be performed. Table 16 shows the recommended sample containers and preservation techniques for each sampling trip. All records required for documentation of field collection should be

TABLE 16

SAMPLE CONTAINERS

Container	*Volume*	*Material*	*Preservation*	*Measurement Parameters*
1	1L	Polyethylene	4°C H_2SO_4 pH<2	Total Phosphorous Oritho Phosphate TKN NO_3-N NH_3-N COD
2	1L	Polyethylene	4°C	Bicarbonate Alkalinity Carbonate Alkalinity Total Alkalinity BOD_5 BOD_{20} TSS Turbidity
3	1L	Amber Glass	4°C	Chlorophyll-a
4	100 ml	Whirl-Pak Bag	4°C	Fecal Coliform
5	100 ml	Whirl-Pak Bag	4°C	Total Coliform

completed by the field team and reviewed by the field manager. Samples will be logged in the field and each container will be marked with the following information.

Project identification (intensive survey or routine)
Unique location by station designator
Unique location by short description
Sampling method (grab/composite/depth)
Sampling date
Sampling time
Person obtaining the sample
Method of sample preservation

5.4 Sample Custody Procedures

Because the laboratory will be operated by ULRMWD personnel, a limited chain of custody program will be followed. A summary sheet of the samples provided to the lab will be kept which includes the information on the sample tags and the analyses to be made on the sample. In addition, the chain of custody forms will be signed by the field personnel transferring the samples to the laboratory and the laboratory personnel responsible for check-in and initial storage of the samples. At the laboratory, the technician will check the sample tags against the sample bottles and note any discrepancies. The technician should also note the condition of the sample containers. correctness of preservation, and the integrity of the samples. The technician is also responsible for logging in the samples on a computer database for analyses tracking. Information in the database will include the sample tag data and any notations on sample condition. This database will be referred to in a further section.

5.5 Equipment Calibration Procedures

Equipment calibration procedures specified by the individual standard analytical method should be followed at the frequency specified in the method reference. Additional calibration procedures for field equipment should be performed prior to each sampling trip. These procedures are specified in the equipment manuals provided at purchase. Calibration procedures

specified in equipment manuals for laboratory instruments should be followed in addition to those required for each analytical method.

5.6 Analytical Procedures

Laboratory analysis references are included in Table 11. These procedures are standard methods commonly used for measurements taken in water matrix at the detection limits required for this monitoring program. Laboratory quality assurance procedures specified by the TWC will be used to determine the performance of laboratory equipment and personnel. These procedures are specified in Table 17 including the frequency of blank, standard, and spike analyses for each group of measurement parameters.

5.7 Data Reduction, Validation, and Reporting

Data reduction will include the production of a standard laboratory report using the appropriate units of measure specified in Table 11. Blank corrections will be applied in all cases. All laboratory calculations will be checked independently by the laboratory manager or other designated staff member. Data validation will also be performed at the time of the calculation check. Validation will determine whether the data is to be accepted or repetition of analyses or sampling is required. The validation will include checks for approved analytical procedures, properly operating and calibrated instrumentation, and precision and accuracy comparable to similar analytical programs. The validation will also include statistical tests of outliers if necessary and identification of questionable analytical values. Laboratory reports will include the data, associated method blanks, background, spikes, standards, and minimum detectable levels.

5.8 Performance and Systems Audits

Review of the laboratory quality control data will be performed by ULRMWD and at least one outside quality auditor. The responsibility for the outside audit is suggested to be JN personnel. The system audit includes review of personnel, facilities and equipment, custody procedures,

TABLE 17

QUALITY CONTROL PROCEDURES

Variable	*Daily Quality Control Requirements*
BOD_5, BOD_{20}	Blank and standard on 10% basis
TSS	Blank and duplicate on 10% basis (at least one duplicate)
Alkalinity	Standard and duplicate on 10% basis (at least one duplicate)
Ph	Calibration with 2 standards
Conductivity	Calibration with 1 KCl standard
Titrimetric Analyses, COD	Two standards, duplicates and spikes on a 10% basis (at least one duplicate and spike)
Colorimetric and Specific Ion Probe Analyses NO_3-N, NH_3-N, NO_2-N, P, O-P	One standard, duplicates, and spikes on 10% basis (at least one duplicate and spike)

instrument calibration and maintenance, standards preparation and verification, analytical procedures, data handling, and documentation control.

Performance audits include the comparison of quality control at the ULRMWD laboratory with similar laboratories. This audit can be performed by splitting samples and standards from the ULRMWD with an outside contract laboratory for verification. The same outside agent responsible for system audits should also review any performance audits performed by the lab.

5.9 Preventative Maintenance

Maintenance procedures include such activities as lubrication, source cleaning, detector cleaning, probe fluid replacement, probe membrane replacement, and other routine cleaning of instruments. These procedures and their frequency are addressed in individual manufacturers' instrument manuals. Precision and accuracy data should be compared with control limits to determine when instrument performance begins to degrade. Immediate maintenance should be performed when such data indicates degradation of peak resolution, shift in calibration curves, decreased sensitivity, or failure to meet the quality control standards.

5.10 Data Assessment Procedures

After each laboratory analyses calculations for precision (relative percent difference), accuracy (recovery of spikes), and completeness (percentage of validated data) should be made. these values should be summarized along with the analytical data. This will allow the quality control personnel to analyze changes in data quality over time. Suspect data should be clearly identified in records and in the database.

Data assessment procedures include the calculation of diurnal means for field data and grab sample analytical data. The means should be recorded in the database as a calculated parameter. In addition, cumulative descriptive statistics should be calculated after each additional data set is obtained. The statistics should also include graphical representations of data as appropriate for presentation. When sufficient data is accumulated, trends analyses and indices can be calculated. In addition, the distribution of the data and suitability for parametric or non-

parametric statistics can be determined. At the end of the first year of analyses, the calibration and modeling effort for Lake Proctor can be completed.

SECTION 6.0
WATER QUALITY DATABASE MANAGEMENT

6.0 WATER QUALITY DATABASE MANAGEMENT

In order to compile the field and analytical data, manage reports to participants in the program, and analyze the data, a database management system is proposed for ULRMWD. The components of the system include computing requirements, software requirements, and the actual structure of the database.

6.1 Computing Requirements

For the size of the database to be generated by ULRMWD, a personal computer is sufficient for data compilation, database management, and statistical computations. Unless the raw bathymetric data from the USACOE sedimentation survey proves to be too large, the personal computer can perform most modeling tasks as well. It is recommended that the ULRMWD have available at least one 386 based personal computer with sufficient hard disk space for storage of the data handling system.

6.2 Software Requirements

The software requirements include features such as portability, ability to work with large amounts of data, and ease of use for ULRMWD personnel. The software should include a relational database for data manipulation and storage. DBase 4 or Paradox 3.5 are two of the most common in usage today. These programs can be manipulated to generate a variety of reports and can interface with several statistical packages. Statistics can be performed using a multipurpose package such as StatGraphics or SPSSPC or a program developed specifically for the manipulation of water quality data such as WQSTATII (Loftis 1989). This program is rather primitive in data handling, but provides a variety of parametric and non-parametric statistics used most often in water quality analyses. Summary statistics, median analyses, trench analyses, and excursion analyses can be performed using this program. In addition, an expert system program for statistic selection is also included in the program.

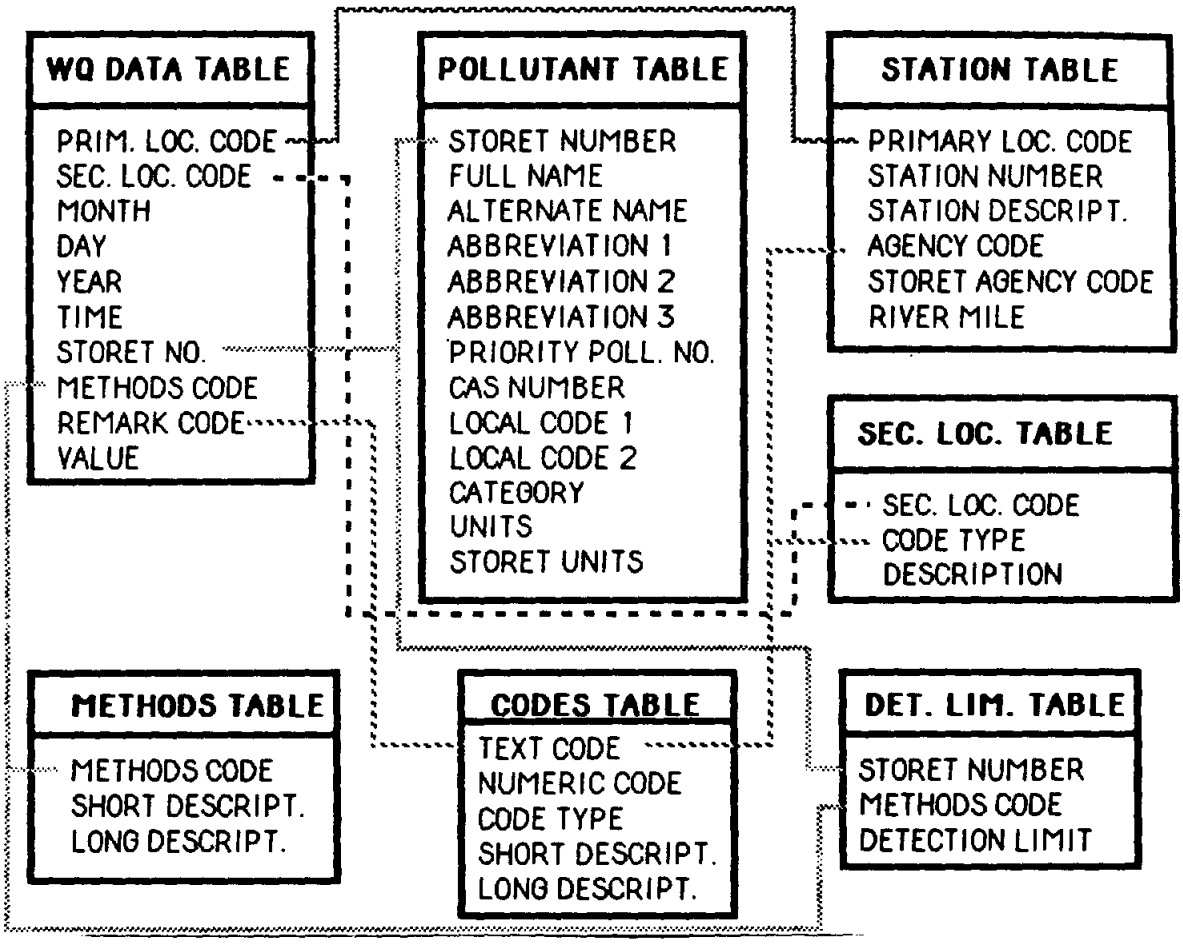
6.3 Database Structure

Database structures for water quality compilations can be either value-oriented or sample-oriented in nature. Sample-oriented databases contain a record corresponding to each discrete sample. In such a structure, the sample may be analyzed for one or several parameters which are stored in a separate value table. This structure is more appropriate for a utility which tracks water quality by unique sample number or performs several tests on each sample.

A value-oriented structure includes a value table containing the location code and parameter code which direct the database to a location and parameter table which contains details about the value. This structure results in significant redundancy if several parameters are measured as the location and parameter table must be included with each. This approach is more useful when only a few parameters are used, unique sample numbers are not used, or when historical data is being stored with no unique sample number. For the reasons cited above, a sample-oriented database structure is recommended for the ULRMWD monitoring program. Depending upon the database program selected, the different fields and tables can be set up to allow flexibility in data analyses and report preparation. Figure 27 shows an example of a completed sample-oriented database structure for water quality data taken in the Lower Mississippi River (Grayman 1986).

FIGURE 27

EXAMPLE WATER QUALITY DATABASE STRUCTURE



SECTION 7.0
IMPLEMENTATION SCHEDULE

7.0 IMPLEMENTATION SCHEDULE

7.1 Time Schedule

The timing of a large scale water quality study is critical in order to generate enough useful data in a set time period. The lake monitoring should begin with a reconnaissance survey to locate sampling locations and to provide training for ULRMWD personnel who will conduct the monitoring. After this preliminary survey, the monthly sampling can begin immediately. The bathymetric survey can also be performed during any period. The short term intensive surveys should be performed during periods of relatively low flow with little antecedent rainfall for at least one week prior to the survey. Naturally, the scheduling of such surveys must be flexible enough to account for weather conditions. Sufficient time should be available between intensive surveys to allow the laboratory to process samples without violating holding times. Other than this restriction, the surveys may be completed during one summer period. The non-point source sampling studies should be performed after aerial photographs are available and after completion of the preliminary assessment. A graphic time schedule proposed for the project is included as Figure 26.

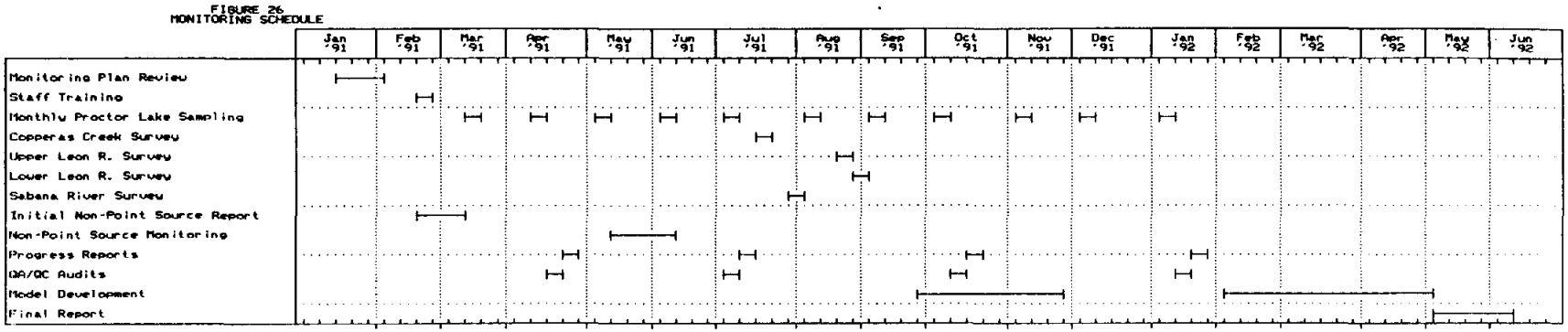
7.2 Staff Training

ULRMWD staff training scheduling is dependent upon the other seasonal demands on their time. The training for field personnel should include classroom instruction on the equipment and goals of the monitoring trips and field usage of the equipment including quality control procedures during a reconnaissance survey of the lake.

7.3 Model Development and Usage

Model development for Lake Proctor can begin as the data is compiled and continued to completion after the first year of monthly sampling is available. The model segmentation must naturally wait until the bathymetric survey data is available and the water quality calibration must wait on the compilation of data over at least one entire seasonal cycle. Usage of the model in making estimations of water quality impacts for various scenarios of watershed development

FIGURE 26
MONITORING SCHEDULE



must also wait on development of non-point source loading estimations. After this data is compiled, scenarios for point source and non-point source impacts to the lake can be modeled.

Model development for the steady state tributary models can begin after the calibration data is compiled. The hydraulic and kinetic coefficients can be chosen to approximate model response to analytical data. Scenarios for population and wastewater discharge growth over time must be generated during the wastewater facilities planning project for use in the models. Once this data is generated, the water quality impacts of each development scenario can be projected and the appropriate discharge limits can be selected.

SECTION 8.0
CONCLUSIONS AND RECOMMENDATIONS

8.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are made concerning the analysis of existing data on Lake Proctor and the planning for the monitoring system.

Conclusions:

- ULRMWD has a need for a coordinated monitoring effort in the Lake Proctor Watershed to support planning activities for wastewater treatment for its members.

- The existing water quality data on Lake Proctor is currently insufficient for most planning purposes.

- The goals of monitoring Lake Proctor and the surrounding watershed include drinking water source protection, wasteload allocation, trophic state and eutrophication evaluation, non-point source assessment, and aquatic habitat protection.

Recommendations:

- The monitoring plan should encompass all of the goals stated above within the resources of the ULRMWD and participating agencies.

- The monitoring plan should include fixed station periodic testing of the lake body as well as intensive surveys of tributaries and prospective receiving streams from any proposed regional facility. In addition, the plan should include compilation of physical data sufficient to model the lake responses to development and short term monitoring of single land use watersheds for non-point source assessment.

- The monitoring plan outlined in this report is recommended for implementation and a schedule for each major activity is proposed.

REFERENCES

REFERENCES

Ward, Robert C., J.C. Loftis, and G.B. McBride Design of Water Quality Monitoring Systems. Van Nostrand Reinhold, New York, NY, 1990.

Loftis, Jim C., R.D. Phillips, R.C. Ward, and C.H. Taylor, "WQSTAT II: A Water Quality Statistics Package," Ground Water. Volume 27, Number 6, November-December 1989.

Brazos River Authority, Summary Report on Lakes Belton and Stillhouse Hollow - Water Quality and Facility Planning, Roming and Porter, Alan Plummber and Associates, Inc., and Klotz and Associates, Inc. (Preliminary Draft). Waco, TX, December 1989.

Brazos River Authority, Water Quality and Regional Facility Planning Study, Lake Stillhouse Hollow and Lake Belton - Task II - Water Quality Evaluation, Alan Plummer and Associates, Inc. (Preliminary Draft). Fort Worth, TX, March 1989.

U.S. Army Corps of Engineers, Report on Sedimentation Resurvey - Lake Proctor, Leon River, Texas. U.S. Army Corps of Engineers - Forth Worth District. Fort Worth, TX, October 1987.

Cleveland, Karen D., Methods for Applying WASP to Texas Reservoirs for Waste Load Allocation and Eutrophication Potential Analyses LP-88-08. Texas Water Commission, Austin, TX, October 1988.

U.S. Environmental Protection Agency, Technical Support Manual: Waterbody Surveys and Assessments for Conducting Use Attainability Analyses - Volume III: Lake Systems. Office of Water Regulations and Standards, Criteria and Standards Division. Washington, D.C., November 1984.

Texas Water Commission, The State of Texas Water Quality Inventory. 10th ed. LP-90-06. Texas Water Commission, Austin, Texas, June 1990.

Grayman, Walter M., R.T. Kilgore, R.M. Males, and R.M. Clark, Surface Water Screening - A Case Study for Water Utility Management, AWWA Research Foundation, Denver, CO, July 1986.

Parker, Frank L., E.L. Thackstone, and W. Smith, "Surface Water Quality Enhancement Through Source Protection as Shown By Water Quality Indices" in Drinking Water Enhancement Through Source Protection, Robert B. Pojasek, ed. Ann Arbor Science, Ann Arbor, MI, 1977.

Kuhner Jochen R. de Lucia, M. Shapiro, "Assessment of Existing Methodologies for Evaluation and Control of Watershed Land Use in Drinking Water Supply Systems" in Drinking Water Enhancement Through Source Protection, Robert B. Pojasek, ed. Ann Arbor Science, Ann Arbor, MI, 1977.

Whitlatch, Earl E., "Spatial Adequacy of NASQAN Water Quality Data in Ohio River Basin," Journal of Environmental Engineering. Vol. 115, No. 1, February 1989.

Reckhow, Kenneth H. and Steven C. Dhapra, Engineering Approaches for Lake Management Vol. 1, Data Analysis and Empeircal Modeling. Butterworth Publishers, Boston, Massachusetts, 1983.

Environmental Protection Agency, Methods for Chemical Analysis of Water and Wastes. EPA Environmental Monitoring and Support Laboratory. Cincinnati, Ohio, 1979.

AWWA, APHA, WPCF, Standard Methods for the Examination of Water and Wastewater, 16th Edition, AWWA Washington, D.C., 1986.

APPENDIX A
USGS LAKE PROCTOR DATA

From: Water Resources Data, Texas, Water Year 1981, Volume 2., U.S.G.S. Water-Data Report TX-81-2.

MULTIPLE STATION ANALYSES

LOCAL IDENTIFIER	STATION NUMBER	DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (M) (00078)
PROCTOR LAKE SITE AC	315814098291201	01-20-81	1030	1.00	808	8.10	7.5	0.82
		01-20-81	1031	--	--	--	--	--
		01-20-81	1031	1.40	--	--	--	--
		01-20-81	1035	10.0	808	8.10	7.5	--
		01-20-81	1040	20.0	808	8.10	7.5	--
		01-20-81	1045	25.0	808	8.10	7.5	--
		05-04-81	1512	1.00	823	8.00	23.5	0.50
		05-04-81	1513	--	--	--	--	--
		05-04-81	1513	0.80	--	--	--	--
		05-04-81	1514	10.0	823	7.80	23.0	--
		05-04-81	1516	20.0	823	7.70	23.0	--
		05-04-81	1520	26.0	835	7.50	23.0	--
		08-03-81	1840	1.00	778	7.80	28.5	0.60
		08-03-81	1841	--	--	--	--	--
		08-03-81	1841	1.00	--	--	--	--
		08-03-81	1842	10.0	780	7.40	28.0	--
		08-03-81	1844	20.0	780	7.20	28.0	--
		08-03-81	1845	25.0	782	7.10	28.0	--
PROCTOR LAKE SITE AL	315823098282801	01-20-81	1110	1.00	807	8.10	8.0	--
		01-20-81	1120	10.0	807	8.00	8.0	--
		01-20-81	1125	19.0	807	8.00	7.5	--
		05-04-81	1540	1.00	828	8.10	23.5	--
		05-04-81	1542	10.0	828	7.90	23.0	--
		05-04-81	1544	20.0	838	7.40	22.5	--
		05-04-81	1546	25.0	838	7.40	22.5	--
		08-03-81	1825	1.00	775	8.00	28.0	--
		08-03-81	1827	10.0	776	7.90	28.5	--
		08-03-81	1829	20.0	778	7.50	28.0	--
		08-03-81	1830	25.0	780	7.10	28.0	--
PROCTOR LAKE SITE BC	315832098302301	01-20-81	0915	1.00	822	8.20	7.0	--
		01-20-81	0917	13.0	822	8.20	7.0	--
		05-04-81	1715	1.00	818	8.40	25.0	--
		05-04-81	1717	13.0	828	7.60	23.0	--
		08-03-81	1905	1.00	794	8.20	29.0	--
		08-03-81	1910	12.0	794	7.20	28.5	--
PROCTOR LAKE SITE CC	315837098314201	01-20-81	0935	1.00	824	8.20	6.5	0.46
		01-20-81	0940	5.00	824	8.20	6.0	--
		05-04-81	1730	1.00	818	8.50	24.5	0.20
		08-03-81	1915	1.00	829	8.10	28.0	0.10
		08-03-81	1920	5.00	826	8.10	28.0	--

MULTIPLE STATION ANALYSES

LOCAL IDENTIFIER	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS TOTAL (MG/L AS CACO3) (00900)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	SODIUM PERCENT (00932)
PROCTOR LAKE SITE AC	10.1	87	200	92	48	20	76	2	44
	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--
	10.2	88	--	--	--	--	--	--	--
	10.1	87	--	--	--	--	--	--	--
	10.1	87	200	95	49	20	75	2	43
	6.1	74	210	97	48	21	78	2	44
	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--
	5.4	65	--	--	--	--	--	--	--
	4.4	53	--	--	--	--	--	--	--
	2.1	25	210	92	50	21	79	2	44
	5.8	76	190	90	43	20	77	3	45
	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--
	3.7	49	--	--	--	--	--	--	--
	2.7	36	--	--	--	--	--	--	--
	1.7	22	190	90	43	20	76	2	45
PROCTOR LAKE SITE AL	11.8	103	--	--	--	--	--	--	--
	11.8	103	--	--	--	--	--	--	--
	11.7	101	--	--	--	--	--	--	--
	6.6	80	--	--	--	--	--	--	--
	5.4	65	--	--	--	--	--	--	--
	1.8	21	--	--	--	--	--	--	--
	1.8	21	--	--	--	--	--	--	--
	6.7	88	--	--	--	--	--	--	--
	6.1	80	--	--	--	--	--	--	--
	3.8	50	--	--	--	--	--	--	--
	1.6	21	--	--	--	--	--	--	--
PROCTOR LAKE SITE BC	9.8	84	--	--	--	--	--	--	--
	9.7	83	--	--	--	--	--	--	--
	8.4	105	--	--	--	--	--	--	--
	4.4	53	--	--	--	--	--	--	--
	7.6	101	--	--	--	--	--	--	--
	2.6	34	--	--	--	--	--	--	--
PROCTOR LAKE SITE CC	12.1	103	--	--	--	--	--	--	--
	12.0	100	--	--	--	--	--	--	--
	9.1	114	--	--	--	--	--	--	--
	7.6	100	--	--	--	--	--	--	--
	7.0	92	--	--	--	--	--	--	--

LOCAL IDENTIFIER	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3 (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)
PROCTOR LAKE SITE AC	8.9	110	56	150	0.30	1.2	426	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	8.4	110	56	150	--	1.2	426	--
	9.5	110	60	160	0.30	0.80	444	0.93
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	9.4	120	59	160	--	1.2	452	1.2
	9.8	100	53	160	0.30	1.9	425	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	10	100	52	150	--	2.1	413	--
PROCTOR LAKE SITE AL	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
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	--	--	--	--	--	--	--	--
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	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
PROCTOR LAKE SITE BC	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
PROCTOR LAKE SITE CC	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	1.5
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--

MULTIPLE STATION ANALYSES

LOCAL IDENTIFIER	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOSPHOROUS TOTAL (MG/L AS P) (00665)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
PROCTOR LAKE SITE AC	--	1.5	0.020	0.060	89	K12	10	2
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	1.3	0.030	0.060	--	--	30	0
	--	--	--	--	--	--	--	--
	--	1.5	0.030	0.060	--	--	20	6
	0.170	1.1	0.050	0.190	58	41	10	8
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	0.410	1.6	0.060	0.260	--	--	10	210
	--	1.9	0.00	0.060	K13	290	11	5
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	2.8	0.00	0.070	--	--	50	30
	--	2.1	0.00	0.070	--	--	0	70
	--	2.7	0.00	0.100	--	--	12	180
PROCTOR LAKE SITE AL	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
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	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
PROCTOR LAKE SITE BC	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
PROCTOR LAKE SITE CC	--	1.4	0.030	0.060	--	--	20	0
	--	1.6	0.030	0.060	--	--	30	10
	0.080	1.6	0.040	0.210	--	--	20	0
	--	2.7	0.00	0.140	--	--	30	0
	--	2.8	0.00	0.150	--	--	40	10

MULTIPLE STATION ANALYSES

LOCAL IDENTIFIER	STATION NUMBER	DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (M) (00078)
PROCTOR LAKE SITE DC	315943098273101	01-20-81	1125	1.00	813	8.20	7.5	0.79
		01-20-81	1130	6.00	813	8.20	7.0	--
		05-04-81	1555	1.00	828	8.40	24.5	0.60
		05-04-81	1600	9.00	832	8.10	22.5	--
		08-03-81	1715	1.00	768	8.20	29.5	--
		08-03-81	1718	9.00	772	8.20	29.5	--
PROCTOR LAKE SITE EC	315924098285501	01-20-81	1140	1.00	814	8.10	7.5	0.67
		01-20-81	1145	10.0	814	8.10	7.5	--
		01-20-81	1150	17.0	814	8.10	7.5	--
		05-04-81	1615	1.00	828	8.30	24.5	0.40
		05-04-81	1617	10.0	832	7.90	23.0	--
		05-04-81	1619	16.0	832	7.70	23.0	--
		08-03-81	1525	1.00	771	8.30	29.0	0.50
		08-03-81	1527	10.0	772	8.20	29.0	--
		08-03-81	1530	17.0	777	7.20	28.5	--
PROCTOR LAKE SITE FC	320040098293501	01-20-81	1200	1.00	855	8.20	6.5	0.49
		01-20-81	1201	--	--	--	--	--
		01-20-81	1201	0.80	--	--	--	--
		01-20-81	1205	6.00	855	8.20	6.5	--
		05-04-81	1640	1.00	862	8.00	24.5	0.20
		05-04-81	1641	--	--	--	--	--
		05-04-81	1641	0.40	--	--	--	--
		05-04-81	1642	6.00	864	7.90	24.0	--
		08-03-81	1755	1.00	777	8.10	29.0	0.30
		08-03-81	1756	--	--	--	--	--
		08-03-81	1756	0.50	--	--	--	--
		08-03-81	1757	7.00	777	8.10	29.0	--

MULTIPLE STATION ANALYSES

LOCAL IDENTIFIER	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS TOTAL (MG/L AS CACO3) (00900)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)
PROCTOR LAKE SITE DC	12.4	107	--	--	--	--	--	--
	11.8	101	--	--	--	--	--	--
	8.6	108	--	--	--	--	--	--
	6.6	79	--	--	--	--	--	--
	7.5	101	--	--	--	--	--	--
	6.6	89	--	--	--	--	--	--
PROCTOR LAKE SITE EC	11.6	100	200	95	49	20	76	2
	10.8	93	--	--	--	--	--	--
	10.5	91	210	97	50	20	76	2
	7.8	98	210	99	49	21	79	2
	5.6	67	--	--	--	--	--	--
	4.5	54	200	94	47	21	79	2
	8.0	107	180	84	40	20	80	3
	7.3	97	--	--	--	--	--	--
	1.5	20	180	87	41	20	76	3
PROCTOR LAKE SITE FC	12.1	103	230	97	56	21	79	2
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	12.2	103	220	100	55	21	80	2
	7.4	92	220	110	53	21	82	2
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	6.8	84	220	110	55	21	83	2
	7.2	96	180	81	41	19	81	3
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	6.9	92	180	81	41	19	81	3

LOCAL IDENTIFIER	SODIUM PERCENT (00932)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3 (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)
PROCTOR LAKE SITE DC	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	1.2
	--	--	--	--	--	--	--	1.0
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
PROCTOR LAKE SITE EC	43	8.8	110	58	150	1.2	429	--
	--	--	--	--	--	--	--	--
	43	8.8	110	58	150	1.2	430	--
	44	9.6	110	61	160	0.80	446	1.5
	--	--	--	--	--	--	--	--
	44	9.5	110	60	160	0.90	443	1.3
	47	9.8	98	53	160	1.7	423	--
	--	--	--	--	--	--	--	--
	46	10	98	53	160	2.1	421	--
PROCTOR LAKE SITE FC	42	8.3	130	62	160	1.5	466	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	43	8.4	120	62	160	1.5	460	--
	44	9.5	110	63	180	1.2	476	1.2
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	43	9.6	110	64	180	1.3	480	1.3
	48	8.2	100	51	160	2.0	422	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	48	10	100	54	160	2.0	427	--

MULTIPLE STATION ANALYSES

LOCAL IDENTIFIER	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
PROCTOR LAKE SITE DC	--	1.7	0.030	0.060	--	--	20	10
	--	1.6	0.030	0.060	--	--	30	10
	0.150	1.4	0.050	0.210	--	--	10	20
	0.090	1.1	0.040	0.180	--	--	20	10
	--	1.9	0.00	0.060	--	--	110	20
	--	1.9	0.00	0.070	--	--	60	10
PROCTOR LAKE SITE EC	--	1.6	0.020	0.060	<1	K1	<10	1
	--	1.7	0.020	0.070	--	--	10	0
	--	1.5	0.020	0.060	--	--	<10	2
	0.080	1.6	0.050	0.190	44	K16	<10	1
	--	--	--	--	--	--	--	--
	0.210	1.5	0.060	0.220	--	--	40	20
	--	1.7	0.00	0.060	K6	110	13	2
	--	2.2	0.00	0.070	--	--	20	0
	--	1.9	0.00	0.080	--	--	24	14
PROCTOR LAKE SITE FC	--	1.7	0.020	0.070	<1	<1	<10	1
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	1.5	0.020	0.070	--	--	<10	4
	0.210	1.4	0.060	0.220	56	K15	20	2
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	0.220	1.5	0.060	0.210	--	--	20	7
	--	2.8	0.00	0.110	K68	1600	17	2
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	1.9	0.00	0.110	--	--	19	14

LOCAL IDENTIFIER	STATION NUMBER	DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (M) (00078)	OXYGEN, DISSOLVED (MG/L) (00300)
PROCTOR LAKE SITE AC	315814098291201	01-22-80	1145	1.00	803	8.30	9.5	0.90	10.4
		01-22-80	1146	--	--	--	--	--	--
		01-22-80	1146	1.40	--	--	--	--	--
		01-22-80	1147	10.0	803	8.30	9.5	--	10.4
		01-22-80	1149	20.0	803	8.30	9.5	--	10.4
		01-22-80	1151	28.0	803	8.30	9.5	--	10.3
		05-04-80	0935	1.00	840	7.60	21.0	0.70	8.8
		05-04-80	0936	--	--	--	--	--	--
		05-04-80	0936	1.20	--	--	--	--	--
		05-04-80	0937	10.0	840	7.60	20.5	--	8.6
		05-04-80	0939	15.0	850	6.70	19.0	--	2.5
		05-04-80	0941	20.0	850	6.60	18.5	--	1.7
		05-04-80	0943	29.0	856	6.50	18.0	--	1.2
		08-25-80	1700	1.00	709	8.40	30.5	0.64	12.1
		08-25-80	1701	--	--	--	--	--	--
		08-25-80	1701	1.10	--	--	--	--	--
		08-25-80	1702	5.00	720	8.00	29.0	--	9.6
		08-25-80	1704	10.0	740	7.10	28.0	--	2.1
		08-25-80	1706	15.0	740	7.00	28.0	--	0.9
		08-25-80	1708	20.0	740	7.00	27.5	--	0.1
		08-25-80	1710	28.0	743	7.00	27.5	--	0.4
PROCTOR LAKE SITE AL	315823098282801	01-22-80	1210	1.00	803	8.30	9.5	--	10.2
		01-22-80	1212	10.0	803	8.30	9.5	--	10.2
		01-22-80	1214	20.0	803	8.30	9.5	--	10.2
		01-22-80	1216	28.0	803	8.30	9.5	--	10.1
		05-04-80	1000	1.00	840	7.60	21.0	--	8.9
		05-04-80	1002	10.0	840	7.60	20.5	--	8.6
		05-04-80	1004	20.0	850	6.60	18.5	--	2.3
		05-04-80	1006	26.0	850	6.60	18.5	--	1.5
		08-25-80	1730	1.00	709	8.20	30.5	--	10.1
		08-25-80	1732	10.0	720	7.60	28.0	--	5.2
		08-25-80	1734	15.0	735	7.30	27.5	--	4.2
		08-25-80	1736	24.0	740	7.10	27.5	--	1.4
PROCTOR LAKE SITE BC	315832098302301	01-22-80	1100	1.00	813	8.20	10.0	--	9.9
		01-22-80	1102	10.0	813	8.20	10.0	--	9.8
		01-22-80	1104	15.0	813	8.20	10.0	--	9.8
		05-04-80	0905	1.00	850	7.50	21.0	--	8.4
		05-04-80	0907	10.0	850	7.50	21.0	--	8.2
		05-04-80	0909	13.0	860	6.60	19.5	--	2.5
		08-25-80	1620	1.00	716	8.20	32.0	--	9.7
		08-25-80	1622	10.0	735	7.40	29.5	--	4.7
		08-25-80	1624	14.0	740	6.90	29.0	--	1.4

LOCAL IDENT- I- FIER	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOS- PHOROUS TOTAL (MG/L AS P) (00665)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
PROCTOR LAKE SITE AC	55	140	0.30	2.3	426	0.54	0.040	0.020	<10	<1
	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	0.52	0.040	0.030	60	0
	--	--	--	--	--	--	--	--	--	--
	57	140	--	2.2	425	0.54	0.040	0.020	<10	5
	62	160	0.40	0.60	459	1.3	0.010	0.050	<10	<1
	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	1.2	0.010	0.050	10	0
	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	1.2	0.010	0.060	70	40
	61	160	--	1.9	469	1.8	0.010	0.090	140	350
	49	150	0.40	2.2	399	1.3	0.00	0.050	<10	3
	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	1.3	0.00	0.060	20	10
	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	1.6	0.00	0.070	10	90
	--	--	--	--	--	--	--	--	--	--
	47	140	--	2.9	407	1.7	0.00	0.090	440	690
PROCTOR LAKE SITE AL	--	--	--	--	--	--	--	--	--	--
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PROCTOR LAKE SITE BC	--	--	--	--	--	--	--	--	--	--
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LOCAL IDENTIFIER	STATION NUMBER	DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	TRANSPARENCY (SECCHI DISK) (M) (00078)	OXYGEN, DISSOLVED (MG/L) (00300)
PROCTOR LAKE SITE CC	315837098314201	01-22-80	1120	1.00	800	8.30	9.0	0.20	10.3
		01-22-80	1122	4.00	800	8.30	9.0	--	10.2
		05-04-80	0915	1.00	875	7.40	21.5	0.20	7.4
		05-04-80	0917	4.00	875	7.40	21.0	--	7.2
		08-25-80	1634	1.00	750	8.20	32.5	0.27	9.3
		08-25-80	1636	5.00	750	7.70	30.5	--	6.1
PROCTOR LAKE SITE DC	315943098273101	01-22-80	1230	1.00	803	8.30	9.5	0.60	10.3
		01-22-80	1232	9.00	803	8.30	9.5	--	10.3
		05-04-80	1015	1.00	850	7.50	20.5	0.70	8.3
		05-04-80	1017	7.00	850	7.40	20.0	--	7.3
		08-25-80	1750	1.00	724	8.30	31.0	0.73	9.8
		08-25-80	1752	9.00	740	7.70	29.0	--	6.6
PROCTOR LAKE SITE EC	315924098285501	01-22-80	1251	1.00	812	8.40	10.0	0.50	10.1
		01-22-80	1253	10.0	812	8.40	10.0	--	10.1
		01-22-80	1255	14.0	812	8.40	10.0	--	10.0
		05-04-80	1025	1.00	850	7.50	21.0	--	8.7
		05-04-80	1027	10.0	850	7.40	20.5	--	7.7
		05-04-80	1029	15.0	850	6.90	19.0	--	4.6
		05-04-80	1031	21.0	850	6.60	18.5	--	1.9
		08-25-80	1808	1.00	724	8.30	31.5	0.61	10.4
		08-25-80	1810	5.00	724	8.30	31.0	--	10.2
		08-25-80	1812	10.0	744	7.10	28.5	--	1.7
		08-25-80	1814	18.0	748	7.00	27.5	--	0.3
PROCTOR LAKE SITE FC	320040098293501	01-22-80	1340	1.00	827	8.30	10.0	0.40	10.0
		01-22-80	1341	--	--	--	--	--	--
		01-22-80	1341	0.60	--	--	--	--	--
		01-22-80	1342	8.00	827	8.30	10.0	--	9.9
		05-04-80	1055	1.00	860	7.40	21.5	0.30	8.2
		05-04-80	1056	--	--	--	--	--	--
		05-04-80	1056	0.60	--	--	--	--	--
		05-04-80	1057	7.00	860	6.90	20.5	--	5.7
		08-25-80	1839	--	--	--	--	--	--
		08-25-80	1839	0.60	--	--	--	--	--
		08-25-80	1840	1.00	741	8.20	30.5	0.34	8.7
		08-25-80	1842	5.00	741	8.10	30.5	--	7.9
		08-25-80	1844	8.00	784	7.20	29.5	--	3.4

LOCAL IDENTIFIER	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS TOTAL (MG/L AS CACO3) (00900)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	SODIUM PERCENT (00932)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3 (00410)
PROCTOR LAKE SITE CC	93	--	--	--	--	--	--	--	--	--
	92	--	--	--	--	--	--	--	--	--
	86	--	--	--	--	--	--	--	--	--
	83	--	--	--	--	--	--	--	--	--
	129	--	--	--	--	--	--	--	--	--
	82	--	--	--	--	--	--	--	--	--
PROCTOR LAKE SITE DC	94	--	--	--	--	--	--	--	--	--
	94	--	--	--	--	--	--	--	--	--
	94	--	--	--	--	--	--	--	--	--
	83	--	--	--	--	--	--	--	--	--
	134	--	--	--	--	--	--	--	--	--
	88	--	--	--	--	--	--	--	--	--
PROCTOR LAKE SITE EC	93	210	88	52	19	72	2	42	8.9	120
	93	--	--	--	--	--	--	--	--	--
	92	210	91	53	19	71	2	41	9.2	120
	100	230	110	56	22	80	2	42	9.7	120
	88	--	--	--	--	--	--	--	--	--
	51	--	--	--	--	--	--	--	--	--
	21	230	99	57	21	82	2	43	9.6	130
	142	180	83	41	19	73	2	45	9.4	98
	140	--	--	--	--	--	--	--	--	--
	22	--	--	--	--	--	--	--	--	--
	4	190	74	48	18	70	2	42	9.7	120
PROCTOR LAKE SITE FC	92	210	81	53	19	80	2	44	8.8	130
	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
	91	210	78	55	17	78	2	44	8.8	130
	95	220	110	53	21	82	2	44	9.7	110
	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
	65	210	100	53	20	79	2	43	9.7	110
	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--
	118	180	86	44	18	74	2	45	9.7	98
	107	--	--	--	--	--	--	--	--	--
	46	190	90	44	19	77	3	45	10	98

LOCAL IDENTIFIER	STATION NUMBER	DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)
PROCTOR LAKE SITE AC	315814098291201	01-19-82	1330	1.00	655	8.10	6.0
		01-19-82	1331	--	--	--	--
		01-19-82	1331	1.20	--	--	--
		01-19-82	1332	10.0	655	8.10	5.5
		01-19-82	1334	20.0	656	8.00	5.5
		01-19-82	1336	33.0	657	7.90	6.0
		05-04-82	1116	1.00	718	8.10	20.5
		05-04-82	1117	--	--	--	--
		05-04-82	1117	1.50	--	--	--
		05-04-82	1118	10.0	718	8.10	20.0
		05-04-82	1120	15.0	720	8.00	19.5
		05-04-82	1122	20.0	720	7.90	19.5
		05-04-82	1124	25.0	725	7.30	18.5
		05-04-82	1126	33.0	729	7.20	18.0
		07-30-82	1135	1.00	535	8.10	30.5
		07-30-82	1136	--	--	--	--
		07-30-82	1136	1.40	--	--	--
		07-30-82	1137	10.0	536	7.50	30.0
		07-30-82	1139	15.0	536	7.20	29.0
		07-30-82	1141	20.0	536	7.00	28.0
		07-30-82	1143	30.0	540	7.10	27.0
PROCTOR LAKE SITE AL	315823098282801	01-19-82	1350	1.00	655	8.10	7.5
		01-19-82	1352	10.0	655	8.10	5.5
		01-19-82	1354	20.0	655	8.10	5.5
		01-19-82	1356	28.0	655	8.00	5.5
		05-04-82	1140	1.00	714	8.20	20.5
		05-04-82	1142	10.0	714	8.10	20.0
		05-04-82	1144	20.0	720	7.60	19.0
		05-04-82	1146	31.0	726	7.30	18.5
		07-30-82	1155	1.00	535	8.10	30.0
		07-30-82	1157	10.0	544	7.20	29.5
		07-30-82	1159	20.0	544	7.10	28.0
		07-30-82	1201	29.0	557	7.20	26.5
PROCTOR LAKE SITE BC	315832098302301	01-19-82	1300	1.00	666	8.10	6.5
		01-19-82	1302	10.0	666	8.20	5.5
		01-19-82	1304	20.0	676	8.00	6.5
		05-04-82	1030	1.00	717	8.10	21.5
		05-04-82	1032	10.0	717	8.00	21.0
		05-04-82	1034	15.0	721	7.70	19.5
		05-04-82	1036	19.0	724	7.40	19.0
		07-30-82	1110	1.00	558	8.00	30.0
		07-30-82	1112	10.0	558	7.80	30.0
		07-30-82	1114	15.0	558	7.20	29.0

LOCAL IDENTIFIER	TRANSPARENCY (SECCHI DISK) (M) (00078)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS TOTAL (MG/L AS CACO3) (00900)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
PROCTOR LAKE SITE AC	0.70	12.4	102	190	67	50	15	54
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	12.9	106	--	--	--	--	--
	--	11.5	94	--	--	--	--	--
	--	12.5	103	180	64	49	15	53
	0.90	8.8	101	210	83	57	17	59
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	8.7	99	--	--	--	--	--
	--	8.2	92	--	--	--	--	--
	--	7.1	80	--	--	--	--	--
	--	2.9	32	--	--	--	--	--
	--	0.8	9	220	80	60	17	60
	0.80	7.1	97	160	50	44	12	43
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	3.8	51	--	--	--	--	--
	--	0.3	4	--	--	--	--	--
	--	0.3	4	--	--	--	--	--
	--	0.3	4	160	35	46	12	42
PROCTOR LAKE SITE AL	--	12.3	106	--	--	--	--	--
	--	11.9	98	--	--	--	--	--
	--	12.4	102	--	--	--	--	--
	--	12.4	102	--	--	--	--	--
	--	9.2	106	--	--	--	--	--
	--	8.6	98	--	--	--	--	--
	--	4.8	53	--	--	--	--	--
	--	1.8	20	--	--	--	--	--
	--	6.6	89	--	--	--	--	--
	--	1.1	15	--	--	--	--	--
	--	0.3	4	--	--	--	--	--
	--	0.3	4	--	--	--	--	--
PROCTOR LAKE SITE BC	--	12.6	106	--	--	--	--	--
	--	12.3	101	--	--	--	--	--
	--	10.9	92	--	--	--	--	--
	--	9.0	105	--	--	--	--	--
	--	8.7	101	--	--	--	--	--
	--	6.2	70	--	--	--	--	--
	--	3.5	39	--	--	--	--	--
	--	6.8	92	--	--	--	--	--
	--	6.0	81	--	--	--	--	--
	--	1.1	15	--	--	--	--	--

LOCAL IDENTIFIER	SODIUM ADSORPTION RATIO (00931)	SODIUM PERCENT (00932)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3 (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
PROCTOR LAKE SITE AC	2	37	8.5	120	44	110	0.30	2.9
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	2	37	8.7	120	44	110	--	3.0
	2	37	8.0	130	53	130	0.30	2.8
	--	--	--	--	--	--	--	--
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	2	36	7.9	140	54	130	--	4.9
	2	36	7.9	110	29	84	0.30	3.4
	--	--	--	--	--	--	--	--
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	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	1	34	7.5	130	25	84	--	6.6
PROCTOR LAKE SITE AL	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
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PROCTOR LAKE SITE BC	--	--	--	--	--	--	--	--
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LOCAL IDENTIFIER	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOSPHOROUS TOTAL (MG/L AS P) (00665)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
PROCTOR LAKE SITE AC	357	1.4	0.300	0.020	K16	27	<10	<1
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	1.5	0.300	0.020	--	--	40	10
	355	1.6	0.310	0.030	--	--	<10	1
	405	1.0	<0.100	0.030	<1	K2	60	23
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	1.4	<0.100	0.040	--	--	20	30
	--	--	--	--	--	--	--	--
	418	1.4	<0.100	0.060	--	--	<9	610
	290	1.3	<0.100	0.050	<1	K3	<3	7
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	1.2	<0.100	0.060	--	--	30	230
	--	--	--	--	--	--	--	--
	304	2.2	<0.100	0.280	--	--	1500	1300
PROCTOR LAKE SITE AL	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
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PROCTOR LAKE SITE BC	--	--	--	--	--	--	--	--
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LOCAL IDENTIFIER	STATION NUMBER	DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)
PROCTOR LAKE SITE BC	315832098302301	07-30-82	1115	17.0	558	6.90	28.0
PROCTOR LAKE SITE CC	315837098314201	01-19-82	1310	1.00	670	7.90	6.5
		01-19-82	1312	8.00	670	7.80	5.5
		05-04-82	1046	1.00	746	8.00	22.5
		05-04-82	1048	10.0	746	8.00	22.5
		07-30-82	1120	1.00	577	8.10	30.5
		07-30-82	1122	9.00	577	7.90	30.0
PROCTOR LAKE SITE DC	315943098273101	01-19-82	1404	1.00	650	8.20	6.5
		01-19-82	1406	11.0	655	8.10	6.0
		05-04-82	1210	1.00	711	8.20	22.0
		05-04-82	1212	12.0	721	7.90	21.0
		07-30-82	1210	1.00	542	7.90	29.5
		07-30-82	1212	12.0	542	7.50	29.0
PROCTOR LAKE SITE EC	315924098285501	01-19-82	1415	1.00	661	8.20	6.5
		01-19-82	1417	10.0	673	8.10	5.5
		01-19-82	1419	23.0	673	8.10	5.5
		05-04-82	1230	1.00	727	8.20	22.0
		05-04-82	1232	10.0	727	8.10	21.0
		05-04-82	1234	23.0	743	7.30	19.0
		07-30-82	1220	1.00	509	8.00	30.5
		07-30-82	1222	10.0	515	7.80	29.5
		07-30-82	1224	15.0	519	7.20	29.5
		07-30-82	1226	21.0	534	7.10	27.5
PROCTOR LAKE SITE FC	320040098293501	01-19-82	1445	1.00	708	8.10	7.0
		01-19-82	1446	--	--	--	--
		01-19-82	1446	1.10	--	--	--
		01-19-82	1447	12.0	734	8.00	5.5
		05-04-82	1306	1.00	799	8.10	22.5
		05-04-82	1307	--	--	--	--
		05-04-82	1307	0.90	--	--	--
		05-04-82	1308	12.0	815	7.60	22.0
		07-30-82	1245	1.00	506	8.00	31.0
		07-30-82	1246	--	--	--	--
		07-30-82	1246	0.70	--	--	--
		07-30-82	1247	5.00	509	7.50	30.0
		07-30-82	1249	12.0	515	7.20	29.5

LOCAL IDENTIFIER	TRANSPARENCY (SECCHI DISK) (M) (00078)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS TOTAL (MG/L AS CACO3) (00900)	HARDNESS NONCARB WH WAT TOT FLD MG/L AS CACO3 (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
PROCTOR LAKE SITE BC	--	0.3	4	--	--	--	--	--
PROCTOR LAKE SITE CC	0.80	11.8	99	--	--	--	--	--
	--	12.7	104	--	--	--	--	--
	0.40	7.4	88	--	--	--	--	--
	--	7.3	87	--	--	--	--	--
	0.50	7.4	101	--	--	--	--	--
	--	6.1	82	--	--	--	--	--
PROCTOR LAKE SITE DC	0.80	12.6	106	--	--	--	--	--
	--	11.0	91	--	--	--	--	--
	0.80	10.0	118	--	--	--	--	--
	--	7.4	86	--	--	--	--	--
	0.80	5.4	73	--	--	--	--	--
	--	3.6	48	--	--	--	--	--
PROCTOR LAKE SITE EC	0.70	11.4	96	190	67	50	15	55
	--	11.0	90	--	--	--	--	--
	--	12.3	101	190	67	50	15	55
	0.70	9.5	112	210	90	56	17	58
	--	9.3	108	--	--	--	--	--
	--	1.4	16	220	80	60	17	61
	0.90	6.4	88	160	45	44	11	41
	--	5.5	74	--	--	--	--	--
	--	0.4	5	--	--	--	--	--
	--	0.3	4	160	40	46	11	41
PROCTOR LAKE SITE FC	0.60	12.9	109	200	72	56	15	57
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	12.4	102	210	77	58	15	60
	0.50	8.6	102	230	98	63	17	68
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	5.0	59	230	92	63	18	69
	0.40	6.9	96	150	44	45	10	38
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	3.4	46	--	--	--	--	--
	--	0.4	5	160	36	46	10	39

LOCAL IDENTIFIER	SODIUM ADSORPTION RATIO (00931)	SODIUM PERCENT (00932)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY WAT WH TOT FET FIELD MG/L AS CACO3 (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
PROCTOR LAKE SITE BC	--	--	--	--	--	--	--	--
PROCTOR LAKE SITE CC	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
PROCTOR LAKE SITE DC	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
PROCTOR LAKE SITE EC	2	38	8.6	120	44	110	3.0	358
	--	--	--	--	--	--	--	--
	2	38	8.3	120	44	120	3.1	367
	2	36	8.1	120	54	130	2.6	398
	--	--	--	--	--	--	--	--
	2	37	7.4	140	54	130	4.8	419
	1	35	7.8	110	25	77	4.0	276
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	1	34	7.6	120	24	81	7.0	293
PROCTOR LAKE SITE FC	2	37	8.3	130	43	130	3.2	390
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	2	38	8.5	130	47	130	3.3	400
	2	38	8.0	130	57	150	2.8	444
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	2	38	8.1	140	57	150	3.2	452
	1	34	7.8	110	23	76	4.8	271
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--
	1	34	7.7	120	23	76	5.6	280

LOCAL IDENTIFIER	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOSPHOROUS TOTAL (MG/L AS P) (00665)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
PROCTOR LAKE SITE BC	--	--	--	--	--	--	--
PROCTOR LAKE SITE CC	1.3	0.290	0.020	--	--	30	<10
	1.3	0.290	0.020	--	--	20	10
	1.3	<0.100	0.080	--	--	<10	<10
	1.3	<0.100	0.070	--	--	10	<10
	1.3	<0.100	0.050	--	--	20	<10
	1.2	<0.100	0.060	--	--	10	10
PROCTOR LAKE SITE DC	1.1	0.320	0.020	--	--	60	<10
	1.3	0.330	0.030	--	--	20	<10
	1.3	<0.100	0.040	--	--	<10	<10
	1.5	<0.100	0.060	--	--	20	10
	1.2	<0.100	0.040	--	--	10	20
	1.1	<0.100	0.040	--	--	<10	70
PROCTOR LAKE SITE EC	1.4	0.280	0.020	K3	K8	<10	<1
	1.3	0.260	0.030	--	--	50	<10
	1.5	0.250	0.020	--	--	<10	<1
	1.1	<0.100	0.020	K14	K6	<9	4
	1.3	<0.100	0.040	--	--	<10	20
	1.9	<0.100	0.180	--	--	<9	390
	1.1	<0.100	0.060	K14	K13	<3	4
	1.2	<0.100	0.030	--	--	<10	60
	--	--	--	--	--	--	--
	1.6	<0.100	0.220	--	--	1600	1400
PROCTOR LAKE SITE FC	1.1	0.140	0.020	<1	K6	<10	2
	--	--	--	--	--	--	--
	--	--	--	--	--	--	--
	1.3	0.100	0.030	--	--	<10	10
	2.4	<0.100	0.100	K6	K1	<9	<3
	--	--	--	--	--	--	--
	--	--	--	--	--	--	--
	1.7	<0.100	0.080	--	--	9	5
	1.6	<0.100	0.090	K14	K21	5	33
	--	--	--	--	--	--	--
	--	--	--	--	--	--	--
	--	--	--	--	--	--	--
	1.7	<0.100	0.120	--	--	25	750

APPENDIX B
TWC LAKE PROCTOR DATA

```
@ASG,A DW0300*SMN-INDX-TAB.
W:120133 file is already assigned.

@ASG,A DW0300*SMN-PAR-TREE.
W:120133 file is already assigned.

@USE 8.,DW0300*SMN-PAR-TREE.
I:002333 USE complete.

@USE 9.,DW0300*SMN-INDX-TAB.
I:002333 USE complete.

@XQT TWDB*DCSTAUDT.DW0322
```

1222.0100

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO. STATION LOCATION — USGS GAGE NO — RIVER MILE — LATITUDE / LONGITUDE

1222.0100 LAKE PROCTOR NEAR DAM — 31 58 07 098 29 09

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: / VALUE/CODE
08/21/73	0945	1.0	TEXAS	SMN	SKIES CLEAR
					29.4 00010 | 85.0 00011 | 690. 00094 | 0. 00095 | 8.0 00300 | 8.50 00400 | 7.8 00403 | 98. 00410
					< .3 00620 | .40 00626 | .08 00650 | .026 00665 | 340. 31501 | 1. 31616 | < 4.0 32211 | 345. 70294
09/05/73	1120	1.0	TEXAS	SMN	25.0 00010 | 77.0 00011 | 90.0 00070 | 750. 00094 | 10.0 00300 | 8.60 00400 | 104. 00410 | < .3 00620
					.80 00626 | .14 00650 | .046 00665 | 90. 31501 | < 4. 31616 | 9.0 32211 | 375. 70294
09/25/73	1115	7.0	TEXAS	SMN	10.0 00070 | 760. 00094 | 790. 00095 | 7.0 00300 | 8.30 00400 | 7.9 00403 | 19. 00530 | 9. 00535
					< .1 00610 | < .03 00620 | < .15 00650 | < .03 00660 | .049 00665 | .010 00671 | 143. 00940 | 42. 00945
					4500. 31501 | < 10. 31616 | 13.0 32211 | 380. 70294
10/08/73	1010	1.0	TEXAS	SMN	23.9 00010 | 75.0 00011 | 15.0 00070 | 730. 00094 | 795. 00095 | 4.0 00300 | 7.80 00400 | 7.8 00403
					15. 00530 | 7. 00535 | < .1 00610 | < .03 00620 | .06 00650 | < .03 00660 | .020 00665 | .010 00671
					143. 00940 | 50. 00945 | 8000. 31501 | < 10. 31616 | 9.0 32211 | 365. 70294
10/29/73	1400	1.0	TEXAS	SMN	21.4 00010 | 70.5 00011 | .0 00070 | 18. 00077 | 600. 00094 | 700. 00095 | 8.0 00300 | 8.20 00400
					8.0 00403 | 10. 00530 | 2. 00535 | < .1 00610 | < .03 00620 | .11 00650 | < .03 00660 | .036 00665
					.010 00671 | 123. 00940 | 40. 00945 | 28.0 32211 | 300. 70294
11/06/73	0920	1.0	TEXAS	SMN	17.2 00010 | 63.0 00011 | 10.0 00070 | 24. 00077 | 530. 00094 | 588. 00095 | 11.0 00300 | 6.50 00400
					8.2 00403 | 16. 00530 | 10. 00535 | < .1 00610 | < .03 00620 | .08 00650 | < .03 00660 | .026 00665

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE
STATION NO. STATION LOCATION
1222.0100 LAKE PROCTOR NEAR DAM

USGS GAGE NO

RIVER MILE

LATITUDE / LONGITUDE
31 58 07 098 29 09

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE								
11/06/73	0920	1.0	TEXAS	SMN	.010 00671	125. 00940	39. 00945	7900. 31501	< 10. 31616	15.0 32211	265. 70294		
11/28/73	1000	1.0	TEXAS	SMN	16.1 00010	61.0 00011	5.0 00070	620. 00094	716. 00095	9.0 00300	8.40 00400	8.2 00403	
					12. 00530	2. 00535	< .1 00610	.06 00620	.09 00650	< .03 00660	.029 00665	.010 00671	
					122. 00940	37. 00945	15000. 31501	36. 31616	16.0 32211	310. 70294			
12/07/73	1345	1.0	TEXAS	SMN	13.3 00010	56.0 00011	15.0 00070	12. 00077	690. 00094	6.0 00300	8.30 00400	345. 70294	
01/16/74	0945	1.0	TEXAS	SMN	5.6 00010	42.0 00011	.0 00070	30. 00077	700. 00094	10.0 00300	8.50 00400	350. 70294	
01/16/74	0945	10.0	TEXAS	SMN	6.0 00010	42.8 00011	700. 00094	12.0 00300	8.50 00400	350. 70294			
01/16/74	0945	20.0	TEXAS	SMN	6.0 00010	42.8 00011	700. 00094	12.2 00300	8.50 00400	350. 70294			
02/13/74	0830	1.0	TEXAS	SMN	8.9 00010	48.0 00011	20.0 00070	24. 00077	575. 00094	764. 00095	11.0 00300	8.20 00400	
					8.1 00403	< 10. 00530	< 10. 00535	< .1 00610	< .03 00620	.09 00650	< .03 00660	.029 00665	
					.010 00671	128. 00940	41. 00945	390. 31501	< 10. 31616	30.0 32211	288. 70294		
02/13/74	0830	10.0	TEXAS	SMN	8.9 00010	48.0 00011	10.8 00300	8.50 00400					
02/13/74	0830	20.0	TEXAS	SMN	8.9 00010	48.0 00011	600. 00094	10.8 00300	8.60 00400	300. 70294			
05/08/74	1120	1.0	TEXAS	SMN	22.5 00010	72.5 00011	5.0 00070	36. 00077	820. 00094	845. 00095	9.0 00300	8.50 00400	
					8.5 00403	< 10. 00530	< 10. 00535	< .1 00610	< .3 00620	.06 00650	< .03 00660	.020 00665	

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE
STATION NO. STATION LOCATION
1222.0100 LAKE PROCTOR NEAR DAM

USGS GAGE NO

RIVER MILE

LATITUDE / LONGITUDE
31 58 07 098 29 09

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS:	VALUE/ /CODE										
05/08/74	1120	1.0	TEXAS	SMN	.010 00671	8.0 00680	138. 00940		250. 00941		51. 00945	2000. 31501	<	10. 31616		6.0 32211
					410. 70294											
05/08/74	1120	10.0	TEXAS	SMN	22.0 00010	71.6 00011	820. 00094		9.0 00300		8.50 00400	410. 70294				
05/08/74	1120	20.0	TEXAS	SMN	22.5 00010	72.5 00011	820. 00094		8.0 00300		8.30 00400	410. 70294				
06/12/74	1105	1.0	TEXAS	SMN	26.0 00010	78.8 00011	26. 00077		770. 00094		7.8 00300	8.30 00400		170. 00941		385. 70294
06/12/74	1105	10.0	TEXAS	SMN	26.0 00010	78.8 00011	770. 00094		7.9 00300		8.30 00400	385. 70294				
06/12/74	1105	20.0	TEXAS	SMN	25.6 00010	78.0 00011	770. 00094		4.5 00300		7.80 00400	385. 70294				
06/12/74	1105	30.0	TEXAS	SMN	25.0 00010	77.0 00011	750. 00094		1.8 00300		7.60 00400	375. 70294				
08/08/74	1030	1.0	TEXAS	SMN	25.0 00010	77.0 00011	15.0 00070		18. 00077		800. 00094	870. 00095		5.0 00300		7.80 00400
					8.0 00403	25. 00530	13. 00535	<	.1 00610	<	.03 00620	.22 00650	<	.03 00660		.072 00665
					.010 00671	12.0 00680	160. 00940		150. 00941		51. 00945	4. 31616		13.0 32211		400. 70294
08/08/74	1030	10.0	TEXAS	SMN	25.0 00010	77.0 00011	200. 00094		4.9 00300		4.40 00400	100. 70294				
08/08/74	1030	20.0	TEXAS	SMN	25.5 00010	77.9 00011	600. 00094		5.0 00300		5.10 00400	300. 70294				
11/12/74	1105	1.0	TEXAS	SMN	14.5 00010	58.1 00011	.0 00070		30. 00077		800. 00094	712. 00095		9.8 00300		8.20 00400
					8.3 00403	11. 00530	1. 00535	<	.1 00610	<	.03 00620	.09 00650		.04 00660		.03 00665

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0100

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO. STATION LOCATION — USGS GAGE NO — RIVER MILE — LATITUDE / LONGITUDE

1222.0100 LAKE PROCTOR NEAR DAM — 31 58 07 098 29 09

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE							
11/12/74	1105	1.0	TEXAS	SMN	.01 00671	8.0 00680	123. 00940	125. 00941	44. 00945	14. 31616	41.0 32211	400. 70294
11/12/74	1105	10.0	TEXAS	SMN	14.5 00010	58.1 00011	800. 00094	9.5 00300	8.10 00400	400. 70294		
11/12/74	1105	20.0	TEXAS	SMN	14.5 00010	58.1 00011	900. 00094	9.3 00300	8.10 00400	450. 70294		
11/12/74	1105	30.0	TEXAS	SMN	14.5 00010	58.1 00011	100. 00094	9.2 00300	8.00 00400	50. 70294		
11/12/74	1105	38.0	TEXAS	SMN	14.5 00010	58.1 00011	1000. 00094	8.9 00300	7.90 00400	500. 70294		
02/11/75	1530	1.0	TEXAS	SMN	9.0 00010	48.2 00011	10.0 00070	18. 00077	755. 00094	780. 00095	9.6 00300	9.00 00400
					8.2 00403	15. 00530	9. 00535	< .1 00610	.03 00620	.09 00650	< .03 00660	.029 00665
					.010 00671	6.0 00680	119. 00940	48. 00945	6. 31616	44.0 32211	378. 70294	
02/11/75	1530	10.0	TEXAS	SMN	9.0 00010	48.2 00011	760. 00094	10.4 00300	8.80 00400	380. 70294		
02/11/75	1530	20.0	TEXAS	SMN	9.0 00010	48.2 00011	760. 00094	11.4 00300	8.70 00400	380. 70294		
05/21/75	0800	1.0	TEXAS	SMN	22.5 00010	72.5 00011	30. 00077	1000. 00094	960. 00095	6.3 00300	7.80 00400	8.2 00403
					< 10. 00530	< 10. 00535	< .1 00610	< .02 00620	.07 00650	< .03 00660	.023 00665	.010 00671
					5.0 00680	164. 00940	57. 00945	8. 31616	13.0 32211	500. 70294		
05/21/75	0800	10.0	TEXAS	SMN	22.5 00010	72.5 00011	1000. 00094	6.2 00300	7.80 00400	500. 70294		
05/21/75	0800	20.0	TEXAS	SMN	22.5 00010	72.5 00011	1000. 00094	6.0 00300	7.80 00400	500. 70294		
05/21/75	0800	25.0	TEXAS	SMN	22.5 00010	72.5 00011	1000. 00094	5.0 00300	7.70 00400	500. 70294		

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0100

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE
STATION NO. STATION LOCATION
1222.0100 LAKE PROCTOR NEAR DAM

USGS GAGE NO

RIVER MILE

LATITUDE / LONGITUDE
31 58 07 098 29 09

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/CODE								
08/27/75	0925	1.0	TEXAS	SMN	27.0 00010	80.6 00011	24. 00077	1000. 00094	978. 00095	7.2 00300	7.90 00400	8.3 00403	
					21. 00530	20. 00535	< .1 00610	< .02 00620	.16 00650	< .03 00660	.052 00665	.010 00671	
					6.0 00680	182. 00940	63. 00945	4. 31616	53.0 32211	500. 70294			
08/27/75	0925	10.0	TEXAS	SMN	27.0 00010	80.6 00011	1000. 00094	6.9 00300	7.90 00400	500. 70294			
08/27/75	0925	20.0	TEXAS	SMN	27.0 00010	80.6 00011	1000. 00094	6.8 00300	7.90 00400	500. 70294			
08/27/75	0925	30.0	TEXAS	SMN	27.0 00010	80.6 00011	1000. 00094	6.3 00300	7.90 00400	500. 70294			
11/04/75	1350	1.0	TEXAS	SMN	19.0 00010	66.2 00011	24. 00077	940. 00094	1015. 00095	9.3 00300	6.20 00400	8.5 00403	
					22. 00530	8. 00535	< .1 00610	< .02 00620	.07 00650	< .03 00660	.023 00665	.010 00671	
					15.0 00680	196. 00940	61. 00945	16. 31616	78.0 32211	470. 70294			
11/04/75	1355	10.0	TEXAS	SMN	19.0 00010	66.2 00011	940. 00094	9.2 00300	6.40 00400	470. 70294			
11/04/75	1355	20.0	TEXAS	SMN	19.0 00010	66.2 00011	950. 00094	8.8 00300	6.50 00400	475. 70294			
11/04/75	1355	30.0	TEXAS	SMN	19.0 00010	66.2 00011	940. 00094	9.0 00300	6.50 00400	470. 70294			
02/19/76	0830	1.0	TEXAS	SMN	11.5 00010	52.7 00011	10.0 00070	24. 00077	730. 00094	1120. 00095	11.0 00300	8.30 00400	
					8.0 00403	15. 00530	5. 00535	.200 00610	< .02 00620	.12 00650	< .03 00660	.039 00665	
					.010 00671	11.0 00680	209. 00940	60. 00945	2. 31616	26.0 32211	365. 70294		
02/19/76	0830	10.0	TEXAS	SMN	11.5 00010	52.7 00011	750. 00094	12.0 00300	8.30 00400	375. 70294			

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0100

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO. STATION LOCATION — USGS GAGE NO — RIVER MILE — LATITUDE / LONGITUDE

1222.0100 LAKE PROCTOR NEAR DAM — 31 58 07 098 29 09

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/CODE								
02/19/76	0830	20.0	TEXAS	SMN	11.5 00010	52.7 00011	750. 00094	12.0 00300	8.30 00400	375. 70294			
05/11/76	1600	1.0	TEXAS	SMN	23.5 00010	74.2 00011	36. 00077	1100. 00094	1148. 00095	12.0 00300	7.70 00400	8.2 00403	
					< 10. 00530	< 10. 00535	< .1 00610	< .02 00620	.09 00650	< .03 00660	.030 00665	.010 00671	
					7.0 00680	204. 00940	74. 00945	2. 31616	< 4.0 32211	550. 70294			
05/11/76	1600	10.0	TEXAS	SMN	20.5 00010	68.9 00011	1100. 00094	8.0 00300	6.50 00400	550. 70294			
05/11/76	1600	20.0	TEXAS	SMN	20.0 00010	68.0 00011	1100. 00094	6.0 00300	7.50 00400	550. 70294			
05/11/76	1600	30.0	TEXAS	SMN	19.5 00010	67.1 00011	1100. 00094	5.0 00300	7.50 00400	550. 70294			
08/31/76	1500	1.0	TEXAS	SMN	28.5 00010	83.3 00011	30. 00077	970. 00094	1026. 00095	10.6 00300	7.20 00400	8.5 00403	
					< 10. 00530	< 10. 00535	< .1 00610	< .02 00620	.12 00650	.03 00660	.040 00665	< .01 00671	
					13.0 00680	203. 00940	63. 00945	64. 31616	34.0 32211	485. 70294			
08/31/76	1500	10.0	TEXAS	SMN	27.0 00010	80.6 00011	980. 00094	6.2 00300	8.40 00400	490. 70294			
08/31/76	1500	20.0	TEXAS	SMN	26.0 00010	78.8 00011	980. 00094	4.5 00300	8.00 00400	490. 70294			
08/31/76	1500	30.0	TEXAS	SMN	26.0 00010	78.8 00011	980. 00094	4.1 00300	8.00 00400	490. 70294			
08/17/77	0735	1.0	TEXAS	SMN	27.5 00010	81.5 00011	24. 00077	730. 00094	760. 00095	6.2 00300	8.00 00400	8.3 00403	
					94. 00410	< 10. 00530	< 10. 00535	< .1 00610	< .02 00620	.09 00650	.03 00660	.030 00665	

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0100

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE
STATION NO. STATION LOCATION
1222.0100 LAKE PROCTOR NEAR DAM

USGS GAGE NO

RIVER MILE

LATITUDE / LONGITUDE
31 58 07 098 29 09

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE							
08/17/77	0735	1.0	TEXAS	SMN	< .01 00671	9.0 00680	130. 00940	41. 00945	72. 31616	27.0 32211	.0 32218	365. 70294
					420. 70300							
08/17/77	0740	10.0	TEXAS	SMN	28. 00010	82. 00011	730. 00094	6.0 00300	8.0 00400	365. 70294		
08/17/77	0740	20.0	TEXAS	SMN	28. 00010	82. 00011	730. 00094	5.7 00300	8.0 00400	365. 70294		
11/08/78	1110	1.0	TEXAS	SMN	WATER MUDDY GREEN COLOR							
					16. 00010	61. 00011	30. 00070	915. 00094	1015. 00095	8.8 00300	8.1 00400	8.3 00403
					92. 00410	41. 00530	24. 00535	< .02 00610	< .02 00620	.40 00650	< .03 00660	.13 00665
					< .01 00671	13. 00680	197. 00940	74. 00945	50. 31616	78.0 32211	10.0 32218	458. 70294
02/27/79	1200	1.0	TEXAS	SMN	OVERCAST, WINDY, COOL							
					8.0 00010	46.4 00011	18. 00077	1100. 00094	1026. 00095	9.8 00300	7.8 00400	8.3 00403
					110. 00410	19. 00530	13. 00535	.38 00610	.01 00620	.09 00650	< .03 00660	.03 00665
					< .01 00671	11. 00680	191. 00940	68. 00945	176. 31616	21.0 32211	5.0 32218	550. 70294
02/27/79	1200	5.0	TEXAS	SMN	7.0 00010	44.6 00011	1000. 00094	9.95 00300	8.3 00400	500. 70294		
02/27/79	1200	10.0	TEXAS	SMN	7.0 00010	44.6 00011	1000. 00094	9.95 00300	8.3 00400	500. 70294		
02/27/79	1200	11.0	TEXAS	SMN	7.0 00010	44.6 00011	1000. 00094	10.0 00300	8.3 00400	500. 70294		
05/23/79	1240	1.0	TEXAS	SMN	CLEAR, SUNSHINE, WATER ROUGHOW							

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0100

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO. 1222.0100
STATION LOCATION: LAKE PROCTOR NEAR DAM

USGS GAGE NO

RIVER MILE

LATITUDE / LONGITUDE: 31 58 07 098 29 09

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/CODE								
05/23/79	1240	1.0	TEXAS	SMN	22. 00010	72. 00011	22. 00077	760. 00094	768. 00095	9.0 00300	8.5 00400	8.7 00403	
					98. 00410	14. 00530	6. 00535	.04 00610	< .02 00620	.15 00650	< .03 00660	.05 00665	
					< .01 00671	8. 00680	125. 00940	53. 00945	40. 31616	25.0 32211	7.0 32218	380. 70294	
05/23/79	1240	5.0	TEXAS	SMN	22. 00010	72. 00011	760. 00094	9.5 00300	8.4 00400	380. 70294			
05/23/79	1240	10.0	TEXAS	SMN	22. 00010	72. 00011	760. 00094	9.3 00300	8.4 00400	380. 70294			
05/23/79	1240	15.0	TEXAS	SMN	22. 00010	72. 00011	760. 00094	9.4 00300	8.4 00400	380. 70294			
05/23/79	1240	20.0	TEXAS	SMN	22. 00010	72. 00011	760. 00094	9.1 00300	8.4 00400	380. 70294			
05/23/79	1240	22.0	TEXAS	SMN	21.5 00010	70.7 00011	760. 00094	9.1 00300	8.4 00400	380. 70294			
08/29/79	1240	1.0	TEXAS	SMN	CLEAR, SUNSHINE, AERATOR GOING NEAR DAM BI								
					27.5 00010	81.5 00011	18. 00077	710. 00094	790. 00095	7.15 00300	8.1 00400	8.4 00403	
					110. 00410	< 10. 00530	< 10. 00535	.02 00610	< .02 00620	.09 00650	< .03 00660	.03 00665	
					< .01 00671	7. 00680	133. 00940	48. 00945	< 4. 31616	28.0 32211	< 2.0 32218	355. 70294	
08/29/79	1240	5.0	TEXAS	SMN	27. 00010	81. 00011	710. 00094	6.7 00300	8.0 00400	355. 70294			
08/29/79	1240	10.0	TEXAS	SMN	26.5 00010	79.7 00011	720. 00094	5.9 00300	7.9 00400	360. 70294			
08/29/79	1240	15.0	TEXAS	SMN	26.5 00010	79.7 00011	710. 00094	5.9 00300	7.9 00400	355. 70294			
08/29/79	1240	20.0	TEXAS	SMN	26.5 00010	79.7 00011	720. 00094	4.9 00300	7.7 00400	360. 70294			

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0100

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE
STATION NO. STATION LOCATION
1222.0100 LAKE PROCTOR NEAR DAM

USGS GAGE NO

RIVER MILE

LATITUDE / LONGITUDE
31 58 07 098 29 09

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE								
09/21/81	1640	1.0	TEXAS	SMN	WARM, SUNNY, WINDY								
					24.0 00010	75.2 00011	20. 00077	932. 00094	733. 00095	7.1 00300	8.4 00400	7.5 00403	
					71. 00410	22. 00530	5. 00535	.07 00610	< .02 00620	.28 00650	< .06 00660	.09 00665	
					< .02 00671	14.2 00680	560. 00940	99. 00945	20. 31616	56.4 32211	8.2 32218	466. 70294	
09/21/81	1640	5.0	TEXAS	SMN	23.7 00010	74.7 00011	933. 00094	6.6 00300	8.2 00400	467. 70294			
09/21/81	1640	10.0	TEXAS	SMN	23.4 00010	74.1 00011	933. 00094	5.9 00300	8.1 00400	467. 70294			
09/21/81	1640	15.0	TEXAS	SMN	23.3 00010	73.9 00011	933. 00094	5.4 00300	7.9 00400	467. 70294			
12/09/81	0915	1.0	TEXAS	SMN	13.2 00010	55.8 00011	36. 00077	736. 00094	572. 00095	11.2 00300	8.0 00400	8.3 00403	
					93. 00410	9. 00530	3. 00535	.13 00610	< .02 00620	.12 00650	< .06 00660	.04 00665	
					< .02 00671	5.7 00680	98. 00940	55. 00945	140. 31616	32.7 32211	2.6 32218	368. 70294	
12/09/81	0915	5.0	TEXAS	SMN	13.3 00010	55.9 00011	740. 00094	11.4 00300	8.1 00400	370. 70294			
12/09/81	0915	10.0	TEXAS	SMN	13.3 00010	55.9 00011	741. 00094	11.3 00300	8.1 00400	371. 70294			
12/09/81	0915	15.0	TEXAS	SMN	13.2 00010	55.8 00011	743. 00094	10.9 00300	8.1 00400	372. 70294			
12/09/81	0915	20.0	TEXAS	SMN	13.0 00010	55.4 00011	749. 00094	7.6 00300	7.8 00400	375. 70294			
12/09/81	0915	25.0	TEXAS	SMN	13.0 00010	55.4 00011	752. 00094	6.8 00300	7.6 00400	376. 70294			
03/18/82	0825	1.0	TEXAS	SMN	16. 00010	61. 00011	38. 00077	768. 00094	657. 00095	11.8 00300	8.0 00400	7.8 00403	

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0100

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO. STATION LOCATION
1222.0100 LAKE PROCTOR NEAR DAM

USGS GAGE NO

RIVER MILE

LATITUDE / LONGITUDE
31 58 07 098 29 09

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: / VALUE/ /CODE								
03/18/82	0825	1.0	TEXAS	SMN	111. 00410	7. 00530	6. 00535	.09 00610	.295 00620	< .06 00650	< .06 00660	< .02 00665	
					< .02 00671	5.5 00680	110. 00940	44.6 00945	< 10. 31616	13.2 32211	4.1 32218	384. 70294	
03/18/82	0825	5.0	TEXAS	SMN	15.9 00010	60.6 00011	767. 00094	11.0 00300	8.2 00400	384. 70294			
03/18/82	0825	10.0	TEXAS	SMN	15.4 00010	59.7 00011	767. 00094	10.3 00300	8.3 00400	384. 70294			
03/18/82	0825	15.0	TEXAS	SMN	15.2 00010	59.4 00011	766. 00094	10.0 00300	8.3 00400	383. 70294			
03/18/82	0825	20.0	TEXAS	SMN	15.0 00010	59.0 00011	766. 00094	9.4 00300	8.3 00400	383. 70294			
06/10/82	0830	1.0	TEXAS	SMN	26.2 00010	79.2 00011	30. 00077	671. 00094	649. 00095	9.0 00300	8.4 00400	7.7 00403	
					121. 00410	8. 00530	3. 00535	.07 00610	< .02 00620	.31 00650	< .06 00660	.10 00665	
					< .02 00671	7.4 00680	110. 00940	41.8 00945	< 10. 31616	10.9 32211	5.8 32218	336. 70294	
06/10/82	0830	5.0	TEXAS	SMN	26.2 00010	79.2 00011	672. 00094	7.4 00300	8.4 00400	336. 70294			
06/10/82	0830	10.0	TEXAS	SMN	26.1 00010	79.0 00011	673. 00094	7.1 00300	8.3 00400	337. 70294			
06/10/82	0830	15.0	TEXAS	SMN	25.9 00010	78.6 00011	674. 00094	6.6 00300	8.3 00400	337. 70294			
06/10/82	0830	20.0	TEXAS	SMN	25.6 00010	78.1 00011	676. 00094	5.3 00300	8.2 00400	338. 70294			
06/10/82	0830	25.0	TEXAS	SMN	25.4 00010	77.7 00011	677. 00094	4.9 00300	8.1 00400	101045.3 00496	888.42 00668	6.96 01003	
					165.8 01008	3. 01028	29. 01043	36. 01052	1440. 01053	50. 01068	2. 01078	62. 01093	

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0100

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO. STATION LOCATION — USGS GAGE NO — RIVER MILE — LATITUDE / LONGITUDE

1222.0100 LAKE PROCTOR NEAR DAM — 31 58 07 098 29 09

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE								
06/10/82	0830	25.0	TEXAS	SMN	< 2. 01148	< .2 39333	302.9 39351	< .5 39363	< .3 39368	< .90 39373	< .3 39383	< .8 39393	
					< 54. 39403	< .6 39413	< .4 39423	< 5.26 39481	< 240. 39519	< 1.1 39541	< 3.75 39571	< .7 39601	
					< .3 39783	339. 70294	.02 71921						
02/20/85	1216	1.0	TEXAS	SMN	LAKE LEVEL HIGHER THAN NORMAL NUMEROUS AQUATIC BIRDS OBSERVED, VERY WINDY CONDITIONS								
					7.2 00010	45.0 00011	18. 00077	387. 00094	400. 00095	12.4 00300	8.2 00400	6.9 00403	
					93. 00410	14. 00530	3. 00535	< .02 00610	< .02 00620	1.10 00650	< .06 00660	.36 00665	
					< .02 00671	2.3 00680	45. 00940	21. 00945	10. 31616	14.0 32211	4.6 32218	194. 70294	
02/20/85	1216	5.0	TEXAS	SMN	7.0 00010	44.6 00011	392. 00094	12.3 00300	8.2 00400	196. 70294			
02/20/85	1216	10.0	TEXAS	SMN	6.7 00010	44.1 00011	392. 00094	12.2 00300	8.1 00400	196. 70294			
02/20/85	1216	15.0	TEXAS	SMN	6.5 00010	43.7 00011	394. 00094	11.5 00300	8.1 00400	197. 70294			
02/20/85	1216	20.0	TEXAS	SMN	6.3 00010	43.3 00011	395. 00094	11.1 00300	7.9 00400	198. 70294			
02/20/85	1216	25.0	TEXAS	SMN	6.3 00010	43.3 00011	398. 00094	10.5 00300	7.8 00400	199. 70294			
02/20/85	1216	30.0	TEXAS	SMN	6.3 00010	43.3 00011	399. 00094	10.2 00300	7.8 00400	200. 70294			
08/15/85	1742	1.0	TEXAS	SMN	WATER MURKY								
					29.0 00010	84.2 00011	30. 00077	463. 00094	543. 00095	6.4 00300	8.1 00400	7.9 00403	
					120. 00410	7. 00530	2. 00535	.17 00610	< .02 00620	.12 00650	.06 00660	.04 00665	

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0100

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE
STATION NO. STATION LOCATION
1222.0100 LAKE PROCTOR NEAR DAM

USGS GAGE NO

RIVER MILE

LATITUDE / LONGITUDE
31 58 07 098 29 09

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE							
08/15/85	1742	1.0	TEXAS	SMN	.02 00671	3.9 00680	85. 00940	27. 00945	13.7 32211	10.8 32218	232. 70294	
08/15/85	1742	5.0	TEXAS	SMN	28.6 00010	83.5 00011	550. 00094	4.2 00300	7.7 00400	275. 70294		
08/15/85	1742	10.0	TEXAS	SMN	28.5 00010	83.3 00011	566. 00094	3.3 00300	7.6 00400	283. 70294		
08/15/85	1742	15.0	TEXAS	SMN	28.3 00010	82.9 00011	572. 00094	2.9 00300	7.6 00400	286. 70294		
08/15/85	1742	20.0	TEXAS	SMN	28.2 00010	82.8 00011	577. 00094	.6 00300	7.4 00400	289. 70294		
08/15/85	1742	25.0	TEXAS	SMN	27.8 00010	82.0 00011	589. 00094	.3 00300	7.3 00400	295. 70294		
01/30/86	1200	1.0	TEXAS	SMN	10.4 00010	25. 00077	601. 00094	599. 00095	11.7 00300	8.4 00400	8.2 00403	114. 00410
					13. 00530	1. 00535	< .02 00610	< .02 00620	1.1 00625	.04 00665	.01 00671	8.5 00680
					102. 00940	38. 00945	10. 31616	11.8 32211	11.9 32218			
01/30/86	1200	5.0	TEXAS	SMN	9.9 00010	621. 00094	12.5 00300	8.4 00400				
01/30/86	1200	10.0	TEXAS	SMN	9.8 00010	625. 00094	12.7 00300	8.4 00400				
01/30/86	1200	15.0	TEXAS	SMN	9.7 00010	625. 00094	12.8 00300	8.4 00400				
01/30/86	1200	20.0	TEXAS	SMN	9.7 00010	625. 00094	603. 00095	12.8 00300	8.4 00400	8.2 00403	117. 00410	15. 00530
					2. 00535	< .02 00610	< .02 00620	1.1 00625	.05 00665	< .01 00671	8.0 00680	103. 00940
					35. 00945	14.7 32211	6.0 32218					
01/30/86	1200	25.0	TEXAS	SMN	9.7 00010	626. 00094	12.0 00300	8.4 00400				

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0100

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO. 1222.0100 — STATION LOCATION: LAKE PROCTOR NEAR DAM — USGS GAGE NO — RIVER MILE — LATITUDE / LONGITUDE 31 58 07 098 29 09

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/CODE
08/25/86	1500	1.0	TEXAS	SMN	ACRATOR RUNNING NEAR DAM
					27.7 00010 — 26. 00077 — 427. 00094 — 363. 00095 — 3.9 00300 — 7.9 00400 — 7.75 00403 — 100. 00410
					7. 00530 — 2. 00535 — .025 00610 — < .01 00620 — .7 00625 — 41. 00940 — 10. 00945 — 10.3 32211
					8.7 32218
08/25/86	1505	20.0	TEXAS	SMN	27.1 00010 — 429. 00094 — 414. 00095 — 0. 00300 — 7.5 00400 — 7.86 00403 — 108. 00410 — 29. 00530
					6. 00535 — .082 00610 — < .01 00620 — 40. 00940 — 12. 00945
08/25/86	1510	5.0	TEXAS	SMN	27.6 00010 — 427. 00094 — 3.5 00300 — 7.7 00400
08/25/86	1510	10.0	TEXAS	SMN	27.5 00010 — 427. 00094 — 2.5 00300 — 7.7 00400
08/25/86	1510	15.0	TEXAS	SMN	27.3 00010 — 428. 00094 — 1.6 00300 — 7.7 00400
08/25/86	1510	20.0	TEXAS	SMN	27.2 00010 — 429. 00094 — .4 00300 — 7.6 00400
08/25/86	1510	21.0	TEXAS	SMN	27.1 00010 — 429. 00094 — .0 00300 — 7.5 00400
03/04/87	1230	1.0	TEXAS	SMN	13.4 00010 — 18. 00077 — 534. 00094 — 538. 00095 — 13.7 00300 — 8.5 00400 — 8.6 00403 — 129. 00410
					15. 00530 — 14. 00535 — < .02 00610 — < .02 00620 — 1.1 00625 — .03 00665 — < .01 00671 — 8.0 00680
					67. 00940 — 38. 00945 — < 5. 31616 — 26.4 32211 — < .2 32218
03/04/87	1230	5.0	TEXAS	SMN	11.8 00010 — 536. 00094 — 14.6 00300 — 8.6 00400
03/04/87	1230	10.0	TEXAS	SMN	10.7 00010 — 544. 00094 — 12.2 00300 — 8.5 00400

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0100

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO. 1222.0100 — STATION LOCATION: LAKE PROCTOR NEAR DAM — USGS GAGE NO — RIVER MILE — LATITUDE / LONGITUDE 31 58 07 098 29 09

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE								
03/04/87	1230	15.0	TEXAS	SMN	10.3 00010	580. 00094	10.7 00300	8.5 00400					
03/04/87	1230	20.0	TEXAS	SMN	10.2 00010	607. 00094	9.6 00300	8.4 00400					
03/04/87	1230	25.0	TEXAS	SMN	10.2 00010	615. 00094	9.4 00300	8.3 00400					
03/04/87	1230	30.0	TEXAS	SMN	10.1 00010	615. 00094	9.2 00300	8.3 00400					
03/04/87	1230	33.0	TEXAS	SMN	10.1 00010	625. 00094	571. 00095	9.2 00300	8.3 00400	8.4 00403	129. 00410	32. 00530	
					18. 00535	< .02 00610	< .02 00620	1.2 00625	.08 00665	< .01 00671	8.5 00680	74. 00940	
					46. 00945	37.3 32211	1.9 32218						
08/25/87	1940	1.0	TEXAS	SMN	AERATOR ON AT DAM SOME FISH ACTIVITY								
					29.5 00010	28. 00077	598. 00094	577. 00095	6.9 00300	8.2 00400	6.9 00403	135. 00410	
					5. 00530	2. 00535	< .02 00610	< .02 00620	1.2 00625	.05 00665	< .01 00671	8.9 00680	
					79. 00940	32. 00945	14.3 32211	< .2 32218					
08/25/87	1940	5.0	TEXAS	SMN	28.6 00010	577. 00094	3.1 00300	8.0 00400					
08/25/87	1940	10.0	TEXAS	SMN	28.0 00010	585. 00094	.2 00300	7.8 00400					
08/25/87	1940	15.0	TEXAS	SMN	27.5 00010	591. 00094	2.4 00300	7.7 00400					
08/25/87	1940	20.0	TEXAS	SMN	26.3 00010	580. 00094	.2 00300	7.6 00400					
08/25/87	1940	21.0	TEXAS	SMN	562. 00095	7.2 00403	143. 00410	23. 00530	11. 00535	1.08 00610	< .02 00620	2.2 00625	

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0100

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO.	STATION LOCATION	USGS GAGE NO	RIVER MILE	LATITUDE / LONGITUDE
1222.0100	LAKE PROCTOR NEAR DAM			31 58 07 098 29 09

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE							
08/25/87	1940	21.0	TEXAS	SMN	.38 00665	.15 00671	9.0 00680	66. 00940	20. 00945	6.3 32211	1.6 32218	
08/25/87	1940	23.0	TEXAS	SMN	25.0 00010	575. 00094	.1 00300	7.6 00400				
02/09/88	1315	1.0	TEXAS	SMN	WATER MURKY ONE FISHERMAN NEARBY							
					6.9 00010	13. 00077	670. 00094	11.7 00300	7.5 00400	150. 00410	28. 00530	5. 00535
					.02 00610	.16 00620	.6 00625	.05 00665	.02 00671	7.0 00680	101. 00940	41. 00945
					95. 31616	49.8 32211	6.9 32218					
02/09/88	1315	5.0	TEXAS	SMN	6.8 00010	677. 00094	11.3 00300	7.5 00400				
02/09/88	1315	10.0	TEXAS	SMN	6.8 00010	677. 00094	11.2 00300	7.6 00400				
02/09/88	1315	15.0	TEXAS	SMN	6.7 00010	677. 00094	11.1 00300	7.6 00400				
02/09/88	1315	20.0	TEXAS	SMN	6.7 00010	678. 00094	11.1 00300	7.6 00400				
02/09/88	1315	25.0	TEXAS	SMN	6.7 00010	678. 00094	10.8 00300	7.6 00400				
02/09/88	1315	28.0	TEXAS	SMN	6.7 00010	679. 00094	10.7 00300	7.6 00400				
02/09/88	1320	27.0	TEXAS	SMN	.7 00625							
02/09/88	1320	28.0	TEXAS	SMN	144. 00410	30. 00530	3. 00535	.02 00610	.16 00620	.06 00665	.03 00671	7.0 00680
					100. 00940	43. 00945	40.9 32211	7.9 32218				
08/10/88	1450	1.0	TEXAS	SMN	30.6 00010	27. 00077	491. 00094	10.8 00300	8.7 00400	107. 00410	10. 00530	7. 00535

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0100

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO.	STATION LOCATION	USGS GAGE NO	RIVER MILE	LATITUDE / LONGITUDE
1222.0100	LAKE PROCTOR NEAR DAM			31 58 07 098 29 09

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE
08/10/88	1450	1.0	TEXAS	SMN	.02 00610 | .01 00620 | .7 00625 | .05 00665 | < .01 00671 | 8. 00680 | 72. 00940 | 24. 00945
					< 3. 31616 | 11. 32211 | 11. 32218
08/10/88	1450	26.0	TEXAS	SMN	25.5 00010 | 514. 00094 | .5 00300 | 7.4 00400 | 129. 00410 | 79. 00530 | 15. 00535 | .88 00610
					< .01 00620 | 1.7 00625 | .29 00665 | .03 00671 | 9. 00680 | 65. 00940 | 30. 00945 | 28. 32211
					21. 32218
08/07/89	1423	1.0	TEXAS	SMN	AERATOR NEARBY.RAINING.WATER FLOWING THRU DAM .
					27.0 00010 | .51 00078 | 419. 00094 | 6.8 00300 | 8.2 00400 | 110. 00410 | 16. 00530 | 7. 00535
					.03 00610 | .04 00615 | < .01 00620 | .063 00665 | .053 00671 | 6. 00680 | 38. 00940 | 30. 00945
					10. 31616 | 11.1 32211 | 11.1 32218 | < 1. 72053
08/07/89	1423	5.0	TEXAS	SMN	27.0 00010 | 420. 00094 | 6.0 00300
08/07/89	1423	10.0	TEXAS	SMN	26.9 00010 | 420. 00094 | 5.6 00300
08/07/89	1423	15.0	TEXAS	SMN	26.8 00010 | 420. 00094 | 5.0 00300
08/07/89	1423	20.0	TEXAS	SMN	26.6 00010 | 420. 00094 | 4.8 00300
08/07/89	1423	24.0	TEXAS	SMN	26.6 00010 | 420. 00094 | 3.2 00300
08/07/89	1428	24.0	TEXAS	SMN	26.6 00010 | 420. 00094 | 3.2 00300 | 7.3 00400 | 112. 00410 | 25. 00530 | 6. 00535 | .20 00610
					.05 00615 | < .01 00620 | .65 00625 | .088 00665 | .075 00671 | 6. 00680 | 37. 00940 | 29. 00945

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0100

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO.	STATION LOCATION	USGS GAGE NO	RIVER MILE	LATITUDE / LONGITUDE
1222.0100	LAKE PROCTOR NEAR DAM			31 58 07 098 29 09

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS:	VALUE/ /CODE
08/07/89	1428	24.0	TEXAS	SMN	< 72053	1.

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE USGS GAGE NO RIVER MILE

STATION NO.	STATION LOCATION	LATITUDE / LONGITUDE
1222.0100	LAKE PROCTOR NEAR DAM	31 58 07 098 29 09

PARAMETER	DESCRIPTION:	PARAMETER	DESCRIPTION:
00010 --	TEMPERATURE, WATER (DEGREES CENTIGRADE)	00011 --	TEMPERATURE, WATER (DEGREES FAHRENHEIT)
00070 --	TURBIDITY, (JACKSON CANDLE UNITS)	00077 --	TRANSPARENCY, SECCHI DISC (INCHES)
00078 --	TRANSPARENCY, SECCHI DISC (METERS)	00094 --	SPECIFIC CONDUCTANCE,FIELD (UMHOS/CM @ 25C)
00095 --	SPECIFIC CONDUCTANCE (UMHOS/CM @ 25C)	00300 --	OXYGEN, DISSOLVED (MG/L)
00400 --	PH (STANDARD UNITS)	00403 --	PH (STANDARD UNITS) LAB
00410 --	ALKALINITY, TOTAL (MG/L AS CACO3)	00496 --	LOSS ON IGNITION, BOTTOM DEPOSITS (MG/KG)
00530 --	RESIDUE, TOTAL NONFILTRABLE (MG/L)	00535 --	RESIDUE, VOLATILE NONFILTRABLE (MG/L)
00610 --	NITROGEN, AMMONIA, TOTAL (MG/L AS N)	00615 --	NITRITE NITROGEN, TOTAL (MG/L AS N)
00620 --	NITRATE NITROGEN, TOTAL (MG/L AS N)	00625 --	NITROGEN, KJELDAHL, TOTAL, (MG/L AS N)
00626 --	NITROGEN,ORG. KJEL.,BOT. DEPOS. (MG/KG-N DRY WGT	00650 --	PHOSPHATE, TOTAL (MG/L AS PO4)
00660 --	PHOSPHATE, ORTHO (MG/L AS PO4)	00665 --	PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)
00668 --	PHOSPHORUS,TOTAL, BOTTOM DEPOSIT (MG/KG DRY WGT)	00671 --	PHOSPHORUS, DISSOLVED ORTHOPHOSPHATE (MG/L AS P)
00680 --	CARBON, TOTAL ORGANIC (MG/L AS C)	00940 --	CHLORIDE (MG/L AS CL)
00941 --	CHLORIDE, DISSOLVED IN WATER MG/L	00945 --	SULFATE (MG/L AS SO4)
01003 --	ARSENIC IN BOTTOM DEPOSITS (MG/KG AS AS DRY WGT)	01008 --	BARIUM IN BOTTOM DEPOSITS (MG/KG AS BA DRY WGT)
01028 --	CADMIUM,TOTAL IN BOTTOM DEPOSITS (MG/KG,DRY WGT)	01043 --	COPPER IN BOTTOM DEPOSITS (MG/KG AS CU DRY WGT)
01052 --	LEAD IN BOTTOM DEPOSITS (MG/KG AS PB DRY WGT)	01053 --	MANGANESE IN BOTTOM DEPOSITS (MG/KG AS MN DRY WG
01068 --	NICKEL, TOTAL IN BOTTOM DEPOSITS (MG/KG,DRY WGT)	01078 --	SILVER IN BOTTOM DEPOSITS (MG/KG AS AG DRY WGT)
01093 --	ZINC IN BOTTOM DEPOSITS (MG/KG AS ZN DRY WGT)	01148 --	SELENIUM IN BOTTOM DEPOSITS (MG/KG AS SE DRY WT)
31501 --	COLIFORM,TOT,MEMBRANE FILTER,IMMED.M-ENDO,	31616 --	FECAL COLIFORM,MEMBR FILTER,M-FC BROTH, #/100ML
32211 --	CHLOROPHYLL-A UG/L SPECTROPHOTOMETRIC ACID. METH	32218 --	PHEOPHYTIN-A UG/L SPECTROPHOTOMETRIC ACID. METH.
39333 --	ALDRIN IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOLIDS)	39351 --	CHLORDANE IN BOT. DEPOS. (UG/KILOGRAM DRY SOLIDS
39363 --	DDD IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOLIDS)	39368 --	DDE IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOLIDS)
39373 --	DDT IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOLIDS)	39383 --	DIELDRIN IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOL.)
39393 --	ENDRIN IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOLIDS)	39403 --	TOXAPHENE IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOL.
39413 --	HEPTACHLOR IN BOT. DEP. (UG/KILOGRAM DRY SOLIDS)	39423 --	HEPTACHLOR EPOXIDE IN BOT. DEP. (UG/KG DRY SOL.)
39481 --	METHOXYCHLOR IN BOTTOM DEPOSITS (UG/KG DRY SOL.)	39519 --	PCBS IN BOTTOM DEPOSITS (UG/KG DRY SOLIDS)
39541 --	PARATHION IN BOT. DEPOS. (UG/KILOGRAM DRY SOLIDS	39571 --	DIAZINON IN BOT. DEPOS. (UG/KILOGRAM DRY SOLIDS)
39601 --	METHYL PARATHION IN BOT. DEPOS.(UG/KG DRY SOLIDS	39783 --	LINDANE IN BOTTOM DEPOSITS (UG/KG DRY SOLIDS)
70294 --	@@@@@@	70300 --	RESIDUE,TOTAL FILTRABLE (DRIED AT 180C),MG/L
71921 --	MERCURY,TOT. IN BOT. DEPOS. (MG/KG AS HG DRY WGT	72053 --	DAYS SINCE PRECIPITATION EVENT (DAYS)

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0200

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO. STATION LOCATION — USGS GAGE NO — RIVER MILE — LATITUDE / LONGITUDE

1222.0200 LAKE PROCTOR LEON AND SABANA RIVER ARM — 32 01 21 098 30 18

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE											
08/21/73	1000	1.0	TEXAS	SMN	29.4 00010	85.0 00011		600. 00094		7.0 00300	8.30 00400	7.5 00403	90. 00410	<	.3 00620	
					.50 00626	.18 00650		.059 00665		2400. 31501	1. 31616	4.0 32211	300. 70294			
09/05/73	UNSP	1.0	TEXAS	SMN	26.1 00010	79.0 00011		130.0 00070		710. 00094	5.0 00300	8.60 00400	100. 00410	<	.3 00620	
					1.20 00626	.21 00650		.069 00665		840. 31501	< 4. 31616	15.0 32211	355. 70294			
09/26/73	1135	1.0	TEXAS	SMN	26.7 00010	80.0 00011		30.0 00070		750. 00094	752. 00095	8.0 00300	8.10 00400		7.9 00403	
					41. 00530	12. 00535	<	.1 00610		.06 00620	.24 00650	< .03 00660	.078 00665		.010 00671	
					138. 00940	44. 00945		1900. 31501	<	10. 31616	22.0 32211	375. 70294				
10/08/73	1030	1.0	TEXAS	SMN	23.9 00010	75.0 00011		20.0 00070		690. 00094	744. 00095	7.0 00300	8.30 00400		8.1 00403	
					23. 00530	8. 00535	<	.1 00610	<	.03 00620	.16 00650	< .03 00660	.052 00665		.010 00671	
					138. 00940	46. 00945		400. 31501	<	10. 31616	28.0 32211	345. 70294				
10/29/73	1415	1.0	TEXAS	SMN	3926.6 00010	71. 00011		27.0 00070		12. 00077	500. 00094	596. 00095	9.0 00300		8.70 00400	
					8.1 00403	41. 00530		1. 00535	<	.1 00610	< .03 00620	.23 00650	.03 00660		.075 00665	
					.010 00671	97. 00940		36. 00945		41.0 32211	250. 70294					
11/06/73	0955	1.0	TEXAS	SMN	16.1 00010	61.0 00011		25.0 00070		12. 00077	440. 00094	580. 00095	11.0 00300		6.50 00400	
					8.3 00403	34. 00530		12. 00535	<	.1 00610	< .03 00620	.29 00650	< .03 00660		.095 00665	
					.010 00671	91. 00940		35. 00945		5300. 31501	< 10. 31616	28.0 32211	220. 70294			

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0200

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO. STATION LOCATION — USGS GAGE NO — RIVER MILE — LATITUDE / LONGITUDE

1222.0200 LAKE PROCTOR LEON AND SABANA RIVER ARM — 32 01 21 098 30 18

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE								
11/28/73	1030	1.0	TEXAS	SMN	16.7 00010	62.0 00011	5.0 00070	24. 00077	580. 00094	656. 00095	6.0 00300	8.40 00400	
					8.4 00403	21. 00530	7. 00535	< .1 00610	< .03 00620	.12 00650	.03 00660	.039 00665	
					.010 00671	105. 00940	44. 00945	4700. 31501	< 10. 31616	21.0 32211	290. 70294		
12/07/73	1430	1.0	TEXAS	SMN	12.8 00010	55.0 00011	10.0 00070	14. 00077	640. 00094	8.0 00300	8.50 00400	320. 70294	
01/16/74	1010	1.0	TEXAS	SMN	6.7 00010	44.0 00011	20.0 00070	16. 00077	800. 00094	12.0 00300	8.70 00400	400. 70294	
02/13/74	0915	1.0	TEXAS	SMN	9.4 00010	49.0 00011	10.0 00070	20. 00077	570. 00094	790. 00095	12.0 00300	8.60 00400	
					8.1 00403	12. 00530	7. 00535	< .1 00610	< .03 00620	.12 00650	< .03 00660	.039 00665	
					.010 00671	124. 00940	42. 00945	280. 31501	< 10. 31616	24.0 32211	285. 70294		
05/08/74	1155	1.0	TEXAS	SMN	23.0 00010	73.4 00011	18. 00077	860. 00094	895. 00095	12.0 00300	8.50 00400	8.3 00403	
					15. 00530	7. 00535	< .1 00610	< .03 00620	.19 00650	< .03 00660	.062 00665	.010 00671	
					9.0 00680	155. 00940	250. 00941	54. 00945	130. 31501	< 10. 31616	22.0 32211	430. 70294	
06/12/74	1055	1.0	TEXAS	SMN	26.4 00010	79.5 00011	12. 00077	770. 00094	7.3 00300	8.30 00400	170. 00941	385. 70294	
08/08/74	UNSP	1.0	TEXAS	SMN	25.0 00010	77.0 00011	80.0 00070	12. 00077	900. 00094	930. 00095	6.8 00300	5.50 00400	
					8.2 00403	70. 00530	21. 00535	< .1 00610	< .03 00620	.41 00650	< .03 00660	.134 00665	
					.075 00671	17.0 00680	165. 00940	250. 00941	53. 00945	6. 31616	< 4.0 32211	450. 70294	

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0200

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO. STATION LOCATION — USGS GAGE NO — RIVER MILE — LATITUDE / LONGITUDE

1222.0200 LAKE PROCTOR LEON AND SABANA RIVER ARM — 32 01 21 098 30 18

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/CODE									
11/12/74	1130	1.0	TEXAS	SMN	13.0 00010	55.4 00011	70.0 00070		8. 00077		800. 00094	549. 00095	8.2 00300	7.80 00400
					8.0 00403	31. 00530	6. 00535	<	.01 00610	<	.03 00620	.23 00650	.13 00660	.08 00665
					.04 00671	7.0 00680	87. 00940		95. 00941		29. 00945	24. 31616	24.0 32211	400. 70294
02/11/75	1545	1.0	TEXAS	SMN	8.0 00010	46.4 00011	5.0 00070		18. 00077		910. 00094	978. 00095	9.8 00300	9.20 00400
					8.3 00403	21. 00530	6. 00535	<	.1 00610	<	.02 00620	.16 00650	< .03 00660	.052 00665
					.010 00671	2.0 00680	173. 00940		60. 00945		26. 31616	49.0 32211	455. 70294	
05/21/75	0830	1.0	TEXAS	SMN	23.5 00010	74.3 00011	10.0 00070		18. 00077		1100. 00094	1050. 00095	6.9 00300	7.90 00400
					8.2 00403	30. 00530	7. 00535	<	.1 00610	<	.02 00620	.11 00650	< .03 00660	.036 00665
					.010 00671	6.0 00680	194. 00940		63. 00945		4. 31616	11.0 32211	550. 70294	
08/27/75	0945	1.0	TEXAS	SMN	27.0 00010	80.6 00011	20.0 00070		12. 00077		1000. 00094	966. 00095	7.6 00300	7.90 00400
					8.7 00403	45. 00530	26. 00535	<	.1 00610	<	.02 00620	.32 00650	< .03 00660	.105 00665
					.010 00671	16.0 00680	187. 00940		63. 00945	<	2. 31616	56.0 32211	500. 70294	
11/04/75	1415	1.0	TEXAS	SMN	19.0 00010	66.2 00011	20.0 00070		18. 00077		900. 00094	1015. 00095	9.5 00300	8.50 00400
					8.6 00403	42. 00530	8. 00535	<	.1 00610	<	.02 00620	.12 00650	< .03 00660	.039 00665
					.010 00671	14.0 00680	196. 00940		64. 00945	<	2. 31616	36.0 32211	450. 70294	

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0200

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO.	STATION LOCATION	USGS GAGE NO	RIVER MILE	LATITUDE / LONGITUDE
1222.0200	LAKE PROCTOR LEON AND SABANA RIVER ARM			32 01 21 098 30 18

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS:	VALUE/ /CODE
02/19/76	0910	1.0	TEXAS	SMN	14.0 00010	57.2 00011
					14. 00530	5. 00535
					4.0 00680	221. 00940
05/11/76	1620	1.0	TEXAS	SMN	25.0 00010	77.0 00011
					< 10. 00530	< 10. 00535
					6.0 00680	147. 00940
08/31/76	1515	1.0	TEXAS	SMN	28.0 00010	82.4 00011
					8.6 00403	26. 00530
					< .01 00671	9.0 00680
08/17/77	0800	1.0	TEXAS	SMN	29. 00010	84. 00011
					80. 00410	38. 00530
					< .01 00671	8. 00680
					458. 70300	
02/27/79	1345	1.0	TEXAS	SMN	OVERCAST, WINDY, COOL	
					10. 00010	50. 00011
					90. 00410	81. 00530

SAMPLE DATE	PARAMETER MEASUREMENTS: VALUE/ /CODE								
02/19/76	15. 00077	190. 00094	1190. 00095	10.0 00300	8.50 00400	7.9 00403
	.300 00610	< .02 00620	.26 00650	.04 00660	.085 00665	.013 00671
	68. 00945	4. 31616	19.0 32211	95. 70294		
05/11/76	36. 00077	800. 00094	795. 00095	14.0 00300	9.00 00400	8.3 00403
	.200 00610	< .02 00620	.18 00650	< .03 00660	.060 00665	.010 00671
	51. 00945	< 2. 31616	13.0 32211	400. 70294		
08/31/76	20.0 00070	12. 00077	930. 00094	978. 00095	12.3 00300	9.40 00400
	16. 00535	< .01 00610	< .02 00620	.31 00650	.03 00660	.100 00665
	197. 00940	63. 00945	8. 31616	54.0 32211	465. 70294	
08/17/77	12. 00077	750. 00094	780. 00095	6.0 00300	8.0 00400	8.1 00403
	17. 00535	< .1 00610	< .02 00620	.18 00650	< .03 00660	.06 00665
	145. 00940	43. 00945	72. 31616	52.0 32211	11.0 32218	375. 70294
02/27/79						
	6. 00077	1000. 00094	1026. 00095	11.7 00300	8.8 00400	8.7 00403
	26. 00535	.04 00610	.12 00620	.43 00650	< .03 00660	.14 00665

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0200

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
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BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO.	STATION LOCATION	USGS GAGE NO	RIVER MILE	LATITUDE / LONGITUDE
1222.0200	LAKE PROCTOR LEON AND SABANA RIVER ARM			32 01 21 098 30 18

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE								
02/27/79	1345	1.0	TEXAS	SMN	< .01 00671	13. 00680	167. 00940	108. 00945	144. 31616	69.0 32211	10.0 32218	500. 70294	
05/23/79	1400	1.0	TEXAS	SMN	PARTLY CLOUDY, SUNSHINE, WINDY								
					22.5 00010	72.5 00011	4. 00077	640. 00094	640. 00095	7.6 00300	8.1 00400	8.4 00403	
					100. 00410	43. 00530	9. 00535	.05 00610	< .02 00620	.37 00650	.03 00660	.12 00665	
					.01 00671	8. 00680	94. 00940	41. 00945	40. 31616	32.0 32211	7.0 32218	320. 70294	
05/23/79	1400	5.0	TEXAS	SMN	22.5 00010	72.5 00011	640. 00094	8.1 00300	8.0 00400	320. 70294			
05/23/79	1400	10.0	TEXAS	SMN	22.5 00010	72.5 00011	640. 00094	9.5 00300	8.0 00400	320. 70294			
05/23/79	1400	11.0	TEXAS	SMN	22.5 00010	72.5 00011	650. 00094	7.5 00300	7.9 00400	325. 70294			
08/29/79	1410	1.0	TEXAS	SMN	SUNNY, CLEAR								
					28.5 00010	83.3 00011	10. 00077	700. 00094	790. 00095	7.6 00300	8.3 00400	8.5 00403	
					108. 00410	22. 00530	7. 00535	< .02 00610	< .02 00620	.12 00650	< .03 00660	.04 00665	
				<	.01 00671	7. 00680	133. 00940	49. 00945	12. 31616	31.0 32211	3.0 32218	350. 70294	
08/29/79	1410	5.0	TEXAS	SMN	28. 00010	82. 00011	700. 00094	7.5 00300	8.3 00400	350. 70294			
08/29/79	1410	10.0	TEXAS	SMN	28. 00010	82. 00011	710. 00094	7.5 00300	8.2 00400	355. 70294			
08/29/79	1410	12.0	TEXAS	SMN	28. 00010	82. 00011	710. 00094	6.2 00300	8.0 00400	< .5 39333	< 10. 39351	< 8.0 39363	
				<	6.5 39368	< 8.0 39373	< 2.0 39383	< 3.0 39393	< 50. 39403	< .5 39413	< 1.0 39423	< 10. 39481	

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0200

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO. STATION LOCATION — USGS GAGE NO — RIVER MILE — LATITUDE / LONGITUDE

1222.0200 LAKE PROCTOR LEON AND SABANA RIVER ARM — 32 01 21 098 30 18

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE								
08/29/79	1410	12.0	TEXAS	SMN	< 20. 39519	< 3.0 39541	< 5.0 39571	< 3.0 39601	< 1.0 39783	355. 70294			
09/21/81	1710	1.0	TEXAS	SMN	HOT, SUNNY, WINDY								
					25.2 00010	77.4 00011	12. 00077	937. 00094	719. 00095	12.6 00300	9.2 00400	8.1 00403	
					88. 00410	52. 00530	13. 00535	.03 00610	< .02 00620	.49 00650	< .06 00660	.16 00665	
					< .02 00671	15.3 00680	142. 00940	109. 00945	< 10. 31616	73.2 32211	10.9 32218	469. 70294	
09/21/81	1710	5.0	TEXAS	SMN	24.3 00010	75.7 00011	947. 00094	9.6 00300	8.9 00400	474. 70294			
12/09/81	0940	1.0	TEXAS	SMN	13.7 00010	56.7 00011	30. 00077	745. 00094	572. 00095	12.4 00300	8.2 00400	8.3 00403	
					110. 00410	12. 00530	7. 00535	.03 00610	< .02 00620	.15 00650	< .06 00660	.05 00665	
					< .02 00671	4.5 00680	103. 00940	49. 00945	< 10. 31616	22.3 32211	< .2 32218	373. 70294	
12/09/81	0940	5.0	TEXAS	SMN	13.5 00010	56.3 00011	747. 00094	12.4 00300	8.3 00400	374. 70294			
12/09/81	0940	10.0	TEXAS	SMN	12.7 00010	54.9 00011	822. 00094	9.5 00300	7.9 00400	411. 70294			
12/09/81	0940	13.0	TEXAS	SMN	12.5 00010	54.5 00011	823. 00094	7.7 00300	7.7 00400	412. 70294			
03/18/82	0850	1.0	TEXAS	SMN	19.1 00010	66.4 00011	30. 00077	830. 00094	720.8 00095	11.0 00300	7.9 00400	7.9 00403	
					111. 00410	9. 00530	6. 00535	.15 00610	< .01 00620	< .06 00650	< .06 00660	< .02 00665	
					< .02 00671	5.7 00680	126. 00940	46.6 00945	< 10. 31616	.8 32211	15.8 32218	415. 70294	
03/18/82	0850	5.0	TEXAS	SMN	19.1 00010	66.4 00011	832. 00094	10.3 00300	8.1 00400	416. 70294			

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0200

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO.	STATION LOCATION	USGS GAGE NO	RIVER MILE	LATITUDE / LONGITUDE
1222.0200	LAKE PROCTOR LEON AND SABANA RIVER ARM			32 01 21 098 30 18

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE
03/18/82	0850	10.0	TEXAS	SMN	19.0 00010 / 66.2 00011 / 833. 00094 / 10.0 00300 / 8.1 00400 / 417. 70294
03/18/82	0850	13.0	TEXAS	SMN	18.1 00010 / 64.6 00011 / 837. 00094 / 6.6 00300 / 7.9 00400 / 419. 70294
06/10/82	0915	1.0	TEXAS	SMN	27.2 00010 / 81.0 00011 / 20. 00077 / 628. 00094 / 660. 00095 / 9.0 00300 / 8.4 00400 / 7.9 00403
					121. 00410 / 25. 00530 / 10. 00535 / < .02 00610 / < .02 00620 / .40 00650 / < .06 00660 / .13 00665
					< .02 00671 / 9.4 00680 / 106. 00940 / 30. 00945 / < 10. 31616 / 14.6 32211 / < .2 32218 / 314. 70294
06/10/82	0915	5.0	TEXAS	SMN	26.9 00010 / 80.4 00011 / 631. 00094 / 8.2 00300 / 8.5 00400 / 316. 70294
06/10/82	0915	10.0	TEXAS	SMN	26.6 00010 / 79.9 00011 / 635. 00094 / 6.9 00300 / 8.4 00400 / 318. 70294
06/10/82	0915	12.0	TEXAS	SMN	26.5 00010 / 79.7 00011 / 635. 00094 / 4.8 00300 / 8.2 00400 / 93851. 00496 / 921.6 00668 / 1.74 01003
					150.3 01008 / 2. 01028 / 161. 01043 / 52. 01052 / 660. 01053 / 61. 01068 / < 1. 01078 / 170. 01093
					< 2. 01148 / < .2 39333 / < 1.95 39351 / < .5 39363 / < .3 39368 / < .90 39373 / < .3 39383 / < .8 39393
					< 54. 39403 / < .6 39413 / < .4 39423 / < 5.26 39481 / < 240. 39519 / < 1.1 39541 / < 3.75 39571 / < .7 39601
					< .3 39783 / 318. 70294 / .03 71921
02/20/85	1239	1.0	TEXAS	SMN	WATER VERY MURKYY
					9.7 00010 / 49.5 00011 / 12. 00077 / 485. 00094 / 479. 00095 / 12.2 00300 / 8.2 00400 / 8.0 00403
					110. 00410 / 23. 00530 / 3. 00535 / .03 00610 / < .02 00620 / .43 00650 / < .06 00660 / .14 00665
					< .02 00671 / 2.1 00680 / 65. 00940 / 18. 00945 / 20. 31616 / 10.3 32211 / 5.1 32218 / 243. 70294

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO.	STATION LOCATION	USGS GAGE NO	RIVER MILE	LATITUDE / LONGITUDE
1222.0200	LAKE PROCTOR LEON AND SABANA RIVER ARM			32 01 21 098 30 18

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: / VALUE/ /CODE							
02/20/85	1239	5.0	TEXAS	SMN	9.6 00010	49.3 00011	459. 00094	12.0 00300	8.2 00400	230. 70294		
02/20/85	1239	10.0	TEXAS	SMN	9.6 00010	49.3 00011	487. 00094	12.0 00300	8.2 00400	244. 70294		
02/20/85	1239	14.0	TEXAS	SMN	9.6 00010	49.3 00011	491. 00094	12.0 00300	8.2 00400	246. 70294		
08/14/85	1802	1.0	TEXAS	SMN	WATER VERY MURKY AMHINGAS OBSERVED							
					30.2 00010	86.4 00011	14. 00077	363. 00094	578. 00095	8.8 00300	8.4 00400	8.2 00403
					163. 00410	23. 00530	5. 00535	.13 00610	< .02 00620	.24 00650	.12 00660	.08 00665
					.04 00671	5.2 00680	95. 00940	31. 00945	19.4 32211	14.0 32218	182. 70294	
08/14/85	1802	5.0	TEXAS	SMN	30.4 00010	86.7 00011	409. 00094	8.4 00300	8.3 00400	205. 70294		
08/14/85	1802	10.0	TEXAS	SMN	29.1 00010	84.4 00011	442. 00094	4.2 00300	7.8 00400	221. 70294		
01/30/86	1225	1.0	TEXAS	SMN	10.5 00010	16. 00077	641. 00094	604. 00095	11.4 00300	8.4 00400	8.3 00403	123. 00410
					27. 00530	4. 00535	< .02 00610	< .02 00620	1.2 00625	.09 00665	.08 00671	8.7 00680
					101. 00940	37. 00945	5. 31616	8.4 32211	3.2 32218			
01/30/86	1225	5.0	TEXAS	SMN	10.2 00010	641. 00094	11.1 00300	8.4 00400				
01/30/86	1225	7.0	TEXAS	SMN	10.0 00010	641. 00094	10.6 00300	8.3 00400				
08/25/86	1532	1.0	TEXAS	SMN	28.0 00010	12. 00077	485. 00094	424. 00095	7.1 00300	8.0 00400	6.88 00403	126. 00410
					20. 00530	4. 00535	.012 00610	.490 00620	51. 00940	16. 00945	23.5 32211	10.9 32218

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0200

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO.	STATION LOCATION	USGS GAGE NO	RIVER MILE	LATITUDE / LONGITUDE
1222.0200	LAKE PROCTOR LEON AND SABANA RIVER ARM			32 01 21 098 30 18

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE							
08/25/86	1532	5.0	TEXAS	SMN	27.7 00010	485. 00094	6.5 00300	8.1 00400				
08/25/86	1532	10.0	TEXAS	SMN	27.5 00010	488. 00094	5.2 00300	8.0 00400				
03/04/87	1305	1.0	TEXAS	SMN	ABUNDANT NUMBER OF SEA GULLS AND CORMORANTS							
					14.0 00010	10. 00077	645. 00094	648. 00095	12.2 00300	8.3 00400	7.9 00403	100. 00410
					26. 00530	17. 00535	.03 00610	< .02 00620	1.4 00625	.13 00665	.01 00671	9.5 00680
					97. 00940	36. 00945	225. 31616	38.1 32211	< .2 32218			
03/04/87	1305	5.0	TEXAS	SMN	11.5 00010	817. 00094	10.5 00300	8.3 00400				
03/04/87	1305	10.0	TEXAS	SMN	10.7 00010	870. 00094	9.1 00300	8.3 00400				
03/04/87	1305	11.0	TEXAS	SMN	.06 00610	.02 00620	1.4 00625	.02 00630	7.5 00680			
03/04/87	1305	12.0	TEXAS	SMN	10.4 00010	880. 00094	7.5 00300	8.2 00400				
08/25/87	1900	1.0	TEXAS	SMN	LAKE MURKY							
					30.3 00010	8. 00077	643. 00094	567. 00095	6.2 00300	8.1 00400	8.1 00403	140. 00410
					35. 00530	5. 00535	< .02 00610	< .02 00620	.11 00665	< .01 00671	10.0 00680	92. 00940
					33. 00945	28.5 32211	5.6 32218					
08/25/87	1900	5.0	TEXAS	SMN	30.3 00010	621. 00094	6.0 00300	8.1 00400				
08/25/87	1900	9.0	TEXAS	SMN	30.2 00010	647. 00094	5.8 00300	8.1 00400				

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0200

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO.	STATION LOCATION	USGS GAGE NO	RIVER MILE	LATITUDE / LONGITUDE
1222.0200	LAKE PROCTOR LEON AND SABANA RIVER ARM			32 01 21 098 30 18

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE							
02/09/88	1215	1.0	TEXAS	SMN	CLOUDY COOL LARGE NUMBER OF WATERFOWL							
					7.1 00010	12. 00077	709. 00094	12.1 00300	7.8 00400	153. 00410	29. 00530	6. 00535
					< .02 00610	< .02 00620	.08 00665	.02 00671	7.4 00680	111. 00940	44. 00945	23. 31616
					58.3 32211	21.0 32218						
02/09/88	1215	5.0	TEXAS	SMN	6.8 00010	717. 00094	12.3 00300	7.8 00400				
02/09/88	1215	8.0	TEXAS	SMN	6.3 00010	734. 00094	11.5 00300	7.7 00400				
08/10/88	1415	1.0	TEXAS	SMN	32.2 00010	16. 00077	486. 00094	10.6 00300	8.6 00400	106. 00410	19. 00530	10. 00535
					< .02 00610	< .01 00620	.09 00665	< .01 00671	9. 00680	72. 00940	29. 00945	< 3. 31616
					41. 32211	< 2. 32218						
08/07/89	1340	1.0	TEXAS	SMN	RAINING.							
					26.8 00010	.32 00078	400. 00094	5.7 00300	8.3 00400	108. 00410	25. 00530	5. 00535
					.04 00610	.06 00615	< .01 00620	.129 00665	.116 00671	6. 00680	35. 00940	27. 00945
					78. 31616	12.0 32211	9.7 32218	< 1. 72053				
08/07/89	1340	5.0	TEXAS	SMN	26.8 00010	403. 00094	5.5 00300					
08/07/89	1340	10.0	TEXAS	SMN	26.8 00010	400. 00094	5.2 00300					
08/07/89	1340	15.0	TEXAS	SMN	26.5 00010	379. 00094	1.4 00300					

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0200

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO.	STATION LOCATION	USGS GAGE NO	RIVER MILE	LATITUDE / LONGITUDE
1222.0200	LAKE PROCTOR LEON AND SABANA RIVER ARM			32 01 21 098 30 18

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS:		VALUE/ /CODE					
08/07/89	1345	15.0	TEXAS	SMN	26.5 00010	379. 00094	1.4 00300	7.8 00400	102. 00410	58. 00530	8. 00535	.16 00610
					.04 00615	< .01 00620	1.33 00625	.182 00665	.168 00671	6. 00680	37. 00940	27. 00945
					< 1. 72053							

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0200

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE USGS GAGE NO RIVER MILE

STATION NO.	STATION LOCATION	LATITUDE / LONGITUDE
1222.0200	LAKE PROCTOR LEON AND SABANA RIVER ARM	32 01 21 098 30 18

PARAMETER	DESCRIPTION:	PARAMETER	DESCRIPTION:
00010 --	TEMPERATURE, WATER (DEGREES CENTIGRADE)	00011 --	TEMPERATURE, WATER (DEGREES FAHRENHEIT)
00070 --	TURBIDITY, (JACKSON CANDLE UNITS)	00077 --	TRANSPARENCY, SECCHI DISC (INCHES)
00078 --	TRANSPARENCY, SECCHI DISC (METERS)	00094 --	SPECIFIC CONDUCTANCE,FIELD (UMHOS/CM @ 25C)
00095 --	SPECIFIC CONDUCTANCE (UMHOS/CM @ 25C)	00300 --	OXYGEN, DISSOLVED (MG/L)
00400 --	PH (STANDARD UNITS)	00403 --	PH (STANDARD UNITS) LAB
00410 --	ALKALINITY, TOTAL (MG/L AS CACO3)	00496 --	LOSS ON IGNITION, BOTTOM DEPOSITS (MG/KG)
00530 --	RESIDUE, TOTAL NONFILTRABLE (MG/L)	00535 --	RESIDUE, VOLATILE NONFILTRABLE (MG/L)
00610 --	NITROGEN, AMMONIA, TOTAL (MG/L AS N)	00615 --	NITRITE NITROGEN, TOTAL (MG/L AS N)
00620 --	NITRATE NITROGEN, TOTAL (MG/L AS N)	00625 --	NITROGEN, KJELDAHL, TOTAL, (MG/L AS N)
00626 --	NITROGEN,ORG. KJEL.,BOT. DEPOS. (MG/KG-N DRY WGT	00630 --	NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N)
00650 --	PHOSPHATE, TOTAL (MG/L AS PO4)	00660 --	PHOSPHATE, ORTHO (MG/L AS PO4)
00665 --	PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)	00668 --	PHOSPHORUS,TOTAL, BOTTOM DEPOSIT (MG/KG DRY WGT)
00671 --	PHOSPHORUS, DISSOLVED ORTHOPHOSPHATE (MG/L AS P)	00680 --	CARBON, TOTAL ORGANIC (MG/L AS C)
00940 --	CHLORIDE (MG/L AS CL)	00941 --	CHLORIDE, DISSOLVED IN WATER MG/L
00945 --	SULFATE (MG/L AS SO4)	01003 --	ARSENIC IN BOTTOM DEPOSITS (MG/KG AS AS DRY WGT)
01008 --	BARIUM IN BOTTOM DEPOSITS (MG/KG AS BA DRY WGT)	01028 --	CADMIUM,TOTAL IN BOTTOM DEPOSITS (MG/KG,DRY WGT)
01043 --	COPPER IN BOTTOM DEPOSITS (MG/KG AS CU DRY WGT)	01052 --	LEAD IN BOTTOM DEPOSITS (MG/KG AS PB DRY WGT)
01053 --	MANGANESE IN BOTTOM DEPOSITS (MG/KG AS MN DRY WG	01068 --	NICKEL, TOTAL IN BOTTOM DEPOSITS (MG/KG,DRY WGT)
01078 --	SILVER IN BOTTOM DEPOSITS (MG/KG AS AG DRY WGT)	01093 --	ZINC IN BOTTOM DEPOSITS (MG/KG AS ZN DRY WGT)
01148 --	SELENIUM IN BOTTOM DEPOSITS (MG/KG AS SE DRY WT)	31501 --	COLIFORM,TOT,MEMBRANE FILTER,IMMED.M-ENDO,
31616 --	FECAL COLIFORM,MEMBR FILTER,M-FC BROTH, #/100ML	32211 --	CHLOROPHYLL-A UG/L SPECTROPHOTOMETRIC ACID. METH
32218 --	PHEOPHYTIN-A UG/L SPECTROPHOTOMETRIC ACID. METH.	39333 --	ALDRIN IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOLIDS)
39351 --	CHLORDANE IN BOT. DEPOS. (UG/KILOGRAM DRY SOLIDS	39363 --	DDD IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOLIDS)
39368 --	DDE IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOLIDS)	39373 --	DDT IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOLIDS)
39383 --	DIELDRIN IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOL.)	39393 --	ENDRIN IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOLIDS)
39403 --	TOXAPHENE IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOL.	39413 --	HEPTACHLOR IN BOT. DEP. (UG/KILOGRAM DRY SOLIDS)
39423 --	HEPTACHLOR EPOXIDE IN BOT. DEP. (UG/KG DRY SOL.)	39481 --	METHOXYCHLOR IN BOTTOM DEPOSITS (UG/KG DRY SOL.)
39519 --	PCBS IN BOTTOM DEPOSITS (UG/KG DRY SOLIDS)	39541 --	PARATHION IN BOT. DEPOS. (UG/KILOGRAM DRY SOLIDS
39571 --	DIAZINON IN BOT. DEPOS. (UG/KILOGRAM DRY SOLIDS)	39601 --	METHYL PARATHION IN BOT. DEPOS.(UG/KG DRY SOLIDS
39783 --	LINDANE IN BOTTOM DEPOSITS (UG/KG DRY SOLIDS)	70294 --	@@@@@@
70300 --	RESIDUE,TOTAL FILTRABLE (DRIED AT 180C),MG/L	71921 --	MERCURY,TOT. IN BOT. DEPOS. (MG/KG AS HG DRY WGT
72053 --	DAYS SINCE PRECIPITATION EVENT (DAYS)		

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE
STATION NO. STATION LOCATION USGS GAGE NO RIVER MILE LATITUDE / LONGITUDE
1222.0300 LAKE PROCTOR COPPERAS CREEK ARM 31 58 51 098 32 12

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE								
08/21/73	0930	1.0	TEXAS	SMN	SKIES CLEAR								
					29.4 00010	85.0 00011	650. 00094	7.5 00300	8.10 00400	7.6 00403	98. 00410	<	.3 00620
					.50 00626	.09 00650	.029 00665	250. 31501	0. 31616	6.0 32211	325. 70294		
09/05/73	1045	1.0	TEXAS	SMN	SKIES CLEAR								
					25.0 00010	77.0 00011	40.0 00070	760. 00094	8.0 00300	8.70 00400	104. 00410	<	.3 00620
					.90 00626	.16 00650	.052 00665	180. 31501	8. 31616	13.0 32211	380. 70294		
09/25/73	1100	1.0	TEXAS	SMN	27.2 00010	81.0 00011	10.0 00070	750. 00094	800. 00095	7.0 00300	8.50 00400		8.0 00403
					25. 00530	10. 00535	.200 00610	< .03 00620	.18 00650	< .03 00660	.059 00665		.010 00671
					145. 00940	45. 00945	210. 31501	< 10. 31616	11.0 32211	375. 70294			
10/08/73	0945	1.0	TEXAS	SMN	24.4 00010	76.0 00011	5.0 00070	600. 00094	790. 00095	8.0 00300	8.40 00400		8.1 00403
					11. 00530	8. 00535	< .1 00610	< .03 00620	.08 00650	< .03 00660	.026 00665		.010 00671
					145. 00940	48. 00945	3700. 31501	< 10. 31616	21.0 32211	300. 70294			
10/29/73	1345	1.0	TEXAS	SMN	21.1 00010	70.0 00011	15.0 00070	18. 00077	670. 00094	704. 00095	10.0 00300		8.20 00400
					8.1 00403	23. 00530	5. 00535	< .1 00610	< .03 00620	.16 00650	< .03 00660		.052 00665
					.010 00671	123. 00940	43. 00945	37.0 32211	335. 70294				
11/06/73	0900	1.0	TEXAS	SMN	15.0 00010	59.0 00011	15.0 00070	14. 00077	550. 00094	672. 00095	10.0 00300		6.80 00400

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0300

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO.	STATION LOCATION	USGS GAGE NO	RIVER MILE	LATITUDE / LONGITUDE
1222.0300	LAKE PROCTOR COPPERAS CREEK ARM			31 58 51 098 32 12

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE								
11/06/73	0900	1.0	TEXAS	SMN	8.3 00403	20. 00530	7. 00535	< .1 00610	< .03 00620	.14 00650	.03 00660	.046 00665	
					.010 00671	125. 00940	39. 00945	5500. 31501	10. 31616	20.0 32211	275. 70294		
11/28/73	0940	1.0	TEXAS	SMN	16.1 00010	61.0 00011	5.0 00070	18. 00077	640. 00094	728. 00095	9.0 00300	8.50 00400	
					8.3 00403	10. 00530	1. 00535	< .1 00610	< .03 00620	.09 00650	< .03 00660	.029 00665	
					.010 00671	124. 00940	43. 00945	7800. 31501	10. 31616	21.0 32211	320. 70294		
12/07/73	1330	1.0	TEXAS	SMN	13.3 00010	56.0 00011	5.0 00070	28. 00077	680. 00094	9.0 00300	8.50 00400	340. 70294	
01/16/74	0930	1.0	TEXAS	SMN	6.1 00010	43.0 00011	18. 00077	700. 00094	7.0 00300	8.70 00400	350. 70294		
02/13/74	0930	1.0	TEXAS	SMN	10.0 00010	50.0 00011	25.0 00070	18. 00077	640. 00094	850. 00095	12.0 00300	8.50 00400	
					8.2 00403	19. 00530	9. 00535	< .1 00610	< .03 00620	.12 00650	< .03 00660	.039 00665	
					.010 00671	137. 00940	50. 00945	430. 31501	< 10. 31616	21.0 32211	320. 70294		
05/08/74	1100	1.0	TEXAS	SMN	22.4 00010	72.4 00011	20.0 00070	18. 00077	820. 00094	855. 00095	9.0 00300	8.40 00400	
					8.3 00403	24. 00530	6. 00535	< .1 00610	< .03 00620	.14 00650	< .03 00660	.046 00665	
					.010 00671	9.0 00680	141. 00940	170. 00941	51. 00945	260. 31501	< 10. 31616	15.0 32211	
					410. 70294								
06/12/74	1125	1.0	TEXAS	SMN	27.0 00010	80.6 00011	12. 00077	810. 00094	7.6 00300	8.30 00400	80. 00941	405. 70294	

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

1222.0300

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO.	STATION LOCATION	USGS GAGE NO	RIVER MILE	LATITUDE / LONGITUDE
1222.0300	LAKE PROCTOR COPPERAS CREEK ARM			31 58 51 098 32 12

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS:	VALUE/ /CODE									
08/08/74	UNSP	1.0	TEXAS	SMN		25.5 00010		77.9 00011		70.0 00070		12. 00077		800. 00094	850. 00095		8.9 00300	7.70 00400
						8.3 00403		57. 00530		16. 00535	<	.1 00610	<	.03 00620	.29 00650	<	.03 00660	.095 00665
						.010 00671		14.0 00680		158. 00940		200. 00941		53. 00945	10. 31616	<	4.0 32211	400. 70294
11/12/74	1145	1.0	TEXAS	SMN		14.0 00010		57.2 00011		20.0 00070		24. 00077		900. 00094	692. 00095		9.6 00300	8.20 00400
						8.4 00403		14. 00530		6. 00535	<	.1 00610	<	.03 00620	.10 00650	<	.03 00660	.03 00665
					<	.01 00671		8.0 00680		114. 00940		120. 00941		45. 00945	12. 31616		29.0 32211	450. 70294
02/11/75	1610	1.0	TEXAS	SMN		9.0 00010		48.2 00011		5.0 00070		18. 00077		840. 00094	905. 00095		9.0 00300	8.40 00400
						8.2 00403		29. 00530		8. 00535	<	.1 00610	<	.02 00620	.10 00650	<	.03 00660	.033 00665
						.010 00671		6.0 00680		138. 00940		65. 00945		48. 31616	34.0 32211		420. 70294	
05/21/75	0915	1.0	TEXAS	SMN		23.5 00010		74.3 00011		30.0 00070		18. 00077		1000. 00094	996. 00095		8.0 00300	8.10 00400
						8.5 00403		40. 00530		8. 00535	<	.1 00610	<	.02 00620	.14 00650	<	.03 00660	.046 00665
						.010 00671		7.0 00680		167. 00940		67. 00945		20. 31616	28.0 32211		500. 70294	
08/27/75	0905	1.0	TEXAS	SMN		27.0 00010		80.6 00011		20.0 00070		12. 00077		1000. 00094	972. 00095		7.6 00300	7.90 00400
						8.6 00403		52. 00530		28. 00535	<	.1 00610	<	.02 00620	.22 00650	<	.03 00660	.072 00665
						.010 00671		13.0 00680		183. 00940		65. 00945		12. 31616	41.0 32211		500. 70294	

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0300

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO.	STATION LOCATION	USGS GAGE NO	RIVER MILE	LATITUDE / LONGITUDE
1222.0300	LAKE PROCTOR COPPERAS CREEK ARM			31 58 51 098 32 12

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE									
11/04/75	1445	1.0	TEXAS	SMN	19.0 00010		66.2 00011		30.0 00070		12. 00077	800. 00094	1057. 00095	9.1 00300	8.30 00400
					8.7 00403		20. 00530		8. 00535	<	.1 00610	< .02 00620	.14 00650	< .03 00660	.046 00665
					.010 00671		13.0 00680		208. 00940		66. 00945	18. 31616	47.0 32211	400. 70294	
02/19/76	0930	1.0	TEXAS	SMN	12.0 00010		53.6 00011		20.0 00070		14. 00077	740. 00094	1141. 00095	10.4 00300	8.40 00400
					7.9 00403		21. 00530		8. 00535		.100 00610	< .02 00620	.23 00650	< .03 00660	.075 00665
					.010 00671		10.0 00680		210. 00940		64. 00945	14. 31616	11.0 32211	370. 70294	
05/11/76	1710	1.0	TEXAS	SMN	26.5 00010		79.8 00011		10.0 00070		24. 00077	1100. 00094	1099. 00095	11.8 00300	9.20 00400
					8.4 00403	<	10. 00530	<	10. 00535	<	.1 00610	< .02 00620	.15 00650	< .03 00660	.050 00665
					.010 00671		7.0 00680		197. 00940		74. 00945	12. 31616	7.0 32211	550. 70294	
08/31/76	1540	1.0	TEXAS	SMN	28.5 00010		83.3 00011		10.0 00070		18. 00077	975. 00094	1008. 00095	12.0 00300	9.40 00400
					8.7 00403		26. 00530		12. 00535	<	.1 00610	< .02 00620	.28 00650	.03 00660	.090 00665
					< .01 00671		12.0 00680		189. 00940		61. 00945	112. 31616	54.0 32211	488. 70294	
08/17/77	0820	1.0	TEXAS	SMN	28.5 00010		83.3 00011		12. 00077		750. 00094	768. 00095	7.3 00300	8.20 00400	8.3 00403
					80. 00410		42. 00530		22. 00535	<	.1 00610	< .02 00620	.31 00650	.03 00660	.100 00665
					< .01 00671		8.0 00680		136. 00940		44. 00945	2. 31616	40.0 32211	10.0 32218	375. 70294
					432. 70300										

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0300

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO.	STATION LOCATION	USGS GAGE NO	RIVER MILE	LATITUDE / LONGITUDE
1222.0300	LAKE PROCTOR COPPERAS CREEK ARM			31 58 51 098 32 12

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE
02/27/79	1235	1.0	TEXAS	SMN	OVERCAST, WINDY, COOL
					10. 00010 / 50. 00011 / 8. 00077 / 1100. 00094 / 1056. 00095 / 11.7 00300 / 8.6 00400 / 8.6 00403
					115. 00410 / 60. 00530 / 16. 00535 / .17 00610 / .04 00620 / .28 00650 / < .03 00660 / .09 00665
					< .01 00671 / 12. 00680 / 190. 00940 / 74. 00945 / 20. 31616 / 41.0 32211 / 8.0 32218 / 550. 70294
05/23/79	1305	1.0	TEXAS	SMN	CLEAR, WARM, SUNSHINE
					22.5 00010 / 72.5 00011 / 9. 00077 / 800. 00094 / 815. 00095 / 7.6 00300 / 8.1 00400 / 8.5 00403
					108. 00410 / 34. 00530 / 6. 00535 / < .02 00610 / < .02 00620 / .28 00650 / < .03 00660 / .09 00665
					< .01 00671 / 9. 00680 / 130. 00940 / 53. 00945 / 116. 31616 / 24.0 32211 / 2.0 32218 / 400. 70294
05/23/79	1305	5.0	TEXAS	SMN	22.5 00010 / 72.5 00011 / 800. 00094 / 9.8 00300 / 8.1 00400 / 400. 70294
05/23/79	1305	9.0	TEXAS	SMN	22. 00010 / 72. 00011 / 810. 00094 / 7.7 00300 / 8.1 00400 / 405. 70294
08/29/79	1310	1.0	TEXAS	SMN	CLEAR, SUNSHINE SH
					28.5 00010 / 83.3 00011 / 6. 00077 / 730. 00094 / 805. 00095 / 7.6 00300 / 8.3 00400 / 8.6 00403
					114. 00410 / 33. 00530 / 8. 00535 / .02 00610 / < .02 00620 / .15 00650 / < .03 00660 / .05 00665
					< .01 00671 / 8. 00680 / 132. 00940 / 52. 00945 / < 4. 31616 / 33.0 32211 / < 2.0 32218 / 365. 70294
08/29/79	1310	5.0	TEXAS	SMN	28.5 00010 / 83.3 00011 / 730. 00094 / 7.8 00300 / 8.3 00400 / 365. 70294
08/29/79	1310	7.0	TEXAS	SMN	28. 00010 / 82. 00011 / 730. 00094 / 7.0 00300 / 8.2 00400 / 365. 70294
09/21/81	1630	1.0	TEXAS	SMN	HOT, SUNNY

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

* * * TEXAS WATER COMMISSION * * *
STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

1222.0300

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE
STATION NO. STATION LOCATION USGS GAGE NO RIVER MILE LATITUDE / LONGITUDE
1222.0300 LAKE PROCTOR COPPERAS CREEK ARM 31 58 51 098 32 12

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE								
09/21/81	1630	1.0	TEXAS	SMN	24.9 00010	76.8 00011	12. 00077	927. 00094	726. 00095	10.8 00300	9.0 00400	8.2 00403	
					79. 00410	47. 00530	12. 00535	.12 00610	< .02 00620	.43 00650	< .06 00660	.14 00665	
					< .02 00671	15.4 00680	140. 00940	101.5 00945	< 10. 31616	71.4 32211	4.2 32218	464. 70294	
09/21/81	1630	5.0	TEXAS	SMN	24.4 00010	75.9 00011	933. 00094	10.3 00300	8.8 00400	467. 70294			
12/09/81	0900	1.0	TEXAS	SMN	13.3 00010	55.9 00011	25. 00077	752. 00094	585. 00095	13.2 00300	8.5 00400	8.5 00403	
					108. 00410	14. 00530	8. 00535	.09 00610	< .02 00620	.15 00650	< .06 00660	.05 00665	
					< .02 00671	5.6 00680	101. 00940	53. 00945	< 10. 31616	51.2 32211	< .2 32218	376. 70294	
12/09/81	0900	5.0	TEXAS	SMN	13.2 00010	55.8 00011	753. 00094	13.3 00300	8.5 00400	377. 70294			
12/09/81	0900	10.0	TEXAS	SMN	13.0 00010	55.4 00011	769. 00094	8.4 00300	8.1 00400	385. 70294			
03/18/82	0810	1.0	TEXAS	SMN	19.3 00010	66.7 00011	18. 00077	775. 00094	651. 00095	12.4 00300	7.9 00400	7.5 00403	
					126. 00410	22. 00530	8. 00535	.15 00610	< .01 00620	.46 00650	< .06 00660	.15 00665	
					< .02 00671	6.9 00680	112. 00940	50.5 00945	< 10. 31616	22.2 32211	5.7 32218	388. 70294	
03/18/82	0810	5.0	TEXAS	SMN	19.3 00010	66.7 00011	780. 00094	10.9 00300	8.1 00400	390. 70294			
03/18/82	0810	9.0	TEXAS	SMN	17.7 00010	63.9 00011	780. 00094	9.3 00300	8.1 00400	390. 70294			
06/10/82	0820	1.0	TEXAS	SMN	26.9 00010	80.4 00011	15. 00077	659. 00094	677. 00095	7.8 00300	8.1 00400	7.8 00403	

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE
STATION NO. STATION LOCATION USGS GAGE NO RIVER MILE LATITUDE / LONGITUDE
1222.0300 LAKE PROCTOR COPPERAS CREEK ARM 31 58 51 098 32 12

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS:		VALUE/ /CODE							
06/10/82	0820	1.0	TEXAS	SMN	129. 00410	24. 00530	5. 00535	<	.02 00610	<	.02 00620	.28 00650	.03 00660	.09 00665
					.01 00671	10.5 00680	102. 00940		44.6 00945	<	10. 31616	19.5 32211	2.9 32218	330. 70294
06/10/82	0820	5.0	TEXAS	SMN	26.9 00010	80.4 00011	661. 00094		7.7 00300		8.1 00400	331. 70294		
06/10/82	0820	10.0	TEXAS	SMN	26.8 00010	80.2 00011	667. 00094		5.5 00300		8.1 00400	334. 70294		
02/20/85	1150	1.0	TEXAS	SMN	WATER VERY MURKYSH									
					10.2 00010	50.4 00011	16. 00077		410. 00094		425. 00095	12.5 00300	8.4 00400	8.3 00403
					104. 00410	22. 00530	5. 00535	<	.02 00610	<	.02 00620	.73 00650	.09 00660	.24 00665
					.03 00671	2.5 00680	48. 00940		24. 00945		27. 31616	25.4 32211	7.7 32218	205. 70294
02/20/85	1150	5.0	TEXAS	SMN	10.1 00010	50.2 00011	412. 00094		12.4 00300		8.5 00400	206. 70294		
02/20/85	1150	10.0	TEXAS	SMN	10.0 00010	50.0 00011	413. 00094		12.5 00300		8.4 00400	207. 70294		
08/14/85	1730	1.0	TEXAS	SMN	WATER GREEN									
					30.2 00010	86.4 00011	18. 00077		327. 00094		563. 00095	7.9 00300	8.7 00400	7.8 00403
					117. 00410	22. 00530	6. 00535		.16 00610	<	.02 00620	.15 00650	.09 00660	.05 00665
					.03 00671	5.1 00680	83. 00940		28. 00945		41.0 32211	< .2 32218	164. 70294	
08/14/85	1730	5.0	TEXAS	SMN	29.9 00010	85.8 00011	280. 00094		7.2 00300		8.4 00400	140. 70294		
08/14/85	1730	8.0	TEXAS	SMN	28.9 00010	84.0 00011	557. 00094		4.2 00300		8.0 00400	279. 70294		

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0300

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO.	STATION LOCATION	USGS GAGE NO	RIVER MILE	LATITUDE / LONGITUDE
1222.0300	LAKE PROCTOR COPPERAS CREEK ARM			31 58 51 098 32 12

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE								
01/30/86	1125	1.0	TEXAS	SMN	10.6 00010	16. 00077	631. 00094	604. 00095	11.1 00300	8.0 00400	8.3 00403	121. 00410
					27. 00530	4. 00535	.05 00610	< .02 00620	1.4 00625	.07 00665	.06 00671	9.6 00680
					104. 00940	38. 00945	7. 31616	7.0 32211	.8 32218			
01/30/86	1125	5.0	TEXAS	SMN	10.3 00010	635. 00094	10.9 00300	8.3 00400				
01/30/86	1125	6.0	TEXAS	SMN	10.2 00010	638. 00094	10.5 00300	8.3 00400				
08/25/86	1430	1.0	TEXAS	SMN	28.2 00010	10. 00077	457. 00094	404. 00095	5.9 00300	8.0 00400	7.67 00403	132. 00410
					24. 00530	6. 00535	.012 00610	.168 00620	46. 00940	16. 00945	9.2 32211	14.0 32218
08/25/86	1430	5.0	TEXAS	SMN	28.1 00010	457. 00094	5.6 00300	8.0 00400				
08/25/86	1430	8.0	TEXAS	SMN	27.8 00010	461. 00094	5.6 00300	7.9 00400	31100. 00496	430. 00557	1000. 00626	270. 00668
					3.5 01003	93. 01008	< .4 01028	10. 01029	9.5 01043	7.6 01052	270. 01053	9.9 01068
					< .4 01078	28. 01093	< .5 01148	< 5.0 39061	< 3.0 39064	< 3.0 39067	< 3.0 39073	< 1.0 39076
					< 3.0 39301	< 3.0 39306	< 3.0 39311	< 3.0 39316	< 1.5 39321	< 1.5 39328	< 1.0 39333	< 3.0 39351
					< 3.0 39363	< 1.5 39368	< 3.0 39373	< 2.0 39383	< 3.0 39393	< 50. 39403	< .5 39413	< 1.0 39423
					< 10. 39481	< 20. 39519	< 5.0 39531	< 3.0 39541	< 5.0 39571	< 3.0 39601	< 1.0 39701	< 50. 39731
					< 10. 39741	< 10. 39761	< 1.0 39783	.03 71921				
03/04/87	1200	1.0	TEXAS	SMN	ABUNDANT NUMBER OF SEA GULLS							

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0300

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO.	STATION LOCATION	USGS GAGE NO	RIVER MILE	LATITUDE / LONGITUDE
1222.0300	LAKE PROCTOR COPPERAS CREEK ARM			31 58 51 098 32 12

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE								
03/04/87	1200	1.0	TEXAS	SMN	14.2 00010	12. 00077	602. 00094	616. 00095	14.6 00300	8.4 00400	8.4 00403	130. 00410	
					31. 00530	25. 00535	< .02 00610	< .02 00620	1.2 00625	.08 00665	.01 00671	9.1 00680	
					72. 00940	48. 00945	98. 31616	38.8 32211	< .2 32218				
03/04/87	1200	5.0	TEXAS	SMN	11.7 00010	605. 00094	11.8 00300	8.4 00400					
03/04/87	1200	10.0	TEXAS	SMN	11.3 00010	606. 00094	8.3 00300	8.4 00400					
03/04/87	1200	11.0	TEXAS	SMN	.08 00610	.04 00620	1.3 00625	.06 00630	10.0 00680				
03/04/87	1200	14.0	TEXAS	SMN	10.9 00010	605. 00094	7.0 00300	8.2 00400					
08/25/87	2005	1.0	TEXAS	SMN	LAKE MURKY								
					29.9 00010	10. 00077	655. 00094	616. 00095	6.0 00300	7.9 00400	8.1 00403	147. 00410	
					45. 00530	7. 00535	< .02 00610	< .02 00620	.11 00665	< .01 00671	9.9 00680	90. 00940	
					38. 00945	21.3 32211	3.3 32218						
08/25/87	2005	5.0	TEXAS	SMN	29.9 00010	649. 00094	5.7 00300	7.9 00400					
08/25/87	2005	9.0	TEXAS	SMN	29.7 00010	656. 00094	4.5 00300	7.8 00400					
02/09/88	1235	1.0	TEXAS	SMN	7.0 00010	12. 00077	730. 00094	12.3 00300	7.6 00400	156. 00410	25. 00530	2. 00535	
					.03 00610	.16 00620	.06 00665	.02 00671	7.0 00680	109. 00940	52. 00945	30. 31616	
					34.6 32211	5.0 32218							

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0300

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO. STATION LOCATION — USGS GAGE NO — RIVER MILE — LATITUDE / LONGITUDE

1222.0300 LAKE PROCTOR COPPERAS CREEK ARM — 31 58 51 098 32 12

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS: VALUE/ /CODE							
02/09/88	1235	5.0	TEXAS	SMN	6.7 00010	750. 00094	11.7 00300	7.6 00400				
02/09/88	1235	9.0	TEXAS	SMN	6.7 00010	783. 00094	11.1 00300	7.6 00400				
08/10/88	1515	1.0	TEXAS	SMN	32.2 00010	16. 00077	543. 00094	9.8 00300	8.5 00400	118. 00410	84500. 00496	22. 00530
					10. 00535	760. 00557	< .02 00610	< .01 00620	2320. 00626	.08 00665	435. 00668	< .01 00671
					8. 00680	78. 00940	34. 00945	6.1 01003	198. 01008	< .5 01028	23. 01029	18. 01043
					16. 01052	472. 01053	16. 01068	< .5 01078	55. 01093	1.3 01148	< 3. 31616	47. 32211
					< 2. 32218	< 5.0 39061	< 3.0 39064	< 3.0 39067	< 3.0 39073	< 1.0 39076	< 3.0 39301	< 3.0 39306
					< 3.0 39311	< 3.0 39316	< 1.5 39321	< 1.5 39328	< 1.0 39333	< 6.0 39351	< 6.0 39363	< 3.0 39368
					< 6.0 39373	< 2.0 39383	< 3.0 39393	< 50. 39403	< .5 39413	< 1.0 39423	< 10. 39481	< 20. 39519
					< 5.0 39531	< 3.0 39541	< 5.0 39571	< 3.0 39601	< 1.0 39701	< 50. 39731	< 10. 39741	< 10. 39761
					< 1.0 39783	.035 71921						
08/07/89	1400	1.0	TEXAS	SMN	27.4 00010	.36 00078	435. 00094	6.5 00300	8.2 00400	116. 00410	.27. 00530	4. 00535
					.05 00610	.04 00615	.04 00620	.070 00665	.066 00671	6. 00680	38. 00940	30. 00945
					8. 31616	10.2 32211	10.0 32218	< 1. 72053				
08/07/89	1400	5.0	TEXAS	SMN	27.5 00010	436. 00094	6.3 00300					
08/07/89	1400	10.0	TEXAS	SMN	27.5 00010	437. 00094	6.1 00300					

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

1222.0300

STATEWIDE MONITORING NETWORK -- SAMPLING DATA INVENTORY
PERIOD OF REPORT: 01/01/68 TO 12/31/90
BRAZOS RIVER BASIN
DISTRICT 03

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE

STATION NO.	STATION LOCATION	USGS GAGE NO	RIVER MILE	LATITUDE / LONGITUDE
1222.0300	LAKE PROCTOR COPPERAS CREEK ARM			31 58 51 098 32 12

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS:								
					VALUE/ /CODE								
08/07/89	1400	14.0	TEXAS	SMN	27.4 00010		436. 00094		6.0 00300				
08/07/89	1405	14.0	TEXAS	SMN	27.4 00010		436. 00094		6.0 00300	7.9 00400	116. 00410	27. 00530	6. 00535	.04 00610
					.04 00615	<	.01 00620		.75 00625	.072 00665	.068 00671	7. 00680	40. 00940	29. 00945

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

SEGMENT - LAKE PROCTOR
COUNTY - COMANCHE USGS GAGE NO RIVER MILE

STATION NO.	STATION LOCATION	LATITUDE / LONGITUDE
1222.0300	LAKE PROCTOR COPPERAS CREEK ARM	31 58 51 098 32 12

PARAMETER	DESCRIPTION:
00010	TEMPERATURE, WATER (DEGREES CENTIGRADE)
00070	TURBIDITY, (JACKSON CANDLE UNITS)
00078	TRANSPARENCY, SECCHI DISC (METERS)
00095	SPECIFIC CONDUCTANCE (UMHOS/CM @ 25C)
00400	PH (STANDARD UNITS)
00410	ALKALINITY, TOTAL (MG/L AS CACO3)
00530	RESIDUE, TOTAL NONFILTRABLE (MG/L)
00557	OIL & GREASE (FREON EXTR.-GRAV METH),BOT. DEPOS.
00615	NITRITE NITROGEN, TOTAL (MG/L AS N)
00625	NITROGEN, KJELDAHL, TOTAL, (MG/L AS N)
00630	NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N)
00660	PHOSPHATE, ORTHO (MG/L AS PO4)
00668	PHOSPHORUS,TOTAL, BOTTOM DEPOSIT (MG/KG DRY WGT)
00680	CARBON, TOTAL ORGANIC (MG/L AS C)
00941	CHLORIDE, DISSOLVED IN WATER MG/L
01003	ARSENIC IN BOTTOM DEPOSITS (MG/KG AS AS DRY WGT)
01028	CADMIUM,TOTAL IN BOTTOM DEPOSITS (MG/KG,DRY WGT)
01043	COPPER IN BOTTOM DEPOSITS (MG/KG AS CU DRY WGT)
01053	MANGANESE IN BOTTOM DEPOSITS (MG/KG AS MN DRY WG
01078	SILVER IN BOTTOM DEPOSITS (MG/KG AS AG DRY WGT)
01148	SELENIUM IN BOTTOM DEPOSITS (MG/KG AS SE DRY WT)
31616	FECAL COLIFORM,MEMBR FILTER,M-FC BROTH, #/100ML
32218	PHEOPHYTIN-A UG/L SPECTROPHOTOMETRIC ACID. METH.
39064	CHLORDANE CIS ISOMER BOTTOM DEPOSITS(UG/KG DRY)
39073	CHLORDANE NONACHLOR,TRANS ISO BOT. DEPOS.(UG/KG)
39301	P,P' DDT IN BOTTOM DEPOSITS (UG/KG DRY SOLIDS)
39311	P,P DDD IN BOTTOM DEPOSITS (UG/KG DRY SOLIDS)
39321	P,P DDE IN BOTTOM DEPOSITS (UG/KG DRY SOLIDS)
39333	ALDRIN IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOLIDS)
39363	DDD IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOLIDS)
39373	DDT IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOLIDS)
39393	ENDRIN IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOLIDS)
39413	HEPTACHLOR IN BOT. DEP. (UG/KILOGRAM DRY SOLIDS)
39481	METHOXYCHLOR IN BOTTOM DEPOSITS (UG/KG DRY SOL.)
39531	MALATHION IN BOT. DEPOS. (UG/KILOGRAM DRY SOLIDS
39571	DIAZINON IN BOT. DEPOS. (UG/KILOGRAM DRY SOLIDS)
39701	HEXACHLOROBENZENE IN BOT DEPOS. UG/KG DRY SOLIDS
39741	2,4,5-T IN BOTTOM DEPOSITS (UG/KG DRY SOLIDS)
39783	LINDANE IN BOTTOM DEPOSITS (UG/KG DRY SOLIDS)
70300	RESIDUE,TOTAL FILTRABLE (DRIED AT 180C),MG/L
72053	DAYS SINCE PRECIPITATION EVENT (DAYS)

PARAMETER	DESCRIPTION:
00011	TEMPERATURE, WATER (DEGREES FAHRENHEIT)
00077	TRANSPARENCY, SECCHI DISC (INCHES)
00094	SPECIFIC CONDUCTANCE,FIELD (UMHOS/CM @ 25C)
00300	OXYGEN, DISSOLVED (MG/L)
00403	PH (STANDARD UNITS) LAB
00496	LOSS ON IGNITION, BOTTOM DEPOSITS (MG/KG)
00535	RESIDUE, VOLATILE NONFILTRABLE (MG/L)
00610	NITROGEN, AMMONIA, TOTAL (MG/L AS N)
00620	NITRATE NITROGEN, TOTAL (MG/L AS N)
00626	NITROGEN,ORG. KJEL.,BOT. DEPOS. (MG/KG-N DRY WGT
00650	PHOSPHATE, TOTAL (MG/L AS PO4)
00665	PHOSPHORUS, TOTAL, WET METHOD (MG/L AS P)
00671	PHOSPHORUS, DISSOLVED ORTHOPHOSPHATE (MG/L AS P)
00940	CHLORIDE (MG/L AS CL)
00945	SULFATE (MG/L AS SO4)
01008	BARIUM IN BOTTOM DEPOSITS (MG/KG AS BA DRY WGT)
01029	CHROMIUM,TOTAL IN BOTTOM DEPOSITS (MG/KG,DRY WGT
01052	LEAD IN BOTTOM DEPOSITS (MG/KG AS PB DRY WGT)
01068	NICKEL, TOTAL IN BOTTOM DEPOSITS (MG/KG,DRY WGT)
01093	ZINC IN BOTTOM DEPOSITS (MG/KG AS ZN DRY WGT)
31501	COLIFORM,TOT,MEMBRANE FILTER,IMMED.M-ENDO,
32211	CHLOROPHYLL-A UG/L SPECTROPHOTOMETRIC ACID. METH
39061	PENTACHLOROPHENOL IN BOT. DEPOS. UG/KG DRY SOL.
39067	CHLORDANE TRANS ISOMER BOTTOM DEPOSITS UG/KG DRY
39076	BHC ALPHA ISOMER, BOTTOM DEPOS UG/KG DRY SOLIDS
39306	O,P' DDT IN BOTTOM DEPOSITS (UG/KG DRY SOLIDS)
39316	O,P DDD IN BOTTOM DEPOSITS (UG/KG DRY SOLIDS)
39328	O,P' DDE IN BOTTOM DEPOSITS (UG/KG DRY SOLIDS)
39351	CHLORDANE IN BOT. DEPOS. (UG/KILOGRAM DRY SOLIDS
39368	DDE IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOLIDS)
39383	DIELDRIN IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOL.)
39403	TOXAPHENE IN BOTTOM DEPOS. (UG/KILOGRAM DRY SOL.
39423	HEPTACHLOR EPOXIDE IN BOT. DEP. (UG/KG DRY SOL.)
39519	PCBS IN BOTTOM DEPOSITS (UG/KG DRY SOLIDS)
39541	PARATHION IN BOT. DEPOS. (UG/KILOGRAM DRY SOLIDS
39601	METHYL PARATHION IN BOT. DEPOS.(UG/KG DRY SOLIDS
39731	2,4-D IN BOTTOM DEPOSITS (UG/KG DRY SOLIDS)
39761	SILVEX IN BOTTOM DEPOSITS (UG/KG DRY SOLIDS)
70294	[illegible]
71921	MERCURY,TOT. IN BOT. DEPOS. (MG/KG AS HG DRY WGT

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

SEGMENT - LEON RIVER BELOW LEON RESERVOIR
COUNTY - COMANCHE USGS GAGE NO 08099100 RIVER MILE

STATION NO. STATION LOCATION LATITUDE / LONGITUDE
1223.0100 LEON RIVER AT SH 16 NORTH OF DE LEON 32 10 25 098 31 58

SAMPLE DATE	TIME	DEPTH (FT)	SOURCE AGENCY	SYSTEM CODE	PARAMETER MEASUREMENTS:	VALUE/ /CODE							
08/21/73	1105	UNSP	TEXAS	SMN		.0 00061							
09/05/73	UNSP	UNSP	TEXAS	SMN		.0 00061							
09/25/73	UNSP	UNSP	TEXAS	SMN		.0 00061							
10/29/73	1600	1.0	TEXAS	SMN		20.0 00010	68.0 00011	.0 00070	900. 00094	1092. 00095	9.0 00300	8.50 00400	8.0 00403
					<	10. 00530	< 10. 00535	< .1 00610	< .03 00620	.10 00650	.06 00660	.033 00665	.020 00671
						173. 00940	55. 00945	6.0 32211	450. 70294				
11/06/73	1050	1.0	TEXAS	SMN		12.8 00010	55.0 00011	.0 00070	840. 00094	1113. 00095	11.0 00300	6.50 00400	8.2 00403
					<	10. 00530	< 10. 00535	< .1 00610	< .03 00620	.11 00650	.09 00660	.036 00665	.029 00671
						173. 00940	51. 00945	3200. 31501	290. 31616	< 4.0 32211	420. 70294		
11/28/73	1130	1.0	TEXAS	SMN		11.1 00010	52.0 00011	.0 00070	12500. 00094	1548. 00095	8.0 00300	8.30 00400	8.2 00403
					<	10. 00530	< 10. 00535	< .1 00610	< .3 00620	.08 00650	.05 00660	.026 00665	.016 00671
						273. 00940	62. 00945	1200. 31501	220. 31616	< 4.0 32211	6250. 70294		
12/07/73	1130	1.0	TEXAS	SMN	FLOW DETERMINED FROM USGS GAUGE								
						11.1 00010	52.0 00011	1.8 00061	.0 00070	1400. 00094	6.0 00300	8.50 00400	700. 70294
01/16/74	1145	1.0	TEXAS	SMN	FLOW DETERMINED FROM USGS GAUGE								
						7.2 00010	45.0 00011	1.5 00061	.0 00070	1200. 00094	11.0 00300	7.70 00400	600. 70294

SYMBOL (*) DENOTES MEASUREMENT LESS THAN 'L' STANDARD OR GREATER THAN 'H' STANDARD.

APPENDIX C
ANALYSIS OF VARIANCE DATA

One-Way Analysis of Variance

Data: DO

Level codes: SMN Station

Labels:

Range test: Conf. Int. Confidence level: 95

Analysis of variance

Source of variation	Sum of Squares	d.f.	Mean square	F-ratio	Sig. level
Between groups	13.06209	2	6.5310452	1.200	.3050
Within groups	604.00548	111	5.4414908		
Total (corrected)	617.06757	113			

0 missing value(s) have been excluded.

Table of means for DO by SMN Station

Level	Count	Average	Stnd. Error (internal)	Stnd. Error (pooled s)	95 Percent Confidence intervals for mean	
1	44	8.7715909	.3554521	.3516678	8.0745818	9.468600
2	38	9.3973684	.3802464	.3784140	8.6473481	10.147389
3	32	9.5312500	.4036986	.4123671	8.7139344	10.348566
Total	114	9.1934211	.2184774	.2184774	8.7603966	9.626445

Tests for Homogeneity of Variances

Cochran's C test: 0.341714 P = 1
Bartlett's test: 1.00035 P = 0.9808
Hartley's test: 1.06598

Multiple range analysis for DO by SMN Station

Method: 95 Percent Confidence Intervals

Level	Count	Average	Homogeneous Groups
1	44	8.7715909	*
2	38	9.3973684	*
3	32	9.5312500	*

One-Way Analysis of Variance

Data: Conductivity

Level codes: SMN Station

Labels:

Range test: Conf. Int. Confidence level: 95

Analysis of variance

Source of variation	Sum of Squares	d.f.	Mean square	F-ratio	Sig. level
Between groups	27260.4	2	13630.203	.396	.6741
Within groups	3823268.7	111	34443.862		
Total (corrected)	3850529.1	113			

0 missing value(s) have been excluded.

Table of means for Conductivity by SMN Station

Level	Count	Average	Stnd. Error (internal)	Stnd. Error (pooled s)	95 Percent Confidence intervals for mean	
1	44	708.45455	26.877540	27.978832	653.00022	763.90887
2	38	705.71053	31.001420	30.106767	646.03861	765.38244
3	32	741.50000	33.378239	32.808089	676.47404	806.52596
Total	114	716.81579	17.382150	17.382150	682.36419	751.26739

Tests for Homogeneity of Variances

Cochran's C test: 0.351307 P = 1
Bartlett's test: 1.00197 P = 0.897749
Hartley's test: 1.14899

Multiple range analysis for Conductivity by SMN Station

Method: 95 Percent Confidence Intervals

Level	Count	Average	Homogeneous Groups
2	38	705.71053	*
1	44	708.45455	*
3	32	741.50000	*

One-Way Analysis of Variance

Data: Total Phosphorous

Level codes: SMN Station

Labels:

Range test: Conf. Int. Confidence level: 95

Analysis of variance

Source of variation	Sum of Squares	d.f.	Mean square	F-ratio	Sig. level
Between groups	.0625111	2	.0312556	1.255	.2907
Within groups	1.9675584	79	.0249058		
Total (corrected)	2.0300695	81			

0 missing value(s) have been excluded.

Table of means for Total Phosphorous by SMN Station

Level	Count	Average	Stnd. Error (internal)	Stnd. Error (pooled s)	95 Percent Confidence intervals for mean	
1	33	.1757576	.0323072	.0274722	.1210632	.2304519
2	26	.2311538	.0241491	.0309502	.1695351	.2927726
3	23	.2330435	.0310007	.0329069	.1675293	.2985577
Total	82	.2093902	.0174278	.0174278	.1746932	.2440873

Tests for Homogeneity of Variances

Cochran's C test: 0.480319 P = 0.0870427

Bartlett's test: 1.06072 P = 0.101395

Hartley's test: 2.27164

Multiple range analysis for Total Phosphorous by SMN Station

Method: 95 Percent Confidence Intervals

Level	Count	Average	Homogeneous Groups
1	33	.1757576	*
2	26	.2311538	*
3	23	.2330435	*

One-Way Analysis of Variance

Data: TOC

Level codes: SMN Station

Labels:

Range test: Conf. Int. Confidence level: 95

Analysis of variance

Source of variation	Sum of Squares	d.f.	Mean square	F-ratio	Sig. level
Between groups	4.64843	2	2.324217	.181	.8350
Within groups	874.27748	68	12.857022		
Total (corrected)	878.92592	70			

1 missing value(s) have been excluded.

Table of means for TOC by SMN Station

Level	Count	Average	Stnd. Error (internal)	Stnd. Error (pooled s)	95 Percent Confidence intervals for mean	
1	23	8.3043478	.7106051	.7476637	6.8120708	9.796625
2	24	8.3583333	.8423982	.7319216	6.8974762	9.819191
3	24	8.8708333	.6413437	.7319216	7.4099762	10.331691
Total	71	8.5140845	.4255406	.4255406	7.6647394	9.363430

Tests for Homogeneity of Variances

Cochran's C test: 0.442174 P = 0.277747
Bartlett's test: 1.02754 P = 0.404223
Hartley's test: 1.72525

Multiple range analysis for TOC by SMN Station

Method: 95 Percent Confidence Intervals

Level	Count	Average	Homogeneous Groups
1	23	8.3043478	*
2	24	8.3583333	*
3	24	8.8708333	*

One-Way Analysis of Variance

Data: Secchi Depth

Level codes: SMN Station

Labels:

Range test: Conf. Int. Confidence level: 95

Analysis of variance

Source of variation	Sum of Squares	d.f.	Mean square	F-ratio	Sig. level
Between groups	1661.6593	2	830.82967	19.740	.0000
Within groups	3998.4733	95	42.08919		
Total (corrected)	5660.1327	97			

0 missing value(s) have been excluded.

Table of means for Secchi Depth by SMN Station

Level	Count	Average	Stnd. Error (internal)	Stnd. Error (pooled s)	95 Percent Confidence intervals for mean	
1	34	24.088235	1.2319048	1.1126174	21.878915	26.297556
2	33	15.424242	1.1910575	1.1293494	13.181697	17.666788
3	31	15.451613	.9261305	1.1652107	13.137858	17.765368
Total	98	18.438776	.6553484	.6553484	17.137452	19.740099

Tests for Homogeneity of Variances

Cochran's C test: 0.412779 P = 0.372979
Bartlett's test: 1.03919 P = 0.165196
Hartley's test: 1.94056

Multiple range analysis for Secchi Depth by SMN Station

Method: 95 Percent Confidence Intervals

Level	Count	Average	Homogeneous Groups
2	33	15.424242	*
3	31	15.451613	*
1	34	24.088235	*

One-Way Analysis of Variance

Data: Non-Filterable Residue

Level codes: SMN Station

Labels:

Range test: Conf. Int. Confidence level: 95

Analysis of variance

Source of variation	Sum of Squares	d.f.	Mean square	F-ratio	Sig. level
Between groups	2588.560	2	1294.2801	7.149	.0013
Within groups	15569.058	86	181.0356		
Total (corrected)	18157.618	88			

1 missing value(s) have been excluded.

Table of means for Non-Filterable Residue by SMN Station

Level	Count	Average	Stnd. Error (internal)	Stnd. Error (pooled s)	95 Percent Confidence intervals for mean	
1	30	17.866667	1.8832189	2.4565257	12.982157	22.751176
2	31	28.870968	2.9174086	2.4165795	24.065887	33.676049
3	28	29.678571	2.4581436	2.5427457	24.622624	34.734519
Total	89	25.415730	1.4262214	1.4262214	22.579859	28.251602

Tests for Homogeneity of Variances

Cochran's C test: 0.489123 P = 0.0550531
Bartlett's test: 1.07152 P = 0.0536593
Hartley's test: 2.4799

Multiple range analysis for Non-Filterable Residue by SMN Station

Method: 95 Percent Confidence Intervals

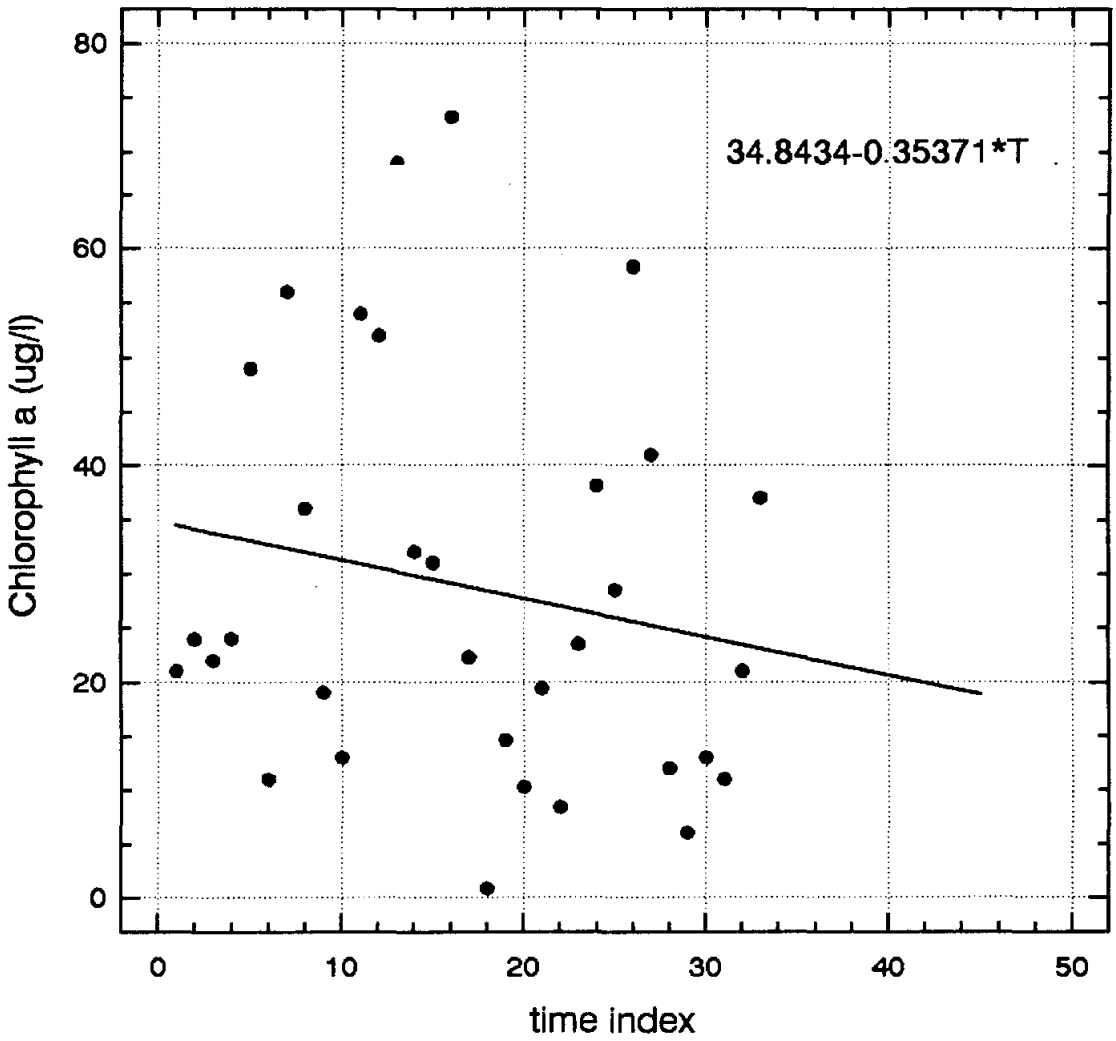
Level	Count	Average	Homogeneous Groups
1	30	17.866667	*
2	31	28.870968	*
3	28	29.678571	*

APPENDIX D
ADDITIONAL TREND PLOTS

Trend Analysis

Chlorophyll a

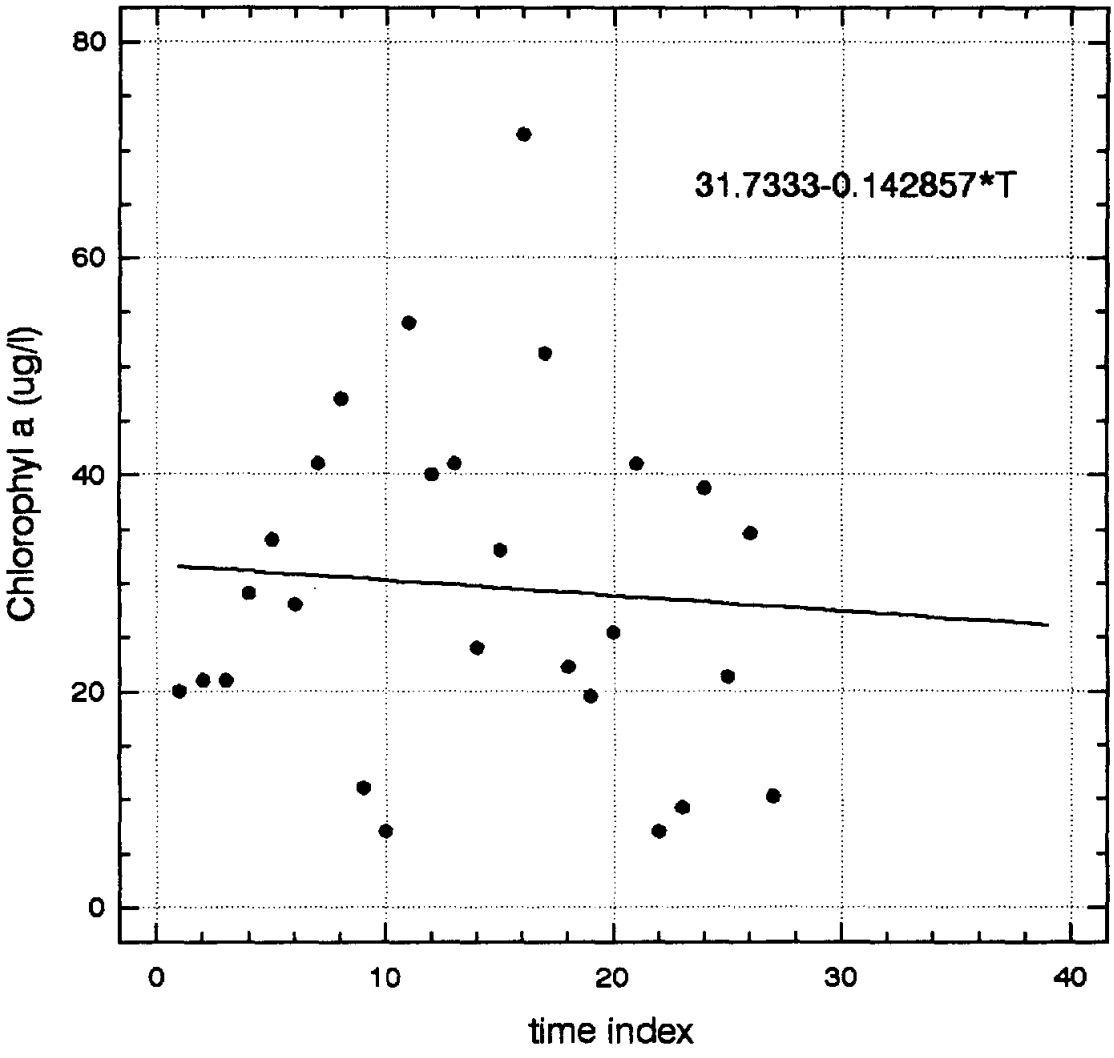
TWC SMN Station 1222.002



Trend Analysis

Chlorophyl a

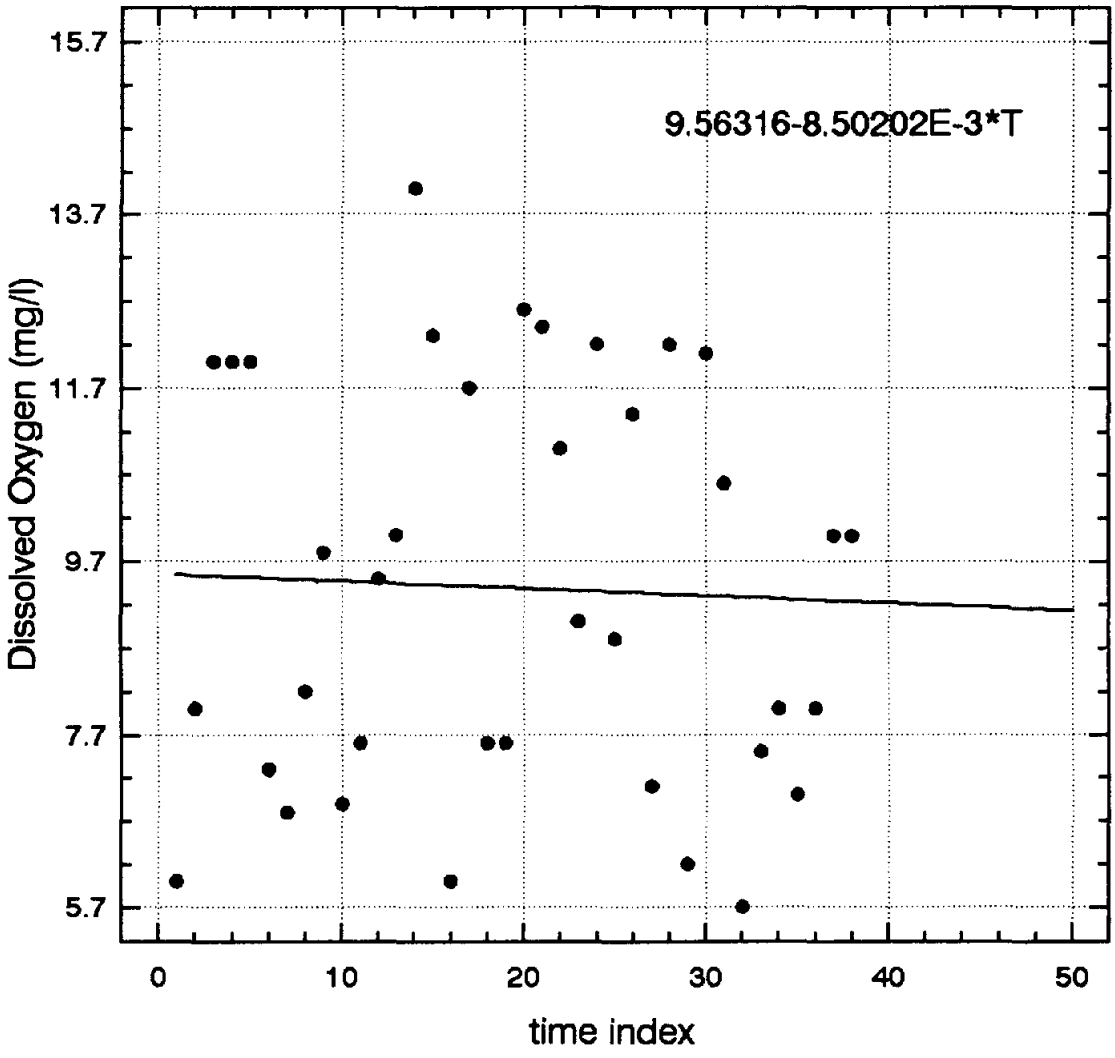
TWC SMN Station 1222.003



Trend Analysis

Dissolved Oxygen

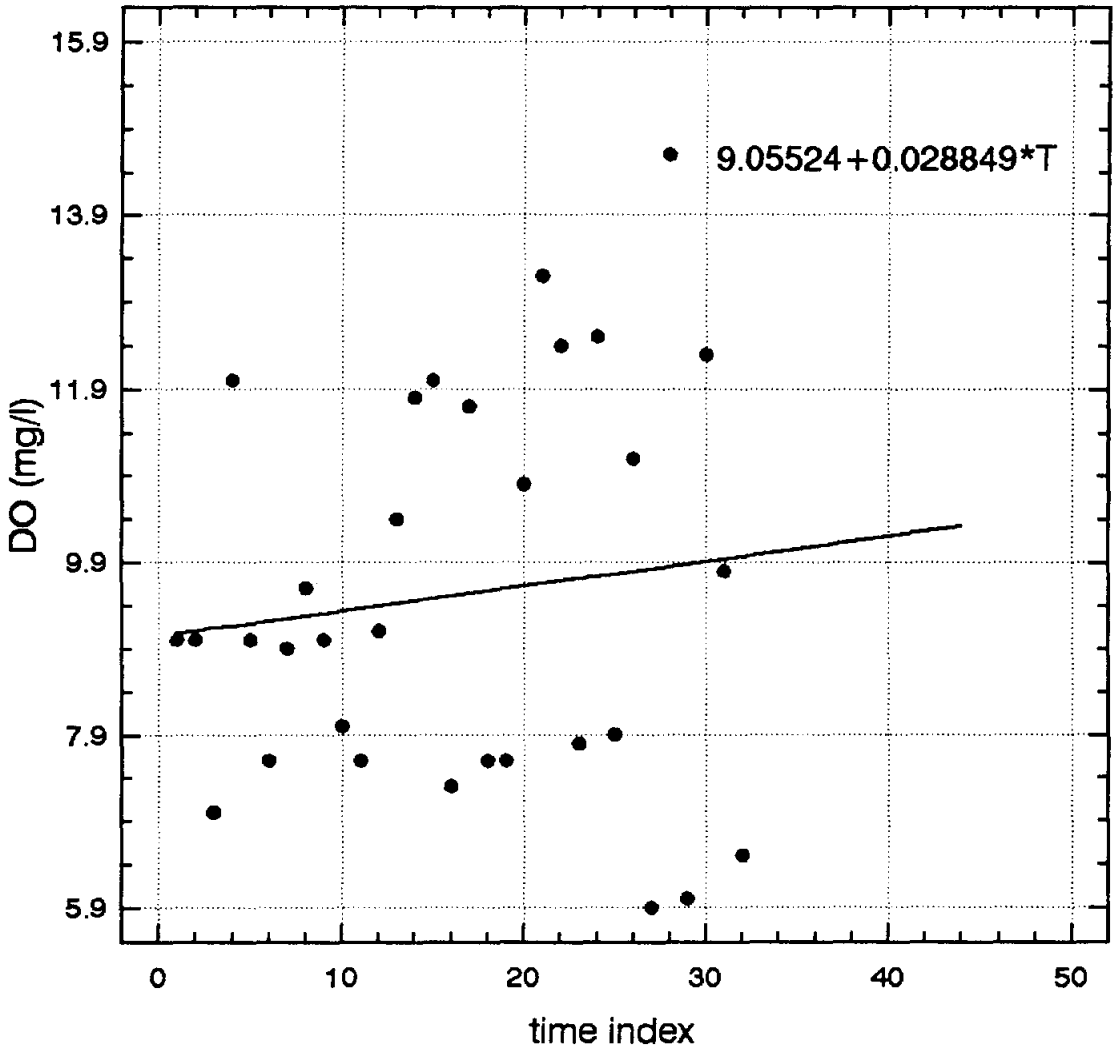
TWC SMN Station 1222.002



Trend Analysis

Dissolved Oxygen

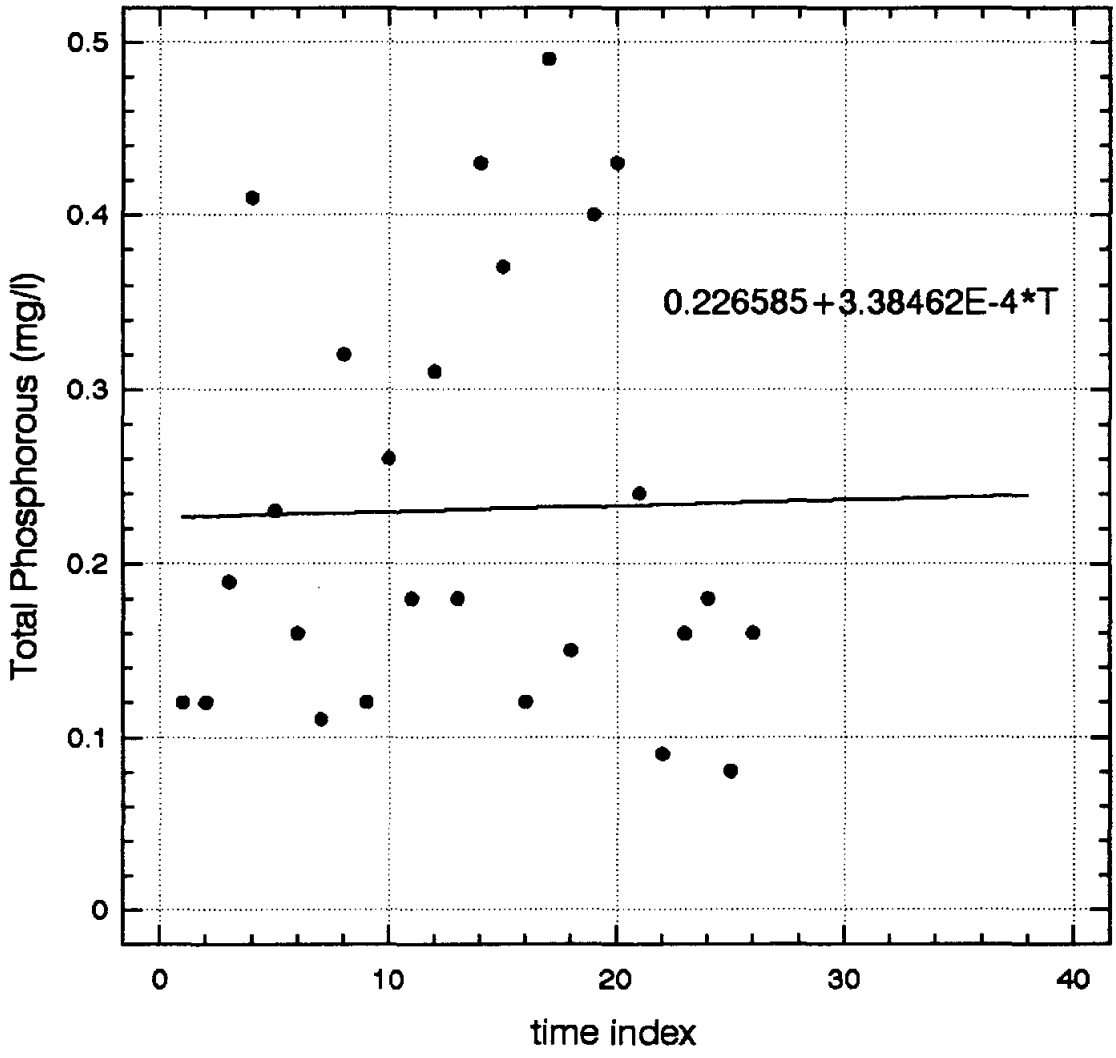
TWC SMN Station 1222.003



Trend Analysis

Total Phosphorous

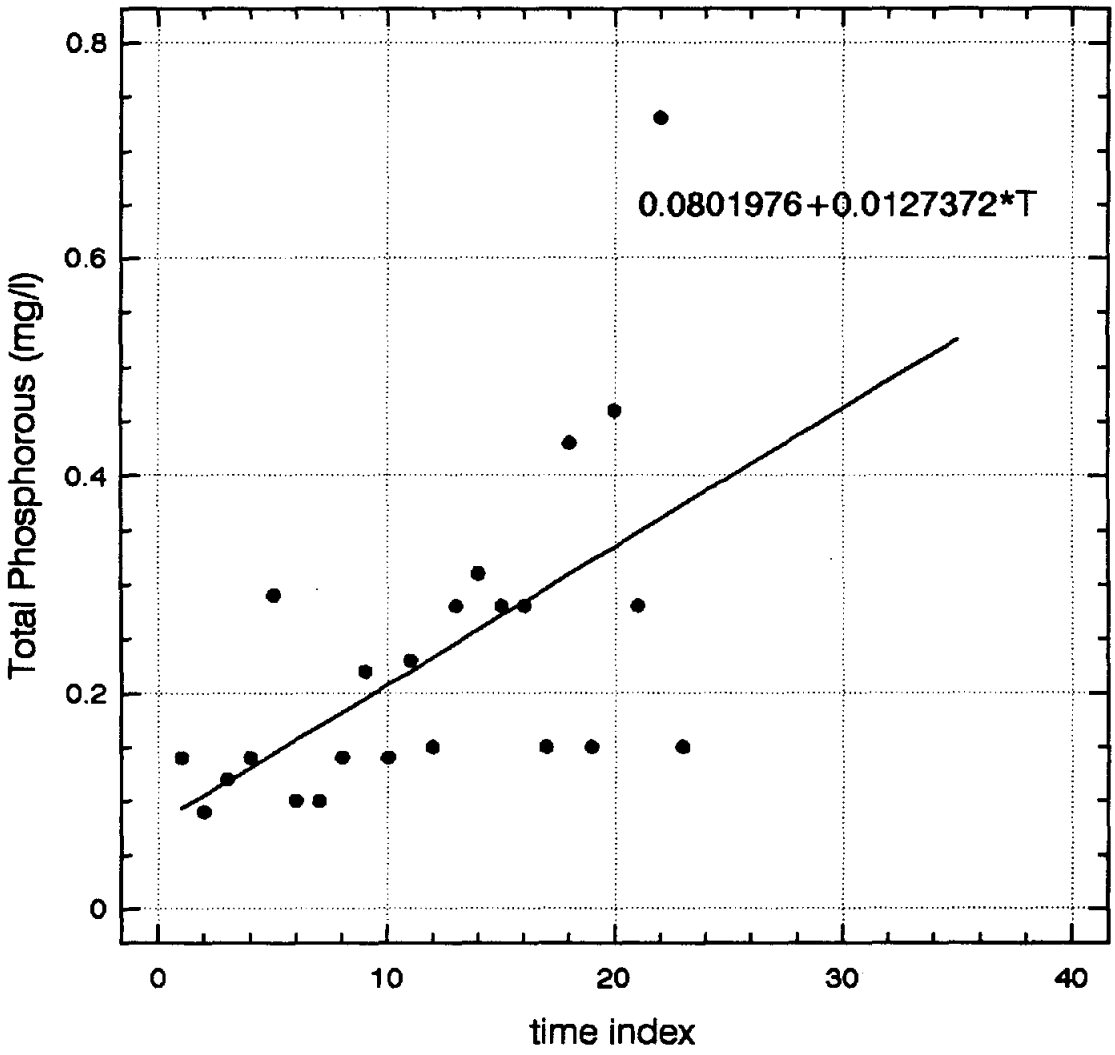
TWC SMN Station 1222.002



Trend Analysis

Total Phosphorous

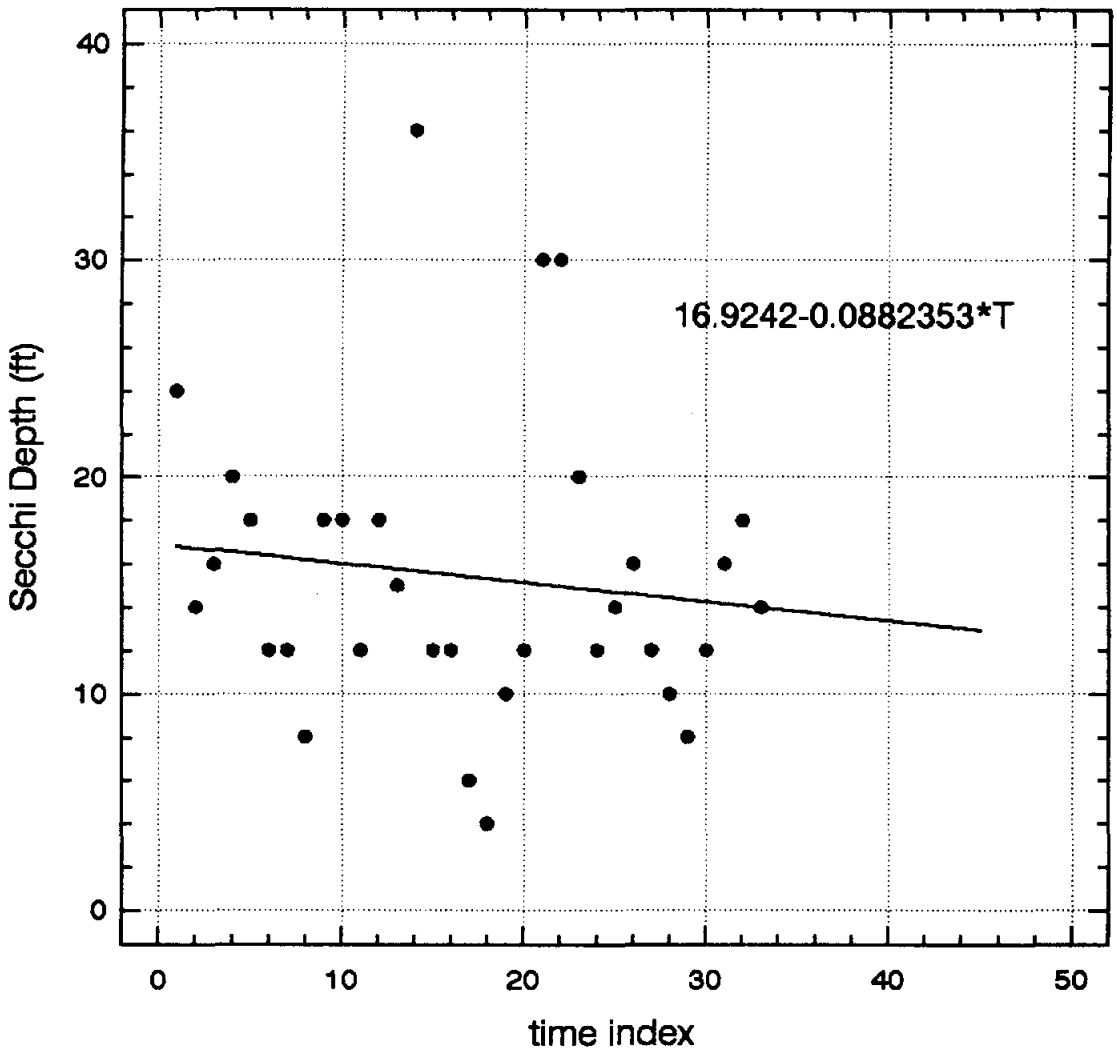
TWC SMN Station 1222.003



Trend Analysis

Secchi Depth

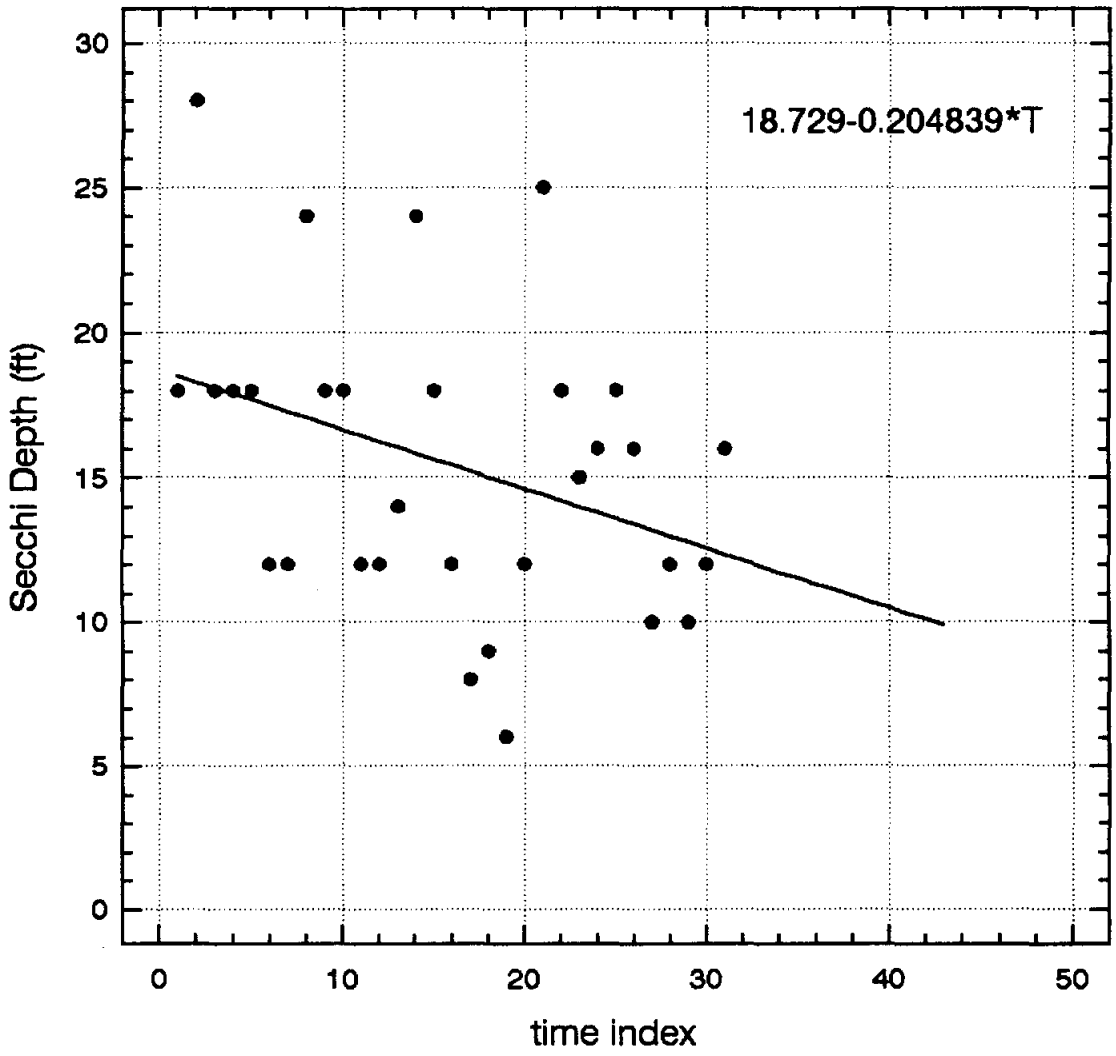
TWC SMN Station 1222.002



Trend Analysis

Secchi Depth

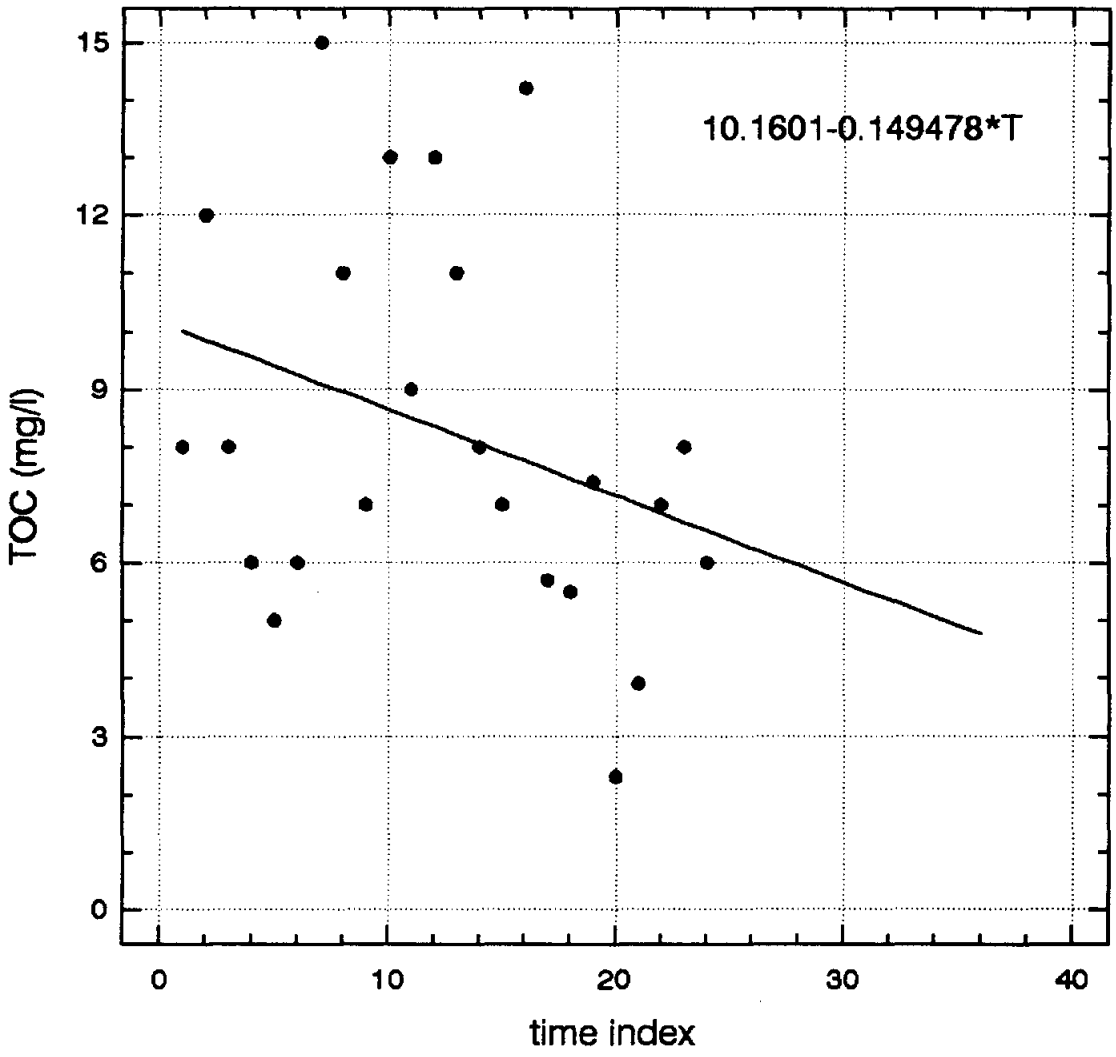
TWC SMN Station 1222.003



Trend Analysis

TOC

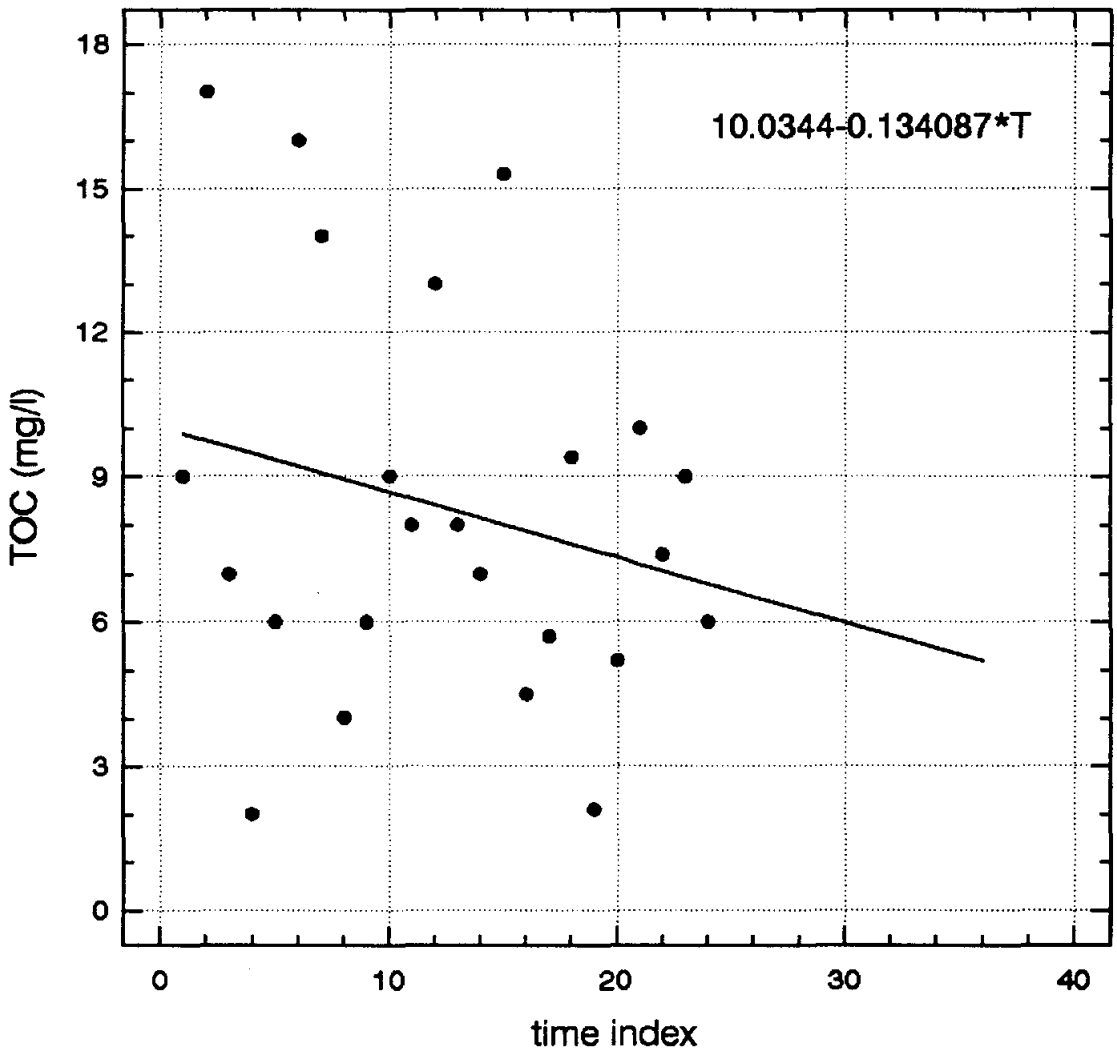
TWC SMN Station 1222.001



Trend Analysis

TOC

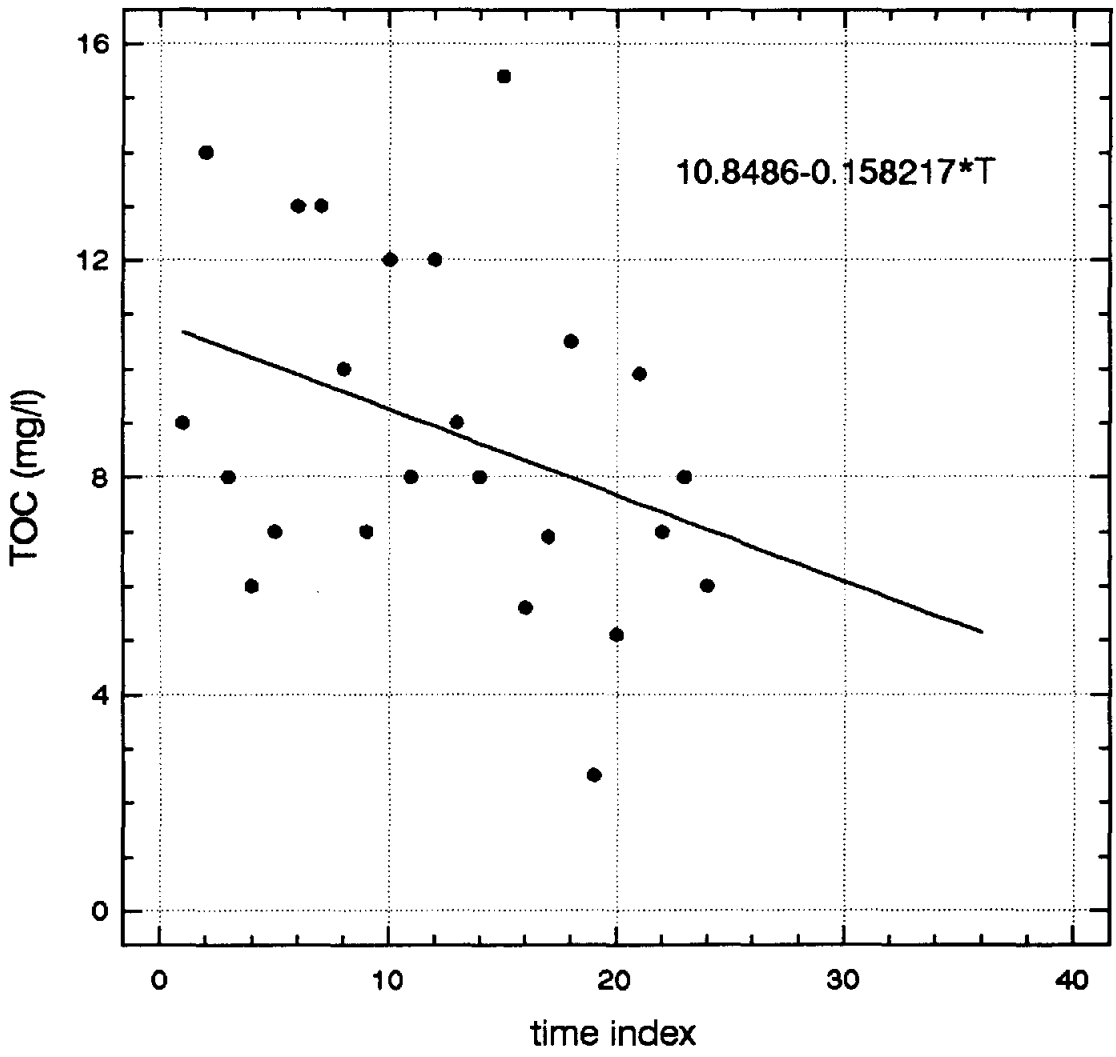
TWC SMN Station 1222.002



Trend Analysis

Total Organic Carbon

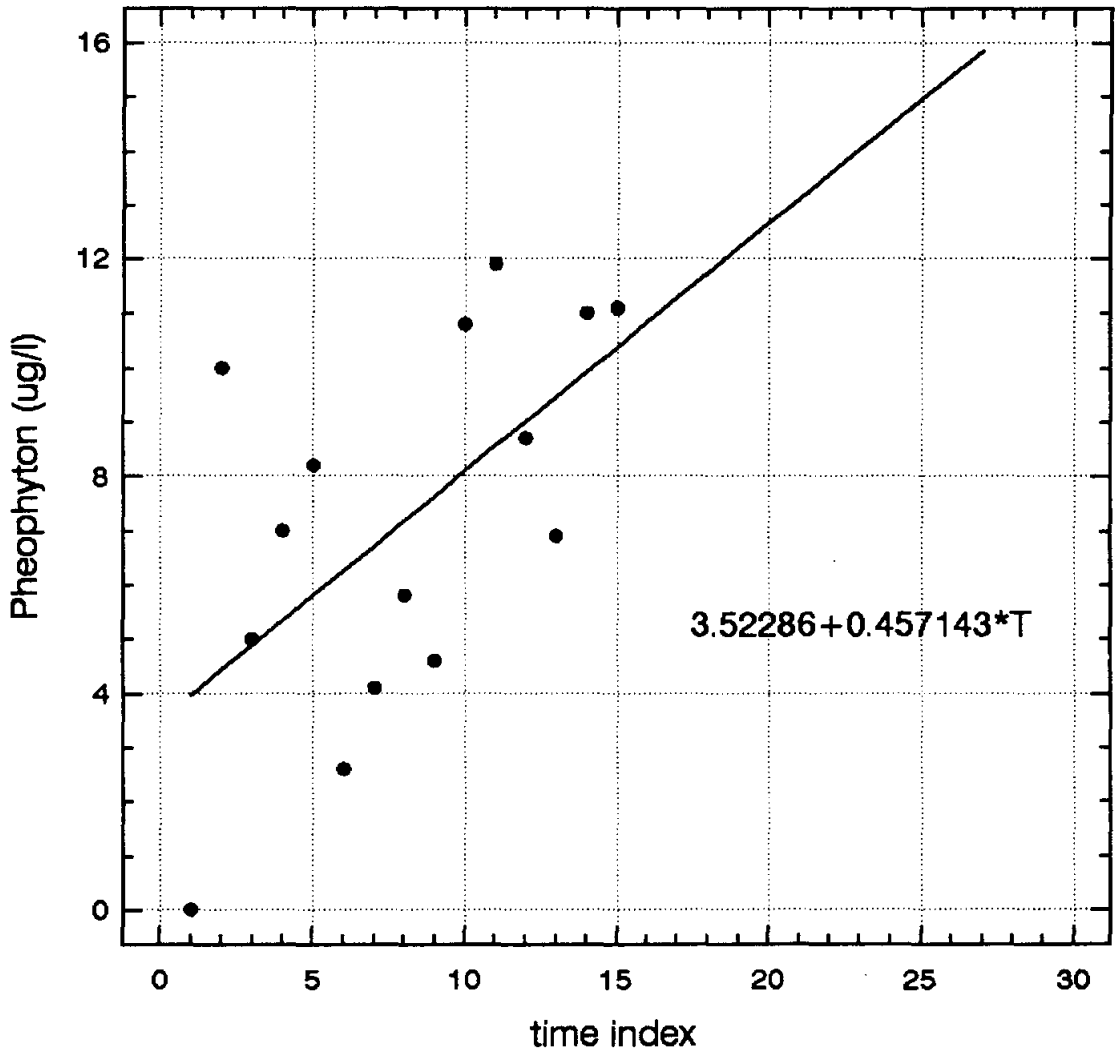
TWC SMN Station 1222.003



Trend Analysis

Phaeophyton

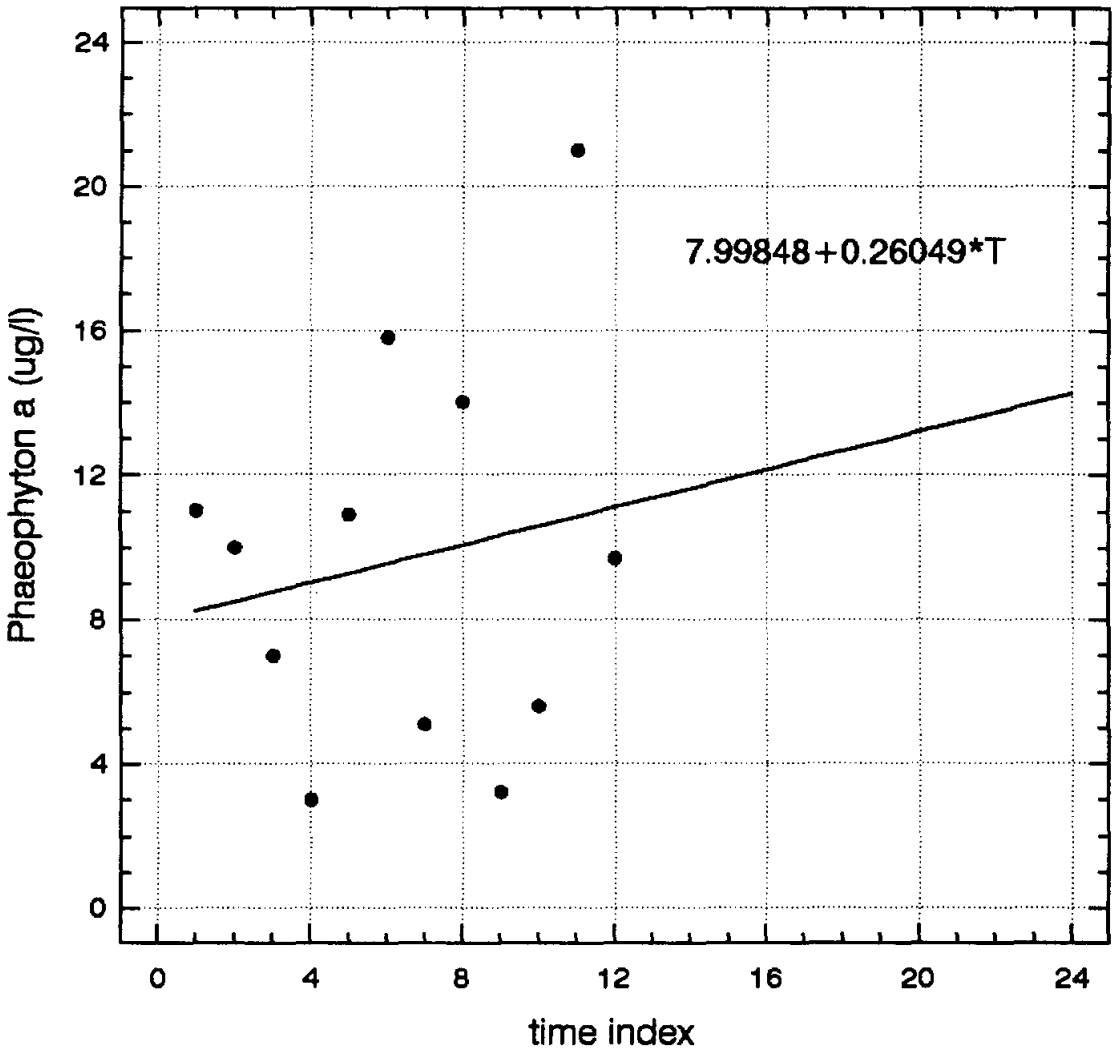
TWC SMN Station 1222.001



Trend Analysis

Pheophyton

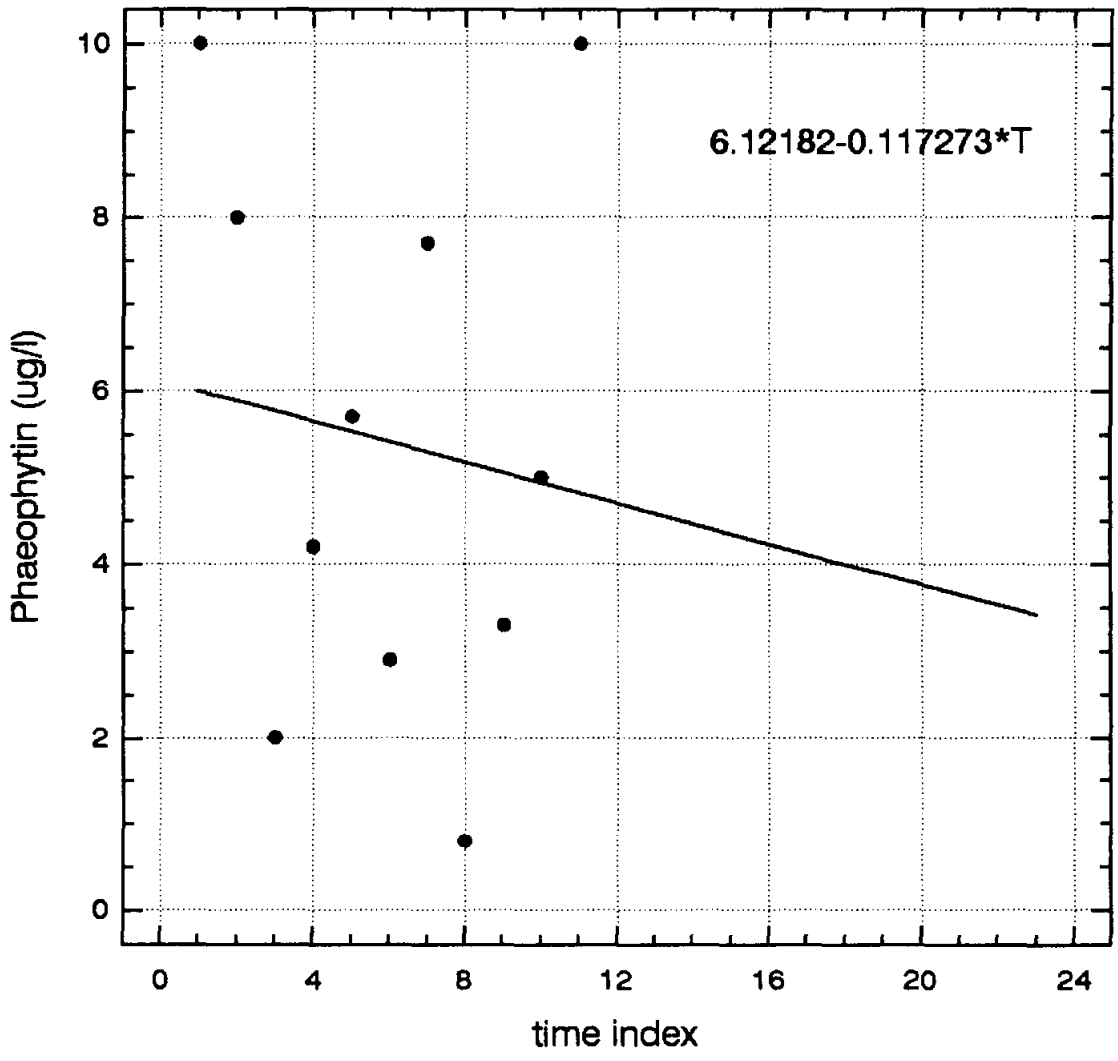
TWC SMN Station 1222.002



Trend Analysis

Phaeophytin

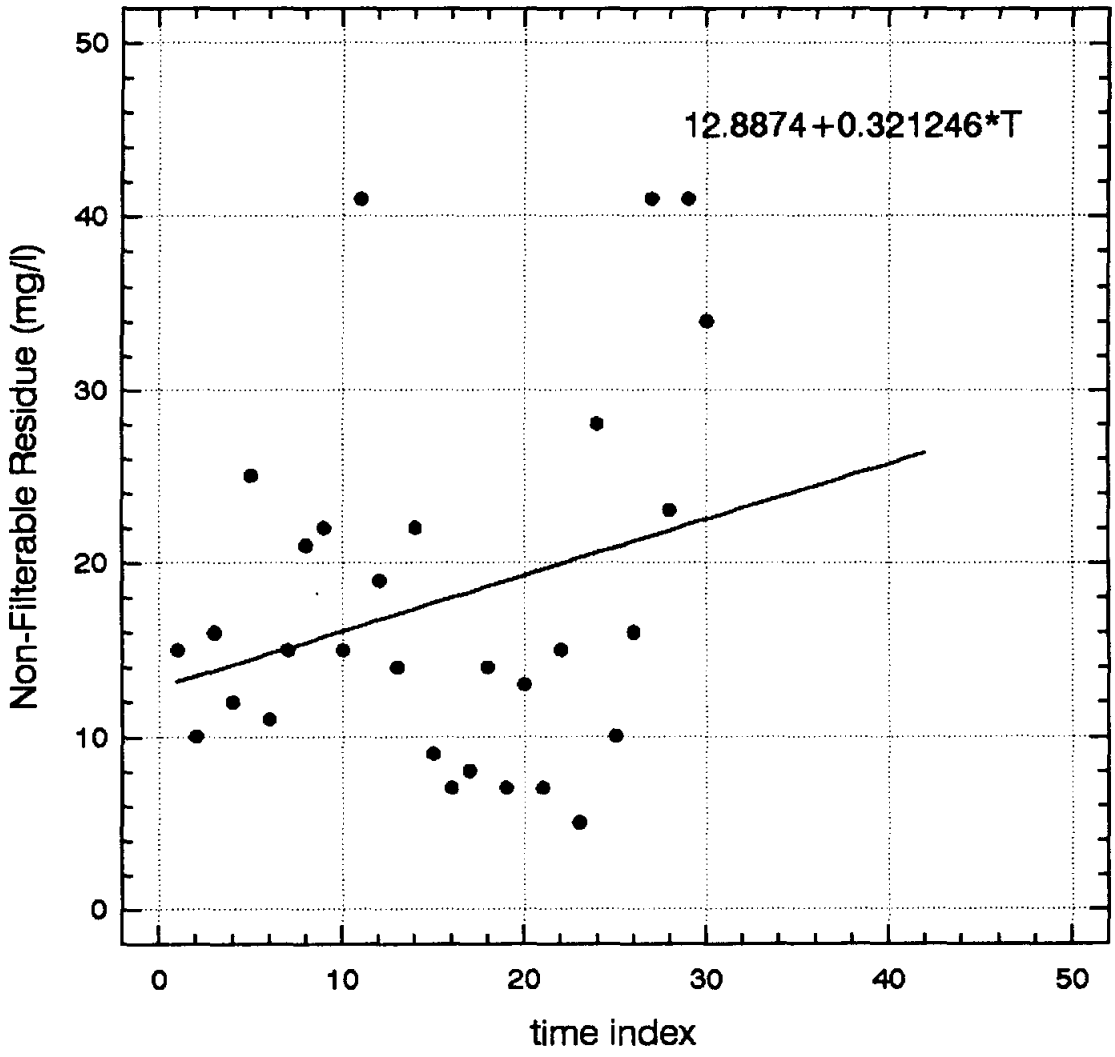
TWC SMN Station 1222.003



Trend Analysis

Non-Filterable Residue

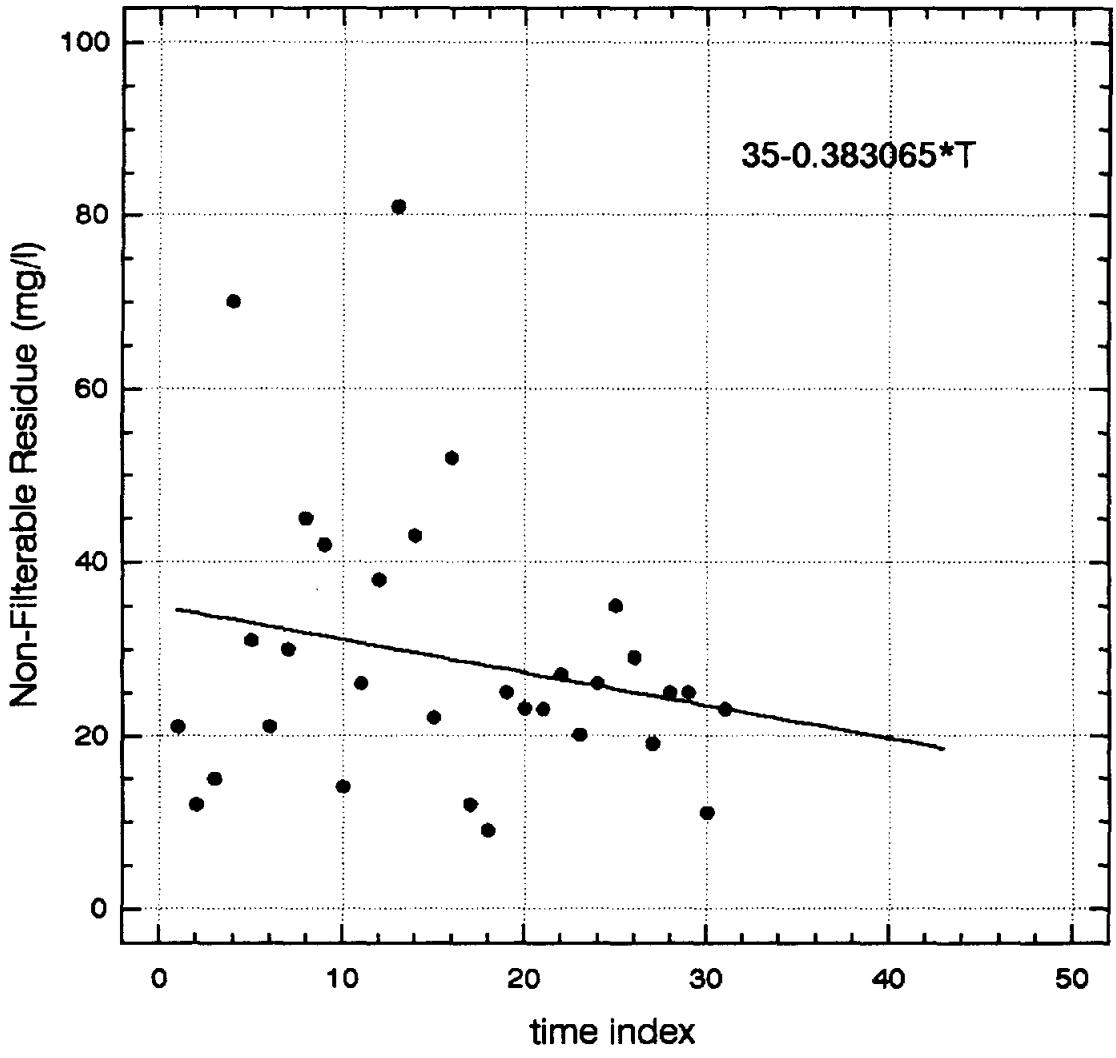
TWC SMN Station 1222.001



Trend Analysis

Non-Filterable Residue

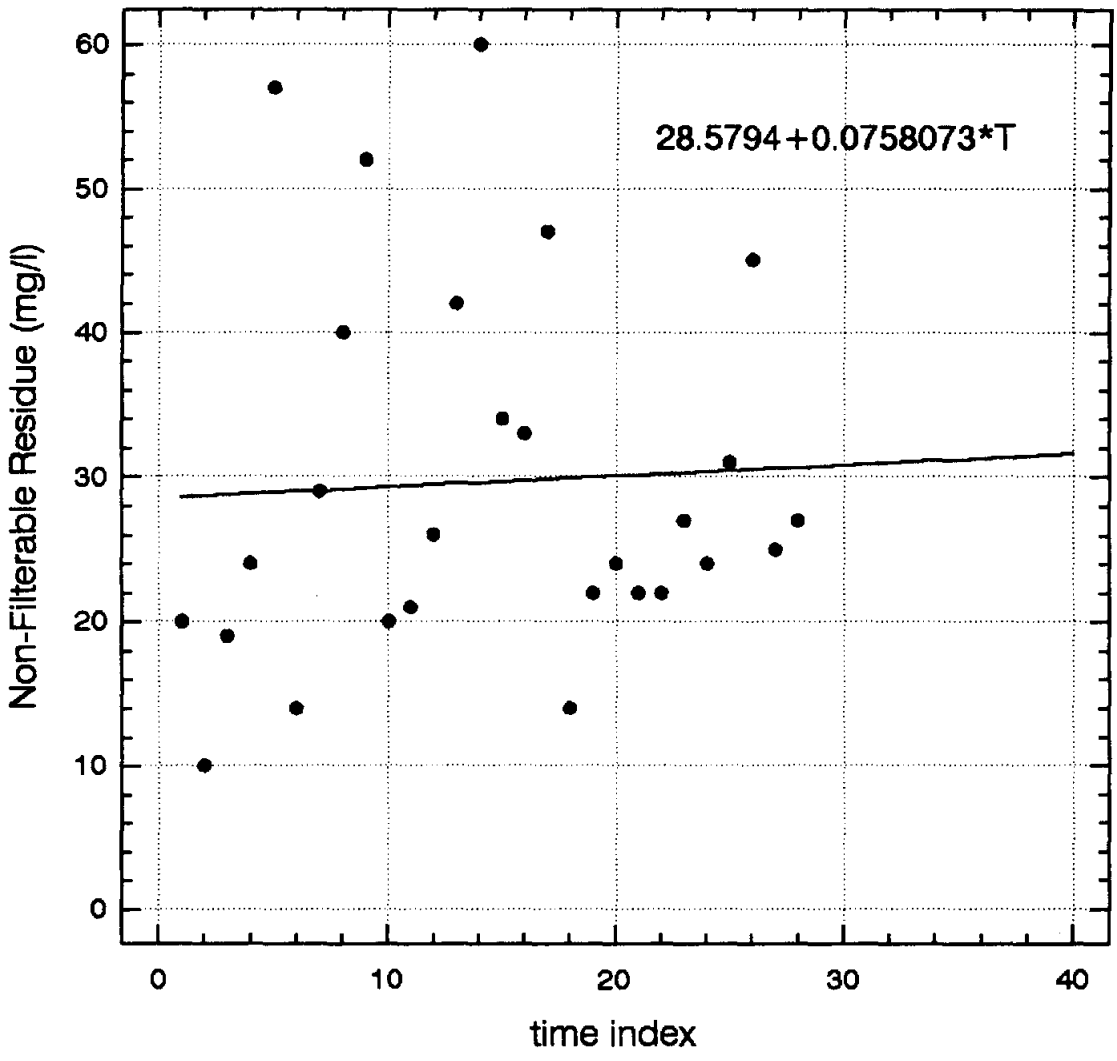
TWC SMN Station 1222.002



Trend Analysis

Non-Filterable Residue

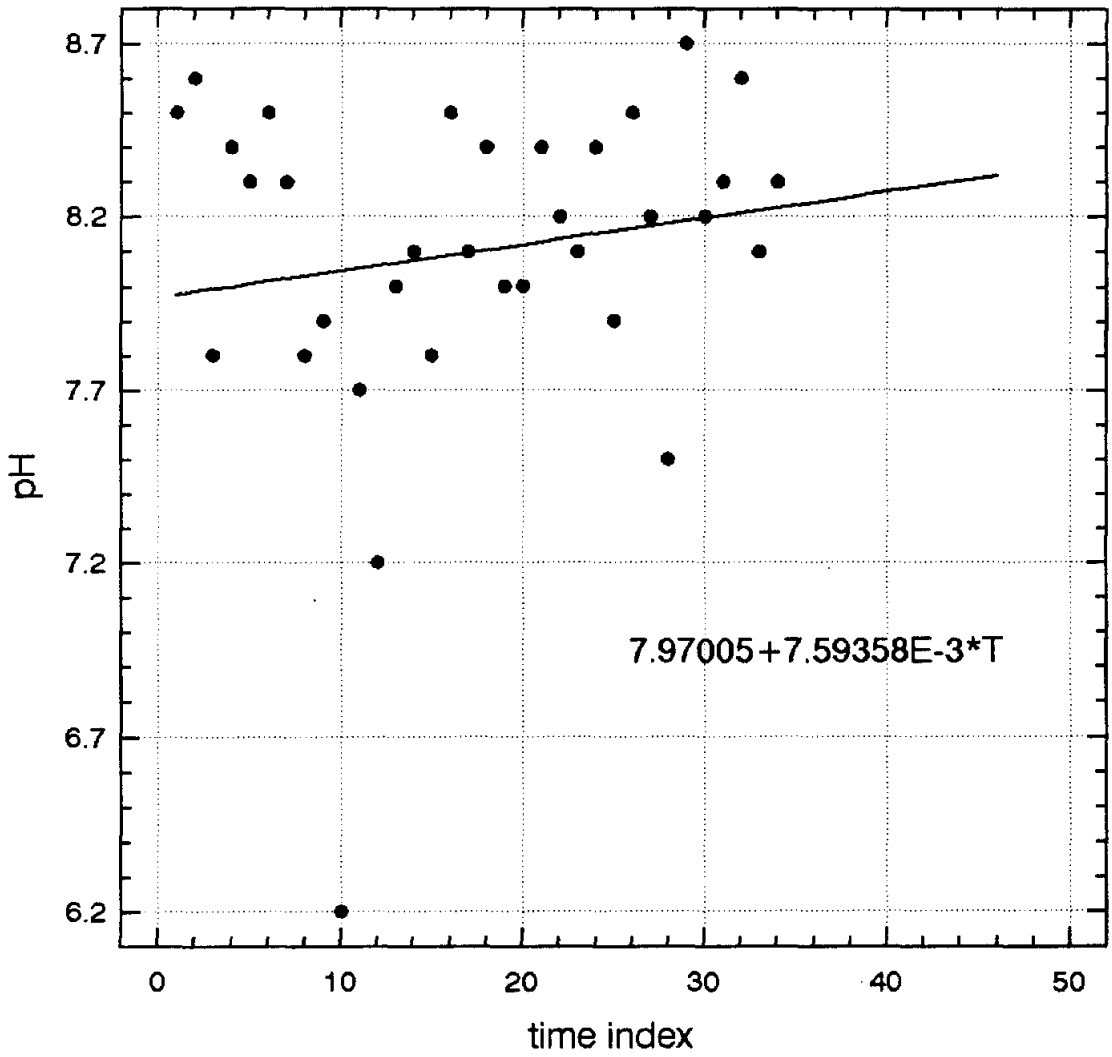
TWC SMN Station 1222.003



Trend Analysis

pH

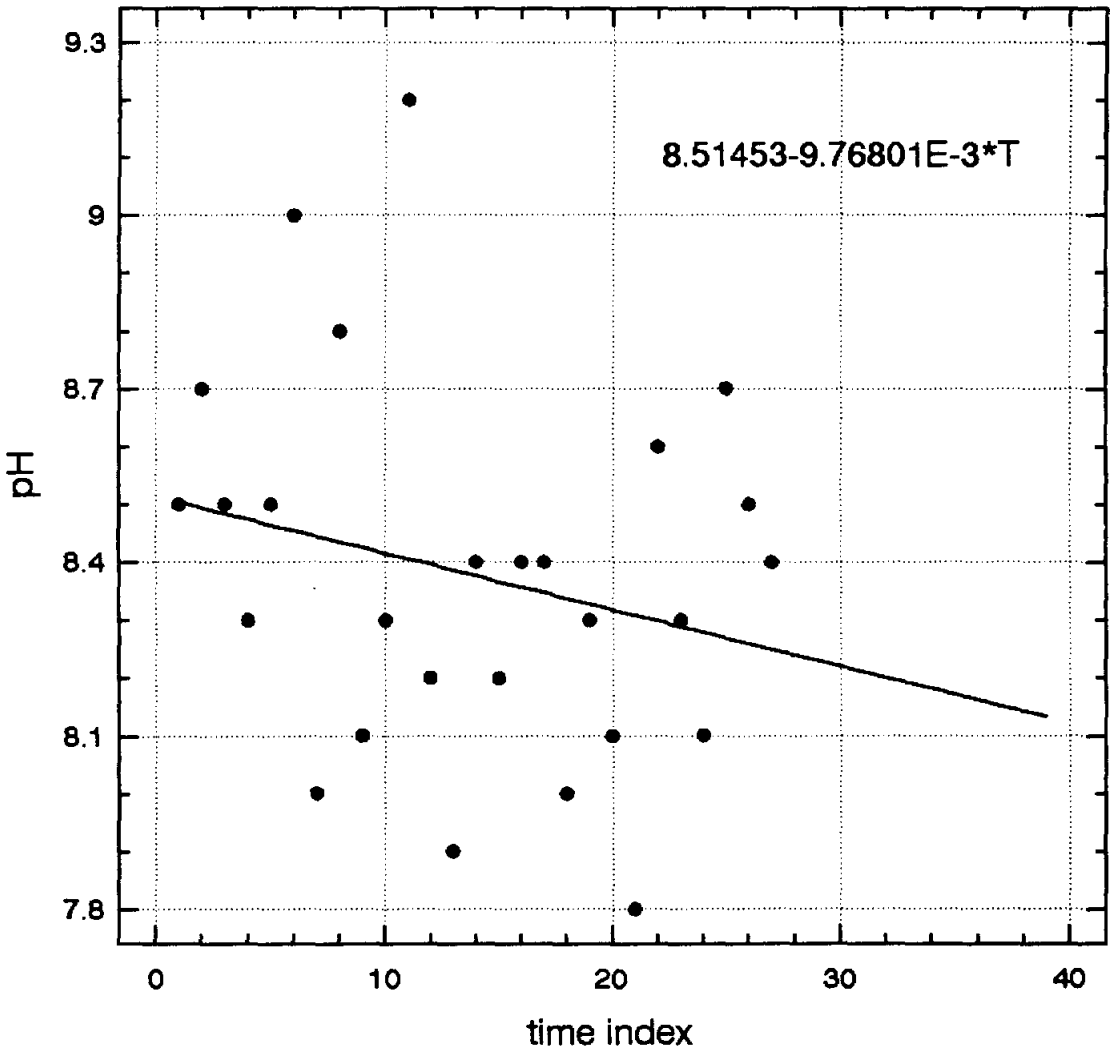
TWC SMN Station 1222.001



Trend Analysis

pH

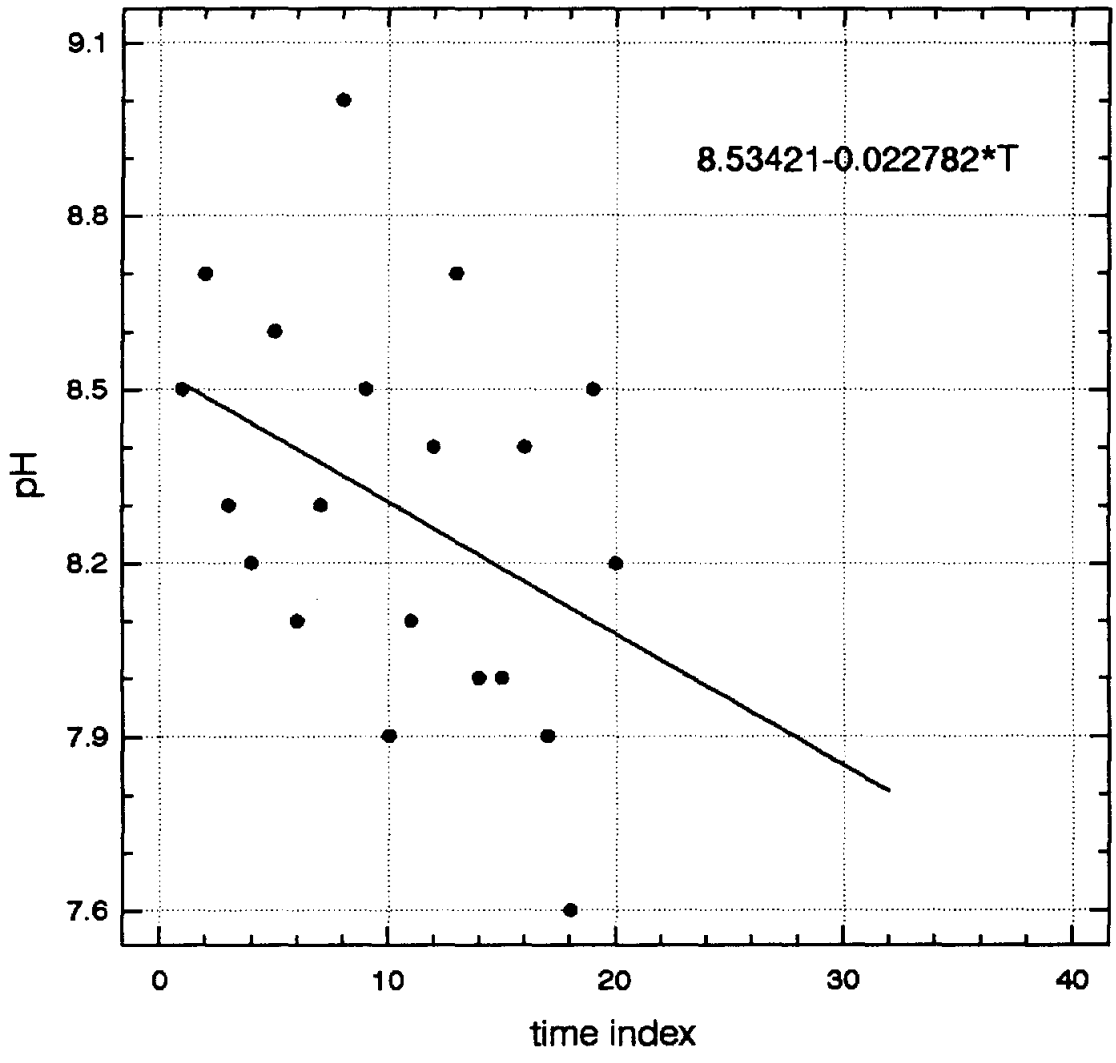
TWC SMN Station 1222.002



Trend Analysis

pH

TWC SMN Station 1222.003



APPENDIX E
TREND ERROR ANALYSIS

Data: DO - 1222.001 Percent: 100

Forecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
8.55+9.84848E-3*T	0.00000	5.41725	1.95606	26.3264	-8.97906

Period 45	Period 46	Period 47	Period 48	Period 49
8.99318	9.00303	9.01288	9.02273	9.03258

Period 50	Period 51	Period 52	Period 53	Period 54
9.04242	9.05227	9.06212	9.07197	9.08182

Period 55	Period 56
9.09167	9.10152

Data: DO - 1222.002 Percent: 100

Forecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
.56316-8.50202E-3*T	0.00000	5.34104	2.06512	23.6828	-6.52129

Period 39	Period 40	Period 41	Period 42	Period 43
9.23158	9.22308	9.21457	9.20607	9.19757

Period 44	Period 45	Period 46	Period 47	Period 48
9.18907	9.18057	9.17206	9.16356	9.15506

Period 49	Period 50
9.14656	9.13806

Data: DO - 1222.003 Percent: 100

Forecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
9.05524+0.028849*T	0.00000	4.98120	1.85628	20.7914	-5.77222

Period 33	Period 34	Period 35	Period 36	Period 37
10.0073	10.0361	10.0650	10.0938	10.1227

Period 38	Period 39	Period 40	Period 41	Period 42
10.1515	10.1804	10.2092	10.2380	10.2669

Period 43	Period 44
10.2957	10.3246

Data: Chlorophyll a - 1222.001 Percent: 100

Forecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
34.8434-0.35371*T	0.00000	330.965	15.1981	173.759	-145.364

Period 34	Period 35	Period 36	Period 37	Period 38
22.8172	22.4635	22.1098	21.7561	21.4024

Period 39	Period 40	Period 41	Period 42	Period 43
21.0487	20.6950	20.3413	19.9876	19.6338

Period 44	Period 45
19.2801	18.9264

Data: Chlorophyll a - 1222.002 Percent: 100

Forecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
29.9365-0.165505*T	0.00000	315.178	13.4543	76.6736	-51.6215

Period 38	Period 39	Period 40	Period 41	Period 42
23.6473	23.4818	23.3163	23.1508	22.9853

Period 43	Period 44	Period 45	Period 46	Period 47
22.8198	22.6543	22.4888	22.3233	22.1578

Period 48	Period 49
21.9922	21.8267

Data: Chlorophyll a - 1222.003 Percent: 100

Forecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
31.7333-0.142857*T	0.00000	236.825	12.6815	69.5527	-43.4200

Period 28	Period 29	Period 30	Period 31	Period 32
27.7333	27.5905	27.4476	27.3048	27.1619

Period 33	Period 34	Period 35	Period 36	Period 37
27.0190	26.8762	26.7333	26.5905	26.4476

Period 38	Period 39
26.3048	26.1619

Data: Phaeophytin - 1222.001 Percent: 100

Forecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
7.99848+0.26049*T	0.00000	25.7755	4.35216	68.0614	-39.7066

Period 13	Period 14	Period 15	Period 16	Period 17
11.3848	11.6453	11.9058	12.1663	12.4268

Period 18	Period 19	Period 20	Period 21	Period 22
12.6873	12.9478	13.2083	13.4688	13.7293

Period 23	Period 24
13.9897	14.2502

Data: Phaeophytin - 1222.002 Percent: 100

Forecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
3.52286+0.457143*T	0.00000	7.57131	2.34133		

Period 16	Period 17	Period 18	Period 19	Period 20
10.8371	11.2943	11.7514	12.2086	12.6657

Period 21	Period 22	Period 23	Period 24	Period 25
13.1229	13.5800	14.0371	14.4943	14.9514

Period 26	Period 27
15.4086	15.8657

Data: Phaeophytin - 1222.003 Percent: 100

Forecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
6.12182-0.117273*T	0.00000	8.90214	2.52562	96.7737	-68.9360

Period 12	Period 13	Period 14	Period 15	Period 16
4.71455	4.59727	4.48000	4.36273	4.24545

Period 17	Period 18	Period 19	Period 20	Period 21
4.12818	4.01091	3.89364	3.77636	3.65909

Period 22	Period 23
3.54182	3.42455

Data: Non-Filterable Residue - 1222.002 Percent: 100

Forecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
12.8874+0.321246*T	0.00000	95.1176	7.72626	59.6397	-34.7605

Period 31	Period 32	Period 33	Period 34	Period 35
22.8460	23.1672	23.4885	23.8097	24.1310

Period 36	Period 37	Period 38	Period 39	Period 40
24.4522	24.7735	25.0947	25.4159	25.7372

Period 41	Period 42
26.0584	26.3797

Data: Non Filterable Residue - 1222.003 Percent: 100

Forecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
28.5794+0.0758073*T	0.00000	162.772	10.2848	40.3132	-19.4032

Period 29	Period 30	Period 31	Period 32	Period 33
30.7778	30.8536	30.9294	31.0052	31.0810

Period 34	Period 35	Period 36	Period 37	Period 38
31.1568	31.2326	31.3084	31.3842	31.4600

Period 39	Period 40
31.5359	31.6117

Data: Total Phosphorous - 1222.001 Percent: 100

Forecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
0.226585+3.38462E-4*T	0.00000	0.01457	0.10373	56.1595	-30.2417

Period 27	Period 28	Period 29	Period 30	Period 31
0.23572	0.23606	0.23640	0.23674	0.23708

Period 32	Period 33	Period 34	Period 35	Period 36
0.23742	0.23775	0.23809	0.23843	0.23877

Period 37	Period 38
0.23911	0.23945

Data: Total Phosphorous - 1222.002 Percent: 100

orecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
0.0464394+7.60695E-3*T	0.00000	0.02815	0.08812	52.0266	-30.8071

Period 34	Period 35	Period 36	Period 37	Period 38
0.30508	0.31268	0.32029	0.32790	0.33550

Period 39	Period 40	Period 41	Period 42	Period 43
0.34311	0.35072	0.35832	0.36593	0.37354

Period 44	Period 45
0.38115	0.38875

Data: TOC - 1222.001 Percent: 100

Forecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
10.0344-0.134087*T	0.00000	15.4601	3.16597	57.4842	-34.1652

Period 25	Period 26	Period 27	Period 28	Period 29
6.68225	6.54816	6.41407	6.27999	6.14590

Period 30	Period 31	Period 32	Period 33	Period 34
6.01181	5.87772	5.74364	5.60955	5.47546

Period 35	Period 36
5.34138	5.20729

Data: TOC - 1222.002 Percent: 100

Forecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
10.1601-0.149478*T	0.00000	9.57929	2.51782	37.4440	-17.4926

Period 25	Period 26	Period 27	Period 28	Period 29
6.42319	6.27371	6.12423	5.97475	5.82528

Period 30	Period 31	Period 32	Period 33	Period 34
5.67580	5.52632	5.37684	5.22736	5.07788

Period 35	Period 36
4.92841	4.77893

Data: TOC - 1222.003 Percent: 10

Forecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
).8486-0.158217*T	0.00000	8.26091	2.40211	33.4881	-14.2377

Period 25	Period 26	Period 27	Period 28	Period 29
6.89312	6.73490	6.57668	6.41846	6.26025

Period 30	Period 31	Period 32	Period 33	Period 34
6.10203	5.94381	5.78559	5.62738	5.46916

Period 35	Period 36
5.31094	5.15272

Data: Secchi Depth - 1222.001 Percent: 100

Forecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
25.8556-0.100993*T	0.00000	49.0987	5.79081	28.1645	-10.2389

Period 35	Period 36	Period 37	Period 38	Period 39
22.3209	22.2199	22.1189	22.0179	21.9169

Period 40	Period 41	Period 42	Period 43	Period 44
21.8159	21.7149	21.6139	21.5129	21.4119

Period 45	Period 46
21.3109	21.2099

Data: Secchi Depth - 1222.002 Percent: 100

Forecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
16.9242-0.0882353*T	0.00000	44.6899	4.87965	40.0121	-21.1119

Period 34	Period 35	Period 36	Period 37	Period 38
13.9242	13.8360	13.7478	13.6595	13.5713

Period 39	Period 40	Period 41	Period 42	Period 43
13.4831	13.3948	13.3066	13.2184	13.1301

Period 44	Period 45
13.0419	12.9537

Data: Secchi Depth - 1222.002 Percent: 100

Forecast summary	M.E.	M.S.E.	M.A.E.	M.A.P.E.	M.P.E.
16.9242-0.0882353*T	0.00000	44.6899	4.87965	40.0121	-21.1119

Period 34	Period 35	Period 36	Period 37	Period 38
13.9242	13.8360	13.7478	13.6595	13.5713

Period 39	Period 40	Period 41	Period 42	Period 43
13.4831	13.3948	13.3066	13.2184	13.1301

Period 44	Period 45
13.0419	12.9537