

# Mid Cibolo Creek (Segment 1913) TMDL for Dissolved Oxygen Summary Outline – May 15, 2007

## I. Introduction

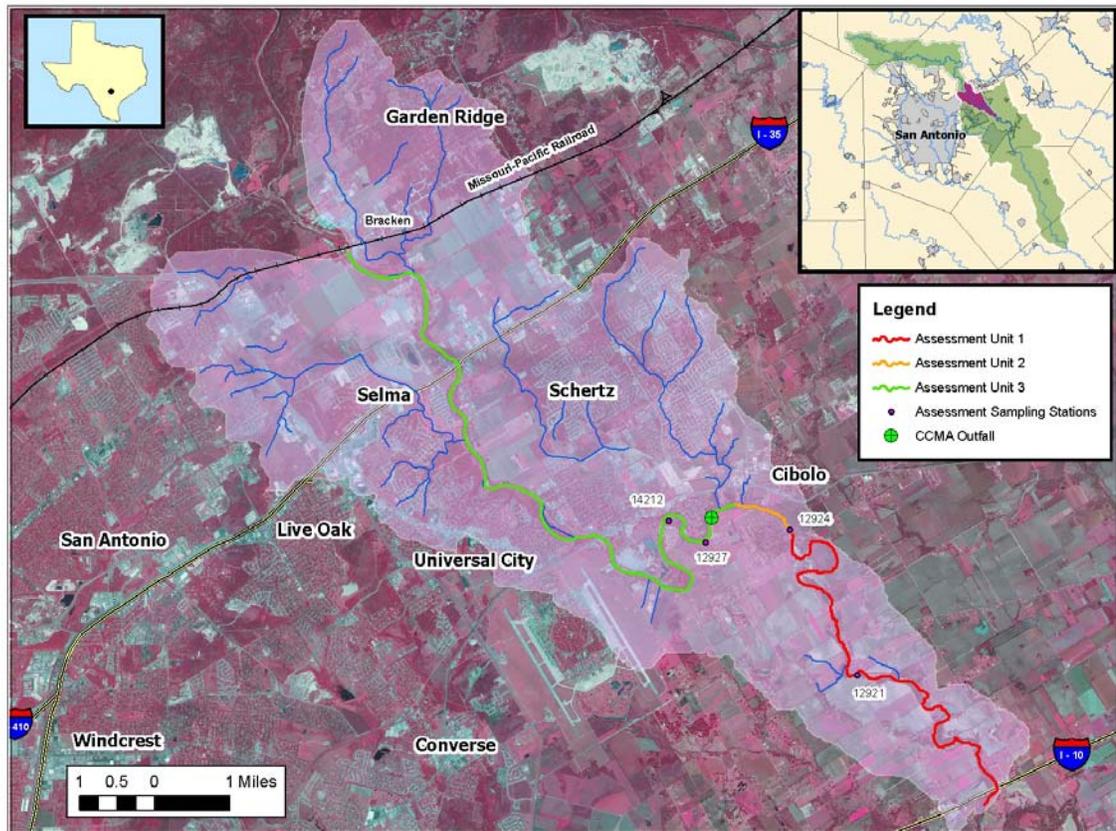
- The goal of this project is to determine allowable loadings of carbonaceous biochemical oxygen demand (CBOD) and total ammonia that will enable Mid Cibolo Creek to meet its limited aquatic life use.
- The commission approved the release of *One Total Maximum Daily Load for Dissolved Oxygen in Mid Cibolo Creek, Segment 1913*, for public comment at the March 7, 2007, commission agenda. The public comment period was held from March 30, to April 30, 2007. A public comment meeting was held in Cibolo on April 11, 2007. One local resident made oral comments. Written comments were received from the Cibolo Creek Municipal Authority and EPA Region 6. The TMDL document has been revised in response to public comment.

## II. Background Information

- Mid Cibolo Creek (Figure 1) is a freshwater stream located in the San Antonio River Basin, northeast of San Antonio, Texas, in Guadalupe, Comal and Bexar Counties. It is approximately 19 miles long and has a watershed area of 46 square miles.
- The segment extends from a point 100 meters downstream of Interstate Highway 10 in Bexar/Guadalupe County to the Missouri-Pacific Railroad Bridge west of Bracken in Comal County.
- Land use in the area is primarily pasture land and forest; although historically, it was primarily agricultural. However, land use is changing due to residential development associated with the growth of San Antonio.

## III. Problem Definition

- This segment was initially included on the 1999 303(d) List as partially supporting the aquatic life use due to depressed dissolved oxygen levels in the stream. A subsequent project, initiated in 2001 to collect additional data, verified the extent and magnitude of the impairment.
- The Cibolo Creek Municipal Authority (CCMA) currently operates the only wastewater treatment plant which discharges to the segment. Based upon self reporting data, concentrations of total ammonia and CBOD exceed limits established in the existing TPDES permit.
- A TMDL project was initiated to quantify appropriate reductions of CBOD and ammonia necessary to comply with established water quality standards.



**Figure 1. Mid Cibolo Creek Watershed**

#### **IV. Endpoint Identification**

- The primary endpoint for this TMDL will be based on the daily average effluent limits for CBOD (10 mg/L) and total ammonia (3 mg/L) established in the current TPDES permit for the CCMA.

#### **V. Source Analysis**

- CBOD and total ammonia may come from both point and nonpoint sources.
- The primary source of excess CBOD and ammonia arise from the noncompliance of the CCMA discharge (load).

**VI. Linkage**

- Historical data collected in Mid Cibolo Creek dating back to the 1970s indicate that levels of dissolved oxygen are depressed in response to drought conditions which have occurred periodically.
- To better understand the extent and magnitude of the problem, additional sampling was conducted from 2002-2004 at several stations throughout the watershed. Collection of diurnal dissolved oxygen data indicated levels below the minimum criteria in the mid section of the watershed below the treatment plant.

**VII. Allocations**

- Load allocations were calculated using the following equation:

$$TMDL = \sum WLA + \sum LA$$

Where

WLA = wasteload allocation (point source contributions);

LA = load allocation (nonpoint source contributions); and

- Table 1 below summarizes the load allocations for Mid Cibolo Creek.

Table 1. TMDL Allocation Summary for Mid Cibolo Creek CBOD and ammonia

	<b>CBOD (lbs/day)</b>
Existing Loading	1672.9
Allowable Loading	1595.3
Waste Load Allocation	595.0
Waste Load Allocation MS4	635.5
Load Allocation	442.4
	<b>Total Ammonia (lbs/day)</b>
Existing Loading	603.1
Allowable Loading	181.5
Waste Load Allocation	155.2
Waste Load Allocation MS4	15.5
Load Allocation	10.8

**VIII. Margin of Safety**

- This TMDL utilizes an implicit margin of safety through the use of conservative estimates in the QUAL-TX model when deriving dissolved oxygen levels based on background concentrations and inputs from the CCMA plant.

## IX. TMDL

$$\text{TMDL} = \sum \text{WLA} + \sum \text{LA}$$

$$\text{TMDL CBOD} = 1152.9 \text{ lbs/day} + 442.4 \text{ lbs/day} = 1595.3 \text{ lbs/day}$$

$$\text{TMDL Total Ammonia} = 170.7 \text{ lbs/day} + 10.8 \text{ lbs/day} = 181.5 \text{ lbs/day}$$

In order to meet the TMDL, reductions of **13 and 73 percent** are required for CBOD and total ammonia respectively.

## XII. Implementation Strategies

- The TCEQ enforces the Agreed Order (Docket No. 2001-0896-MWD-E) to ensure that CCMWA completes the upgrades to the plant and complies with existing permit limits. TCEQ has recently extended the deadline for compliance with the Agreed Order until June 2007.
- Periodic and repeated evaluations of the effectiveness of plant upgrades to assure that progress is occurring. This adaptive approach should include review of self reporting data to assess permit compliance. This should provide reasonable assurance that the necessary regulatory activities to achieve the pollutant reductions will be implemented.
- Continued collection of dissolved oxygen data for several years at several points below the discharge should confirm that the stream is meeting water quality standards.

**Response to Public Comment**  
**TMDL for Dissolved Oxygen in Segment 1913 - Mid Cibolo Creek**  
 May 15, 2007

Tracking Number	Date Received	Affiliation of Commentor	Summary of Request or Comment	Summary of TCEQ Action or Explanation
001	4/30/2007	Consultant for CCMA	Runoff loads are not relevant to this TMDL. Segment 1913 was placed on the 303d list because the minimum dissolved oxygen (DO) criterion was not satisfied during low-flow conditions, while the average DO criterion was fully satisfied. Although calculation of runoff loads may be required, the allocation discussion should clearly state that this is a low-flow issue, and no reduction of runoff loads (MS4 or NPS) is required, Including these loads arbitrarily establishes an allowable load for these sources without identifying a cause and effect relationship or linkage between the water quality problem and the source analysis.	A sentence was added to the first paragraph of the “Pollutant Load Allocation” section which states that this is a low flow issue and reductions in runoff loads will not be necessary under this TMDL.
002	4/30/2007	Consultant for CCMA	The stream will have a greater assimilative capacity as the low-flow volume increases over time. The TMDL should be developed with at least two values or limits identified as endpoints for this TMDL: a. One TMDL establishing limits for carbonaceous biochemical oxygen demand (CBOD) and ammonia nitrogen (NH3-N) corresponding to the limits in the existing CCMA TPDES permit, and b. A second TMDL establishing limits for CBOD and NH3-N for a future permit condition, based on QUAL-TX model results that demonstrate attainment of the average and minimum DO criteria using projected 2017 loads. This approach will provide the needed MOS due to	The TMDL can only establish one maximum load based upon the approved values or limits in place at the time. The QUAL-TX model will provide results and limits based upon the most recently approved limits as inputs, and any future site specific conditions provided by CCMA. CCMA’s allowance for growth may be managed by more stringent effluent limits in the future according to the QUAL-TX output.

			both the conservatism of the QUAL-TX model and the projection of future growth.	
002	4/30/2007	Consultant for CCMA	The permitted wastewater discharger to segment 1913 is the Cibolo Creek Municipal Authority (CCMA) not the Cibolo Creek Municipal Water Authority (CCMWA) as identified in the Draft.	All instances of CCMWA have been changed to CCMA
003	4/30/2007	Consultant for CCMA	CBOD traditionally represents carbonaceous biochemical oxygen demand not carbonaceous biological oxygen demand as defined on page 1 of the Draft.	This has been changed
004	4/30/2007	Consultant for CCMA	Documentation is not provided that establishes a linkage between nutrients and depressed DO levels; therefore, it is inappropriate to identify nutrients as an issue in the second paragraph of the Executive Summary.	The reference to excessive nutrients has been removed from this paragraph.
005	4/30/2007	Consultant for CCMA	In paragraph 3 of the Executive Summary it is inappropriate to characterize the single point source as "most likely responsible." The objective of the TMDL is to identify a linkage between water quality problems and sources, so it is more appropriate to characterize the single point source as "the most likely source of load that contributes to the impairment."	This change has been made to paragraph 3.
006	4/30/2007	Consultant for CCMA	The USEPA (1991) document entitled <i>Guidance for Water Quality-Based Decisions: The TMDL Process</i> is referenced in the third paragraph of page 2. This document outlines the following steps for "TMDL Development Activities." <ul style="list-style-type: none"> <li>• Selection of the pollutant to consider.</li> <li>• Estimation of the waterbody assimilative capacity.</li> <li>• Estimation of the pollution from all sources to the waterbody.</li> </ul>	Changes made as per comment 001 address this comment.

			<ul style="list-style-type: none"> <li>• Predictive analysis of pollution in the waterbody and determination of total allowable pollution load.</li> <li>• Allocation (with a margin of safety) of the allowable pollution among the different</li> <li>• Pollution sources in a manner that water quality standards are achieved.</li> </ul> <p>The second step of this process is the basis for the first General Comment identified above.</p>	
007	4/30/207	Consultant for CCMA	The information presented in Table 2, associated text, and Figures 4a, 4b, and 4c do not correspond.	Table 2 only represents instantaneous grab samples used in the 2004 305b Assessment while Figures 4a, 4b, and 4c represent 24-hour average data collected during impairment verification monitoring activities. The descriptions for Figures 4a, 4b and 4c have been changed to better describe this.
008	4/30/207	Consultant for CCMA	In the first paragraph of page 8 it is conjectured that increased pollutant loadings have resulted from water conservation efforts. There is no supporting information provided to substantiate this statement. The increased loading could result from reduced infiltration and inflow from pipe system improvements, drought conditions, increased individual loads in the system, water conservation, or other factors.	The statement concerning increased water conservation measures and pollutant loadings has been removed from the document.
009	4/30/207	Consultant for CCMA	In the first paragraph of page 8 the report <i>Troubled Waters: An Analysis of CleanWater Act Compliance, July 2003-December 2004</i> (ETRPC 2006) is referenced. This report is based on information contained in TCEQ files. As such, it does not provide additional data or information that is relevant to the completion of this TMDL, reference to this document should be deleted from	References to the ETRPC report have been removed from the document and replaced with citations to the compliance record as Attachment 1.

			the report. If the intent of this reference is to demonstrate that CCMA has been out of compliance with their permit, then it would be more correct to cite the compliance history directly from the TCEQ records before moving to the next sentence which states "CCMA is currently under enforcement by the TGEQ and is in the process of upgrading the facility."	
010	4/30/207	Consultant for CCMA	Figures 5a and 5b on page 9 misrepresent "maximum" values, and do not reflect permit limits for maximum values. The data presented are a mixture of daily maximum values and monthly averages. If the intent of this figure is to depict an increase in CBOD and NH3-N discharges over time relative to the monthly average permit limits, then only the monthly averages should be shown.	The monthly maximum values have been removed from these figures to more appropriately characterize exceedances.
011	4/30/207	Consultant for CCMA	The nonpoint source component is described as "Load Allocation" on pages 10 and 11, but it is critical to note that these sources of load are not present when the minimum DO criterion is not satisfied during low-flow.	No changes have been made to the document based on this comment.
012	4/30/207	Consultant for CCMA	The flow and load values used for point source are inappropriate. Values used for both components of the calculation should be from the 2003-2004 period when non-compliant instream data were collected. This inconsistency affects conclusions shown on Tables 4 and 5, and Figure 6.	No changes have been made to the document based on this comment. The use of flows and concentrations from a longer time period are necessary to fully characterize the exceedances from the CCMA plant. Use of this restricted time period could underestimate load reductions which would fail to achieve TMDL endpoints.
013	4/30/207	Consultant for CCMA	It is inappropriate to incorporate a runoff component, which is identified as "Non-Continuous WLA" on page 11 into the low-flow waste load allocation. Even though the MS4 is a permitted	No changes have been made to the document based on this comment. The MS4 must be included as part of the WLA as per EPA requirements: "NPDES-regulated storm water

			discharge, it does not contribute flow during the conditions when the minimum DO criterion is exceeded.	discharges must be addressed by the wasteload allocation component of a TMDL. See 40 C.F.R. § 130.2(h).” <a href="http://www.epa.gov/npdes/pubs/final-wwtmdl.pdf">http://www.epa.gov/npdes/pubs/final-wwtmdl.pdf</a>
014	4/30/207	Consultant for CCMA	The allowance for future growth (AFG) as shown on page 14 is not needed if the low-flow conditions and assimilative capacity are properly characterized, because of the conservative nature of the QUAL-TX model.	The AFG has been removed based on this comment. The limits characterized by the QUAL-TX model provide a conservative characterization of the low flow conditions and is therefore not necessary in these calculations. Requests for additional loadings will require further evaluations using the model.
015	4/30/207	Consultant for CCMA	In the "Total Loads" section on page 12 it is important to distinguish between low flow and high flow loads.	No changes have been made to the document based on this comment. The high and low flow loads are distinguished in the previous “Nonpoint Source (Load Allocation)” section.
016	4/30/207	Consultant for CCMA	In the discussion of the "Margin of Safety" on page 13, a 7.1 percent population growth estimate is said to be included, based on the 2004 Texas State Data Center predictions. Due to factors such as the development of State Hwy 130 and growth in the IH-35/SH130 corridor the 2004 growth estimates may not be accurate. A more appropriate growth estimate should be used to develop the expected future wastewater flows, with QUAL-TX used to estimate the assimilative capacity of the stream under these flow/load conditions.	Since the AFG has been removed from this document it is no longer necessary to estimate population growth. However, the TCEQ would be interested in adding another growth estimate if it is provided.
017	4/30/207	Consultant for CCMA	The QUAL-TX model as presented in this report does not predict daily minimum DO concentrations, but daily averages. (p. 15).	The TCEQ agrees with this comment. The last sentence in the first paragraph on page 15 has been changed to: “...Although not predicted by the QUAL-TX model, these reductions should also have a similar effect on the minimum 24-

				hour dissolved oxygen concentrations.”
018	4/30/2007	Consultant for CCMA	<p>On page 15 an explanation is given as to why the model predicts DO violations, even though none occurred. The conjecture is that QUAL-TX is a steady state model that does not account for DO dynamics that result from eutrophication caused by excess nutrients. It has not been demonstrated that there are excessive nutrients, and it is inappropriate to state that eutrophication is the cause of the oxygen dynamics when this has not been proven. The difference in the modeled and measured DO values may be due to:</p> <ul style="list-style-type: none"> <li>a. Use of wrong flow quality values,</li> <li>b. The conservative nature of the QUAL-TX model, or</li> <li>c. Inappropriate assumptions with respect to the terms applied in the model.</li> </ul>	The second paragraph on page 15 has been changed to accommodate this comment.
019	4/11/2007	Stakeholder email	<p>"Land use in the area is primarily pasture and forest, ... . However, land use is changing due to residential development ..."</p> <p>I think that an analysis of the present conditions removes "forest" from the second ranking. Figure 2 (Land Use) identifies the areas that were forests as "Natural" however studying recent aerial photographs show most of these zones to be almost completely populated with residential communities. I believe that the present conditions will support whatever classification is used for mixed suburban and urban usage as the second leading land use category.</p>	<p>No changes have been made to the document based on this comment.</p> <p>The most recent data available for landuse determinations was developed in the early to mid 1990s. As a result some of these classifications will not represent current conditions. The development of quantifiable data to adequately define land use classifications for the entire watershed would be time consuming and costly. The statement, “..However, land use is changing due to residential development...” attempts to address the lack of recent data.</p>
020	4/11/2007	Stakeholder email	"The upper portion of Mid Cibolo Creek is included in the Edwards Aquifer recharge zone; ..." Maps	The following change has been made to the last sentence of the 2 <sup>nd</sup> paragraph in the Problem

			from the TCEQ website as well as other websites about the Edwards Aquifer have the recharge zone ending about a half mile further upstream. In fact the upper-most mile of Mid Cibolo Creek (segment 1913) seems to mark the boundary between the Edwards Aquifer transition zone and the portion of Texas having no connection to the aquifer (frequently called the coastal plains).	Definition section. The upper portion of Cibolo Creek (this represents stream segment 1908 – Upper Cibolo Creek) is included in the Edwards Aquifer recharge and contributing zones; as a result, there is typically little to no flow into the headwaters of Mid Cibolo Creek under normal conditions.
021	4/11/2007	Stakeholder email	Some illustrations of segment 1913 (such as Figure 2) have its downstream limit about a half mile upstream of IH10, while other illustrations (such as Figure 1) show the limit to be downstream of IH10. Written descriptions of the segment support the location of the limit to be downstream of IH10.	Figure 2 has been changed to match the description of the segment extending to the area below IH10.



For Adoption, July 2007

# One Total Maximum Daily Load for Dissolved Oxygen in Mid Cibolo Creek

Segment Number 1913

Prepared by the:  
Chief Engineer's Office, Water Programs, TMDL Section

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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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# One Total Maximum Daily Load for Dissolved Oxygen in Mid Cibolo Creek

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## Executive Summary

This document describes the total maximum daily load (TMDL) required to address low levels of dissolved oxygen in Mid Cibolo Creek (Segment 1913). Mid Cibolo Creek is located northeast of the city of San Antonio in south-central Texas. The segment begins immediately downstream of Interstate 10 (IH-10) and ends at the Missouri-Pacific Railroad Bridge west of Bracken in Comal County. However, only a small reach of Segment 1913 is impaired—an area located above Schaefer Road in the city of Cibolo—for its designated use for limited support of aquatic life. This use was first identified as impaired in the *State of Texas 1999 Clean Water Act Section 303(d) List* (TCEQ 1999).

The goal for this TMDL is to determine the allowable loading the stream can receive that will still allow support of the aquatic life use. Attainment of the aquatic life use is evaluated by the assessment of dissolved oxygen levels. Although not considered a pollutant, low concentrations of dissolved oxygen may indicate excessive loadings of certain pollutants. Levels of dissolved oxygen are occasionally depressed in Mid Cibolo Creek, probably due to the presence of oxygen-demanding substances originating from sources within the watershed.

In 2001, the Texas Commission on Environmental Quality (TCEQ) initiated an investigation to verify the extent of the use impairment. Field investigations revealed that levels of dissolved oxygen fall below the minimum criterion during low flow periods (critical conditions). Additional analysis identified a single point source that does not comply with existing permit limits as the most likely source of load that contributes to the impairment.

Based on the load allocation analysis, a TMDL to meet the standards for the limited aquatic life use requires:

- 13 percent reduction of loading of carbonaceous biochemical oxygen demand (CBOD), and
- 73 percent reduction of loading of ammonia-nitrogen (NH<sub>3</sub>-N).

## Introduction

Section 303(d) of the Clean Water Act requires all states to identify waters that do not meet, or are not expected to meet, applicable water quality standards. States must develop a TMDL for each pollutant that contributes to the impairment of a listed water body. The TCEQ is responsible for ensuring that TMDLs are developed for impaired surface waters in Texas.

In simple terms, a TMDL is like a budget that determines the amount of a particular pollutant that a water body can receive and still meet its applicable water quality standards. In other words, TMDLs are the best possible estimates of the assimilative capacity of the water body for a pollutant under consideration. A TMDL is commonly expressed as a load with units of mass per period of time, but may be expressed in other ways. TMDLs must also estimate how much the pollutant load must be reduced from current levels in order to achieve water quality standards.

This TMDL will address impairments to the limited aquatic life use due to low dissolved oxygen concentrations in Mid Cibolo Creek, Segment 1913. The TMDL Program is a major component of Texas' overall process for managing surface water quality. The Program addresses impaired or threatened streams, reservoirs, lakes, bays, and estuaries (water bodies) in, or bordering on, the state of Texas. The primary objective of the TMDL Program is to restore and maintain the beneficial uses—such as drinking water supply, recreation, support of aquatic life, or fishing—of impaired or threatened water bodies.

Section 303(d) of the Clean Water Act and the implementing regulations of the U.S. Environmental Protection Agency (EPA) in Title 40, Code of Federal Regulations, Part 130 (40 CFR 130) describe the statutory and regulatory requirements for acceptable TMDLs. The EPA provides further direction in its *Guidance for Water Quality-Based Decisions: The TMDL Process* (USEPA 1991). This TMDL document has been prepared in accordance with those regulations and guidelines.

The TCEQ must consider certain elements in developing a TMDL; they are described in the following sections:

- Problem Definition
- Endpoint Identification
- Source Analysis
- Linkage Analysis
- Seasonal Variation
- Margin of Safety
- Pollutant Load Allocation
- Public Participation
- Implementation and Reasonable Assurance

The commission adopted this document on **Month, Day, Year**. Upon EPA approval, this TMDL will become an update to the state's Water Quality Management Plan.

## Problem Definition

Mid Cibolo Creek is a third order, freshwater stream situated in the San Antonio River Basin. It originates west of Boerne and flows to the San Antonio River southeast of the city of San Antonio. Mid Cibolo Creek is 19 miles long, with a 46-square-mile watershed. It extends from a point 100 meters downstream of IH-10, at the border between Bexar and Guadalupe counties, to the Missouri-Pacific Railroad Bridge west of Bracken in Comal County (Figure 1).

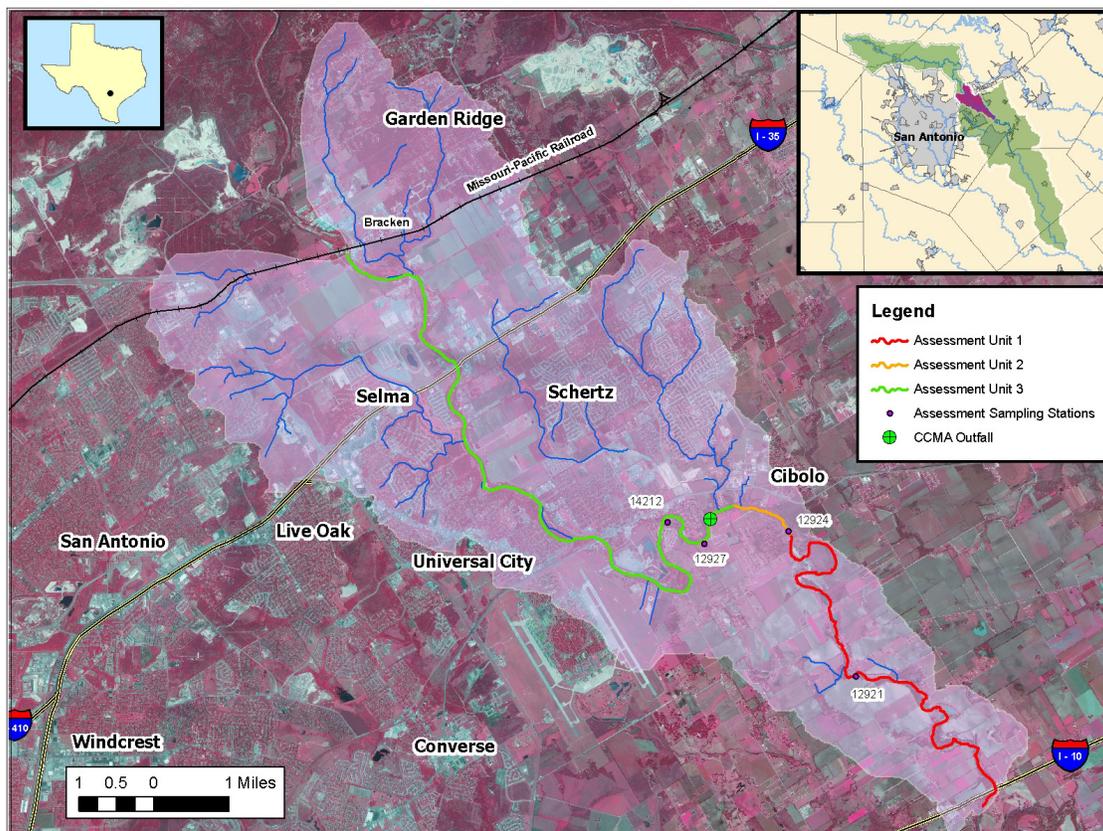


Figure 1. Project Watershed

Land use in the area is primarily pasture and forest, although historically, it was primarily agricultural. However, land use is changing due to residential development associated with the growth of San Antonio (Figure 2). Upper Cibolo Creek, Segment 1908, is immediately upstream of Mid Cibolo Creek and is included in the Edwards Aquifer recharge and contributing zones; as a result, there is typically little to no flow from the headwaters into Mid Cibolo Creek under normal conditions.

Mid Cibolo Creek is designated for contact recreation, limited aquatic life use, and public water supply in Appendix A of the *Texas Surface Water Quality Standards* (TCEQ 2000). The criteria for assessing the limited aquatic life use are based on dissolved oxygen concentrations, rather than direct measurements of oxygen-demanding substances such as CBOD and ammonia-nitrogen.

The designation of Mid Cibolo Creek for the limited aquatic life use was based on the presence of tolerant (non-sensitive) biological communities that are adapted to low flows associated with the extreme weather conditions in this portion of Texas. Dissolved oxygen criteria for the limited aquatic life use are presented in Table 1.

This segment was initially included on the 1999 303(d) List as partially supporting the aquatic life use due to depressed dissolved oxygen levels in the stream. The results for the most recent *Texas Water Quality Inventory and 303(d) List* (TCEQ 2004) are included in

Table 2. The table also identifies assessment units, which are hydrologically similar portions of the segment; the assessment units are also delineated in Figure 1.

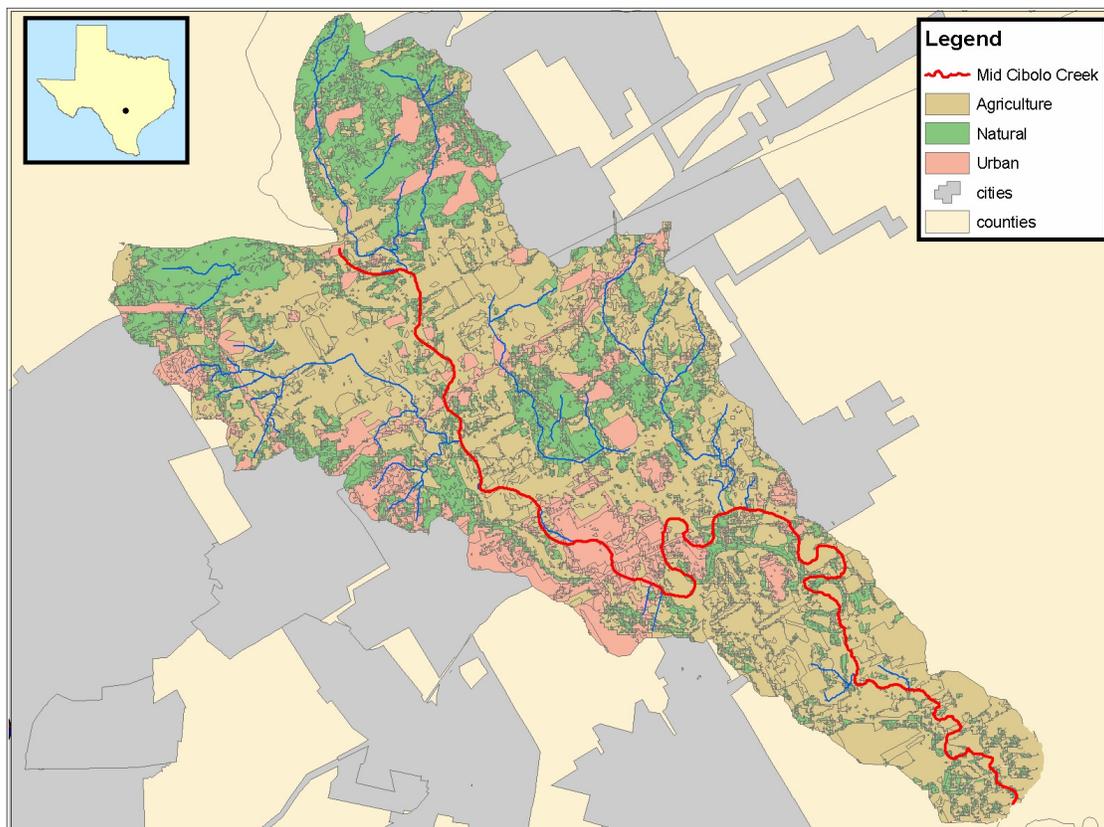


Figure 2. Land Use

Table 1: Criteria for Attainment of the Limited Aquatic Life Use

Use	Dissolved Oxygen Criteria	
	Daily Minimum (mg/L)	24-hour Average (mg/L)
Limited Aquatic Life	2.0	3.0

The conclusion that Mid Cibolo Creek was impaired in 1999 was based on the comparison of individual grab samples, which are ordinarily taken only once on any particular day that the TCEQ collects samples, to the 24-hour average criterion of 3 milligrams per liter (mg/L) of dissolved oxygen. Historically, dissolved oxygen levels in Mid Cibolo Creek have been highly variable due to the extreme weather conditions experienced in this region of Texas. Consequently, individual grab samples could not accurately predict 24-hour average concentrations, though at the time, collection of adequate data from which to compile a 24-hour average concentration was not very practical.

Table 2: 2004 Water Quality Assessment

<b>Assessment Unit</b>	<b>Description</b>	<b>Assessment Method</b>	<b>Number of Samples</b>	<b>Exceedances</b>
1913_01	Lower 7 miles of segment from IH 10 to Bexar CR 320	Dissolved oxygen grab average	32	0
1913_02	From Schaefer Road (Bexar CR 320) to approx. 0.10 miles upstream of Buffalo Ln in Cibolo	Dissolved oxygen grab average	10	0
1913_03	From approx. 0.10 mi. upstream of Buffalo Ln in Cibolo to upper end of segment	Dissolved oxygen grab average	22	4
1913_01	Lower 7 miles of segment from IH 10 to Bexar CR 320	Dissolved oxygen grab minimum	32	0
1913_02	From Schaefer Road (Bexar CR 320) to approx. 0.10 miles upstream of Buffalo Ln in Cibolo	Dissolved oxygen grab minimum	10	0
1913_03	From approx. 0.10 mi. upstream of Buffalo Ln in Cibolo to upper end of segment	Dissolved oxygen grab minimum	22	2

The TMDL Program retrieved and analyzed the data used in 1999 to determine that Mid Cibolo Creek was impaired from the TCEQ’s ambient monitoring database, called TRACS. Figure 3 shows dissolved oxygen grab samples collected throughout the Mid Cibolo segment from 1968 through 2001. Drought conditions and corresponding low-flow conditions in the mid 1980s and 1990s contributed to low levels of dissolved oxygen in the stream.

In recent years, new methods of measuring instream water quality have allowed for more in-depth assessment, particularly for evaluation aquatic life uses. Data loggers may be deployed instream and monitored remotely, which offers the capability to continuously monitor water quality over a specified time period. This, in turn, makes it both practical and possible to calculate the average and minimum values observed for dissolved oxygen in a water body.

The 2002 *Guidance for Assessing Texas Surface and Finished Drinking Water Quality Data* (TCEQ 2002) requires the use of 24-hour average and minimum dissolved oxygen values for making decisions about attainment of the aquatic life use. TMDL project staff deployed data loggers to collect conventional and chemical water quality data to assess current conditions for the attainment of the aquatic life use in Mid Cibolo Creek. Biological data were also collected. The dissolved oxygen data collected for each of the assessment units is presented in Figures 4a, 4b, and 4c.

One TMDL for Mid Cibolo Creek, Segment 1913

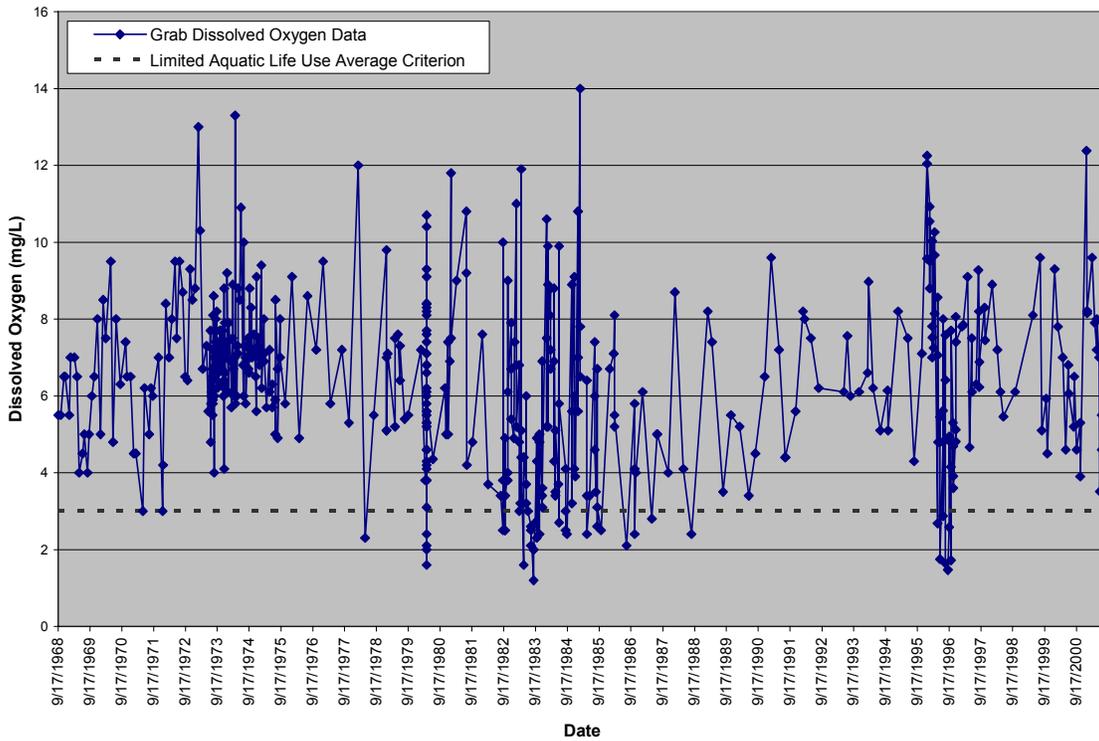


Figure 3. Historical Dissolved Oxygen Data

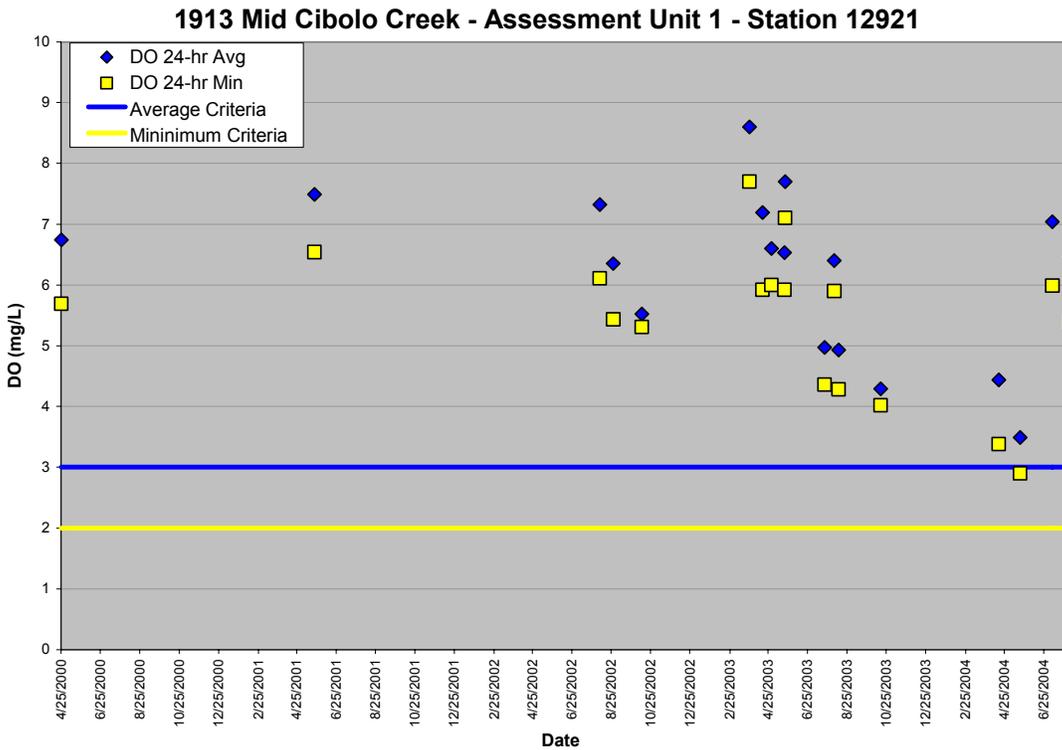


Figure 4a. Assessment Unit 1 – 24-hour Dissolved Oxygen Data

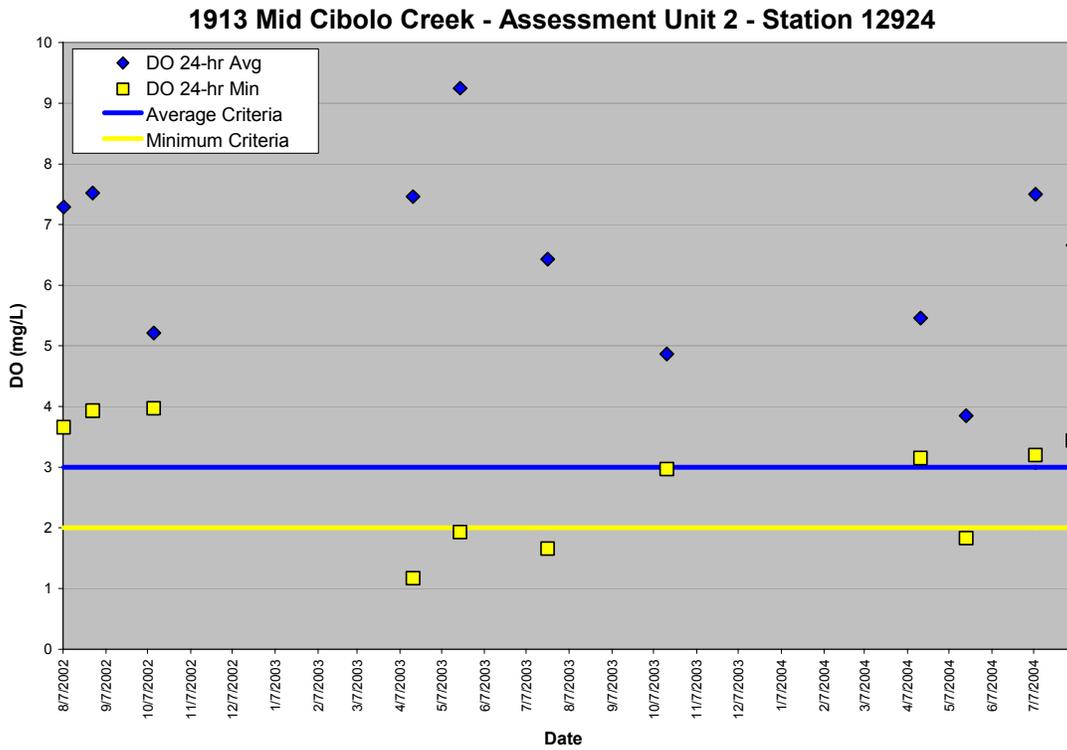


Figure 4b. Assessment Unit 2 – 24-hour Dissolved Oxygen Data

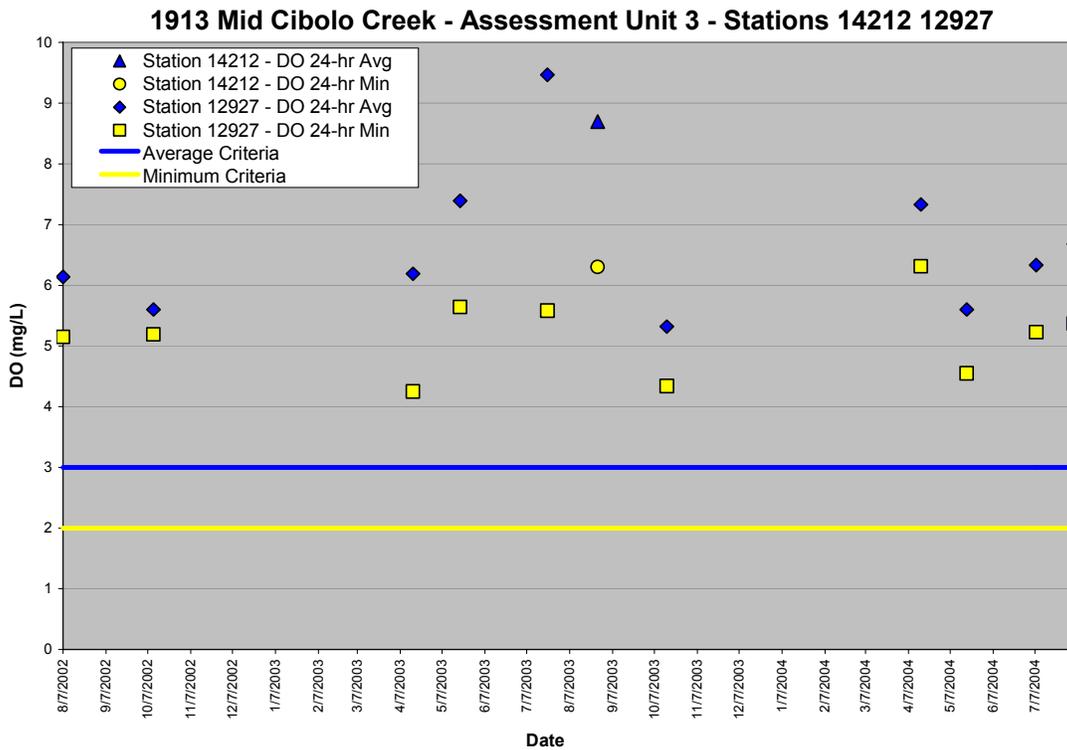


Figure 4c. Assessment Unit 3 – 24-hour Dissolved Oxygen Data

The additional data collected by the TMDL program demonstrated that in assessment units 1 and 3, neither the minimum nor the 24-hour average criteria were exceeded (Figures 4a and 4c). It also demonstrated that in several instances, minimum concentrations of dissolved oxygen did not meet the criterion of 2.0 mg/L (Figure 4b). This result at odds with the original listing, which found that dissolved oxygen levels were depressed in Assessment Unit 3.

Based on the combined data, the TMDL program investigated possible sources of oxygen-demanding substances in the creek, and found that depressed dissolved oxygen concentrations coincide with increased loadings from a point source in the Mid Cibolo Creek watershed.

The Cibolo Creek Municipal Authority's (CCMA's) Odo J. Riedel Wastewater Treatment facility is the single point source discharge in the Mid Cibolo Creek watershed. In recent years, this facility has significantly increased its pollutant discharges (Figures 5a and 5b). The CCMA is currently under an enforcement order issued by the TCEQ (Attachment 1), and is in the process of upgrading the facility to comply with Texas Pollutant Discharge Elimination System (TPDES) permit limits, after which levels of ammonia-nitrogen and CBOD in the CCMA's discharges are expected to comply with TPDES limits.

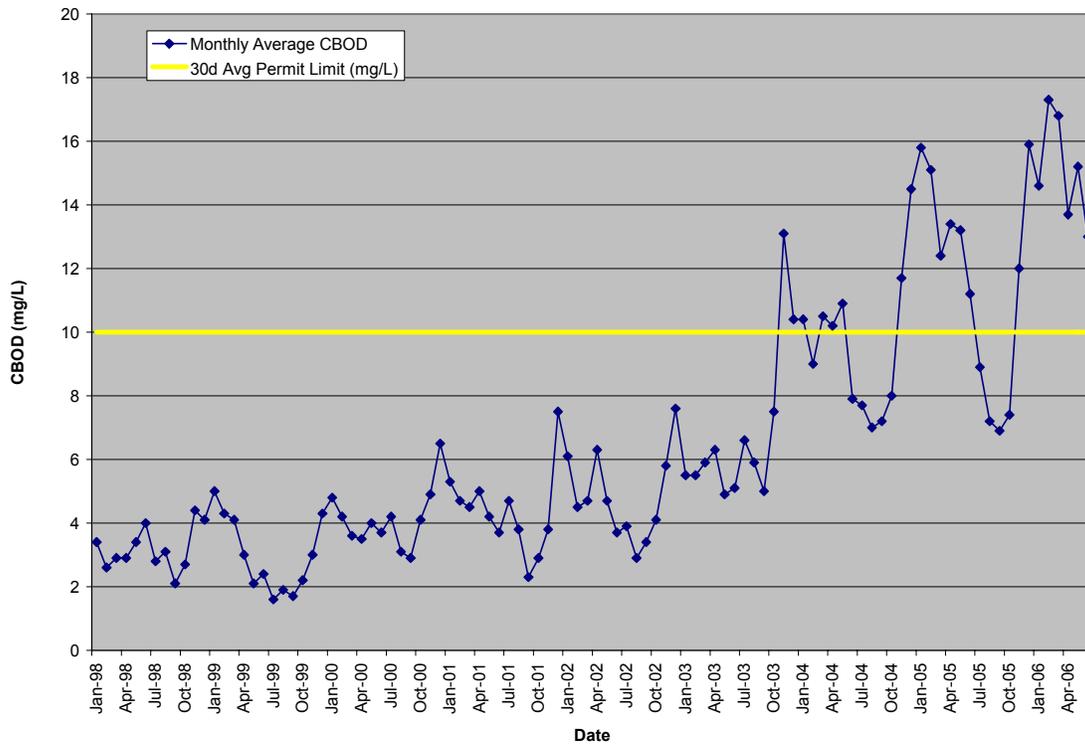


Figure 5a. Monthly CBOD in Cibolo Creek Municipal Authority Discharge

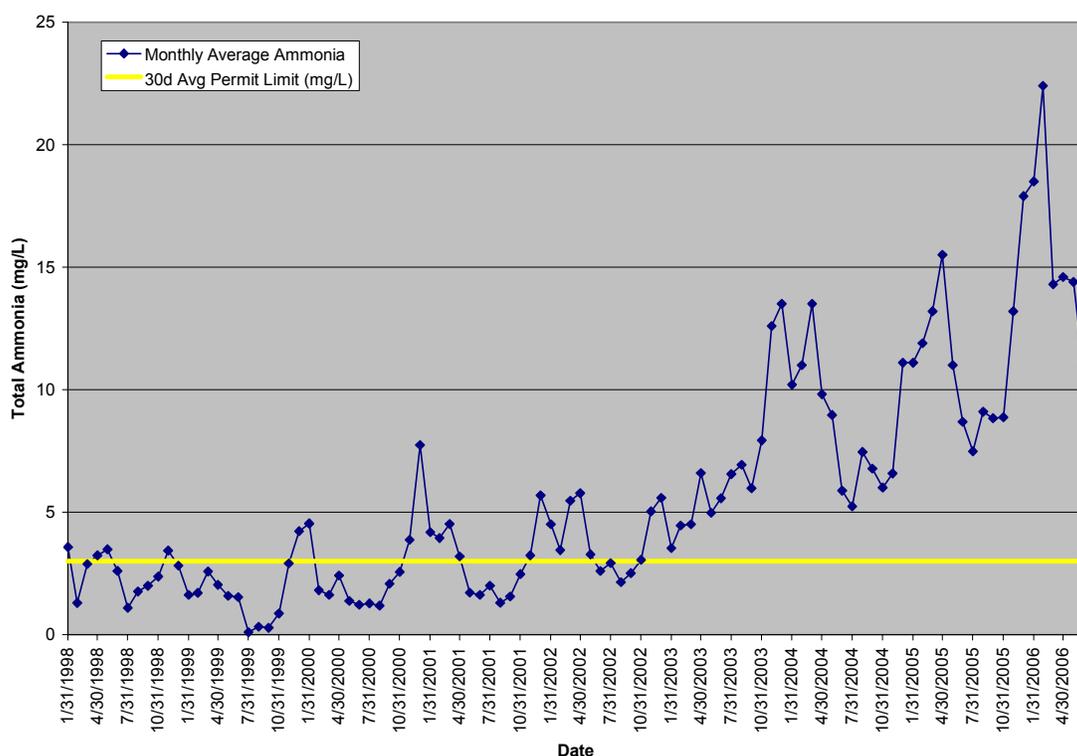


Figure 5b. Monthly Ammonia-Nitrogen in Cibolo Creek Municipal Authority Discharge

## Endpoint Identification

The endpoints for these TMDLs are concentrations of 10 mg/L of CBOD and 3 mg/L of NH<sub>3</sub>-N, which should result in attainment of the 24-hour average and minimum dissolved oxygen criteria to support aquatic life use.

The aquatic life use must be maintained through the control of point source discharges under the TPDES. Attainment of dissolved oxygen criteria is ensured through water-quality-based limits included in state-issued permits. Specifically, permits issued by the TCEQ include limits for CBOD and ammonia-nitrogen, which can affect the levels of dissolved oxygen in receiving waters. The TCEQ derives these limits using the QUAL-TX model, based on steady-state conditions and segment-specific waste load evaluations (WLEs).

Mid Cibolo Creek is included in the *Waste Load Evaluation for Cibolo Creek Below the Edwards Aquifer Recharge Zone in the San Antonio River Basin* (TWC 1987). This document includes estimates of loading to Cibolo Creek from all point sources within the segments below the Edwards Aquifer Recharge Zone. As mentioned previously, the CCMA is the sole point source discharger to Mid Cibolo Creek. The CCMA's current TPDES permit includes limits of 10 mg/L for CBOD and 3 mg/L for NH<sub>3</sub>-N, based on the QUAL-TX model and the WLE.

Analysis for this TMDL indicates that after facility upgrades are completed, the resulting instream levels of CBOD and NH<sub>3</sub>-N will be 7.31 mg/L and 2.24 mg/L, respectively, at the point where the discharge enters the stream. The analysis assumes that the facility is discharging the maximum permitted flow (6.2 million gallons per day (MGD)) and that the seven-day, two-year low-flow (7Q2) upstream of the discharge point is 2.5 cubic feet per second (cfs). These levels are predicted to result in a minimum daily average dissolved oxygen concentration of 2.9 mg/L approximately 2 miles downstream of the discharge.

## Source Analysis

Pollutants may come from several sources, both point and nonpoint. The Mid Cibolo Creek watershed includes both types of sources. Nonpoint sources of pollutants are limited to runoff from land surfaces.

### Nonpoint Sources (Load Allocations)

Nonpoint sources of pollution include all diffuse sources from which land surface runoff reaches a water body. Nonpoint sources of oxygen-demanding substances to Mid Cibolo Creek include:

- loads in the creek originating from the watershed of Upper Cibolo Creek, Segment 1908 (outside the project watershed), and
- loads in runoff that flows directly to Mid Cibolo Creek from within its delineated watershed (inside the project watershed).

The TMDL program developed load allocations using estimates of nonpoint source loadings from runoff in both of these watersheds.

Nonpoint source loadings under low-flow conditions are based on the headwater flows specified in the QUAL-TX model, as documented in the Cibolo Creek WLE. Specifically, low-flow load allocations for CBOD (LFLA<sub>CBOD</sub>) and ammonia-nitrogen (LFLA<sub>NH</sub>) are calculated as follows:

- (a)  $LFLA_{CBOD} = (\text{CBOD concentration})(\text{headwater flow})(\text{conversion factor})$   
 $LFLA_{CBOD} = (1.3\text{mg/L})(1.62 \text{ MGD})(8.345)$   
 $LFLA_{CBOD} = (17.57 \text{ lbs/day})$
- (b)  $LFLA_{NH} = (\text{NH}_3\text{N concentration})(\text{headwater flow})(\text{conversion factor})$   
 $LFLA_{NH} = (0.05\text{mg/L})(1.62 \text{ MGD})(8.345)$   
 $LFLA_{NH} = (0.676 \text{ lbs/day})$

The concentrations of ammonia-nitrogen and CBOD shown above are from the WLE for Cibolo Creek (TWC 1987). The conversion factor translates the units of measure for flow and concentration to pounds per day (lbs/day).

Additionally, the TMDL program developed nonpoint source loadings that result from rainfall runoff for both source watersheds. Flow data from the USGS gage station located

on Cibolo Creek at Selma, Texas (gage number 08185000), was used to develop these portions of the load allocation. The load allocations for runoff from the watershed of Upper Cibolo Creek (HFLA) were calculated using the annual average flow at the Selma gage (14.15 MGD) and the event mean concentration (EMC) for each constituent (City of Austin 2005):

- (c)  $HFLA_{CBOD} = (CBOD\ EMC)(\text{annual average flow})(\text{conversion factor})$   
 $HFLA_{CBOD} = (7.47\ \text{mg/L})(14.15\ \text{MGD})(8.345)$   
 $HFLA_{CBOD} = (882.4\ \text{lbs/day})$
- (d)  $HFLA_{NH} = (NH_3N\ EMC)(\text{annual average flow})(\text{conversion factor})$   
 $HFLA_{NH} = (0.180\ \text{mg/L})(14.15\ \text{MGD})(8.345)$   
 $HFLA_{NH} = (21.3\ \text{lbs/day})$

The load allocations originating from storm events within the watershed of Mid Cibolo Creek (INTLA) were also estimated. The flows used in this formula were derived as the ratio of the annual average flow (17 MGD) to the size of the watershed above the Selma gage (274 square miles) multiplied by the size of the Mid Cibolo watershed (46 square miles). The allocations were calculated using the following formula:

- (e)  $INTLA_{CBOD} = (CBOD\ EMC)(\text{annual average flow})(\text{conversion factor})$   
 $INTLA_{CBOD} = (7.47\ \text{mg/L})(2.85\ \text{MGD})(8.345)$   
 $INTLA_{CBOD} = (177.97\ \text{lbs/day})$
- (f)  $INTLA_{NH} = (NH_3N\ EMC)(\text{annual average flow})(\text{conversion factor})$   
 $INTLA_{NH} = (0.180\ \text{mg/L})(2.85\ \text{MGD})(8.345)$   
 $INTLA_{NH} = (4.29\ \text{lbs/day})$

The sum of the different nonpoint sources represents the total load allocations for CBOD and ammonia-nitrogen:

- (g)  $LA_{CBOD} = LFLA_{CBOD} + HWLA_{CBOD} + INTLA_{CBOD}$   
 $LA_{CBOD} = (17.6\ \text{lbs/day}) + (882.4\ \text{lbs/day}) + (177.9\ \text{lbs/day})$   
 $LA_{CBOD} = (1077.9\ \text{lbs/day})$
- (h)  $LA_{NH} = LFLA_{NH} + HWLA_{NH} + INTLA_{NH}$   
 $LA_{NH} = (0.68\ \text{lbs/day}) + (21.3\ \text{lbs/day}) + (4.29\ \text{lbs/day})$   
 $LA_{NH} = (26.27\ \text{lbs/day})$

### **Point Sources (Waste Load Allocations)**

Mid Cibolo Creek receives point source discharge from only the CCMA plant. CBOD and ammonia-nitrogen loads were calculated using the maximum permitted flow established in the individual permits.

Loading estimates for the CCMA plant were developed using the average pollutant concentrations since January 1, 2004, which are included in self-reporting data, and the maximum permitted flow. Waste load allocation loadings from point sources for CBOD

( $WLA_{CBOD}$ ) and ammonia-nitrogen ( $WLA_{NH}$ ) were developed using the following formulas:

- (i)  $WLA_{CBOD} = (\text{average CBOD concentration})(\text{permitted flow})(\text{conversion factor})$   
 $WLA_{CBOD} = (11.5 \text{ mg/L})(6.2 \text{ MGD})(8.345)$   
 $WLA_{CBOD} = 595 \text{ lbs/day}$
- (j)  $WLA_{NH} = (\text{average } NH_3\text{N concentration})(\text{permitted flow})(\text{conversion factor})$   
 $WLA_{NH} = (11.15 \text{ mg/L})(6.2 \text{ MGD})(8.345)$   
 $WLA_{NH} = 576.8 \text{ lbs/day}$

**Non-Continuous WLA**

Loads associated with storm water discharges in urbanized areas covered under a general permit for municipal separate storm sewer systems (MS4s) should be accounted for in the WLA. The determination of the load attributed to storm water under the MS4 permit was based on the portion of the Mid Cibolo Creek watershed that is considered urbanized according to the 1990 U.S. Census (59 percent). This portion can then be removed from the load allocation and included in the waste load allocation.

- (k)  $WLA_{CBODMS4} = LA * \% \text{ Watershed Urbanized}$ , where  
 $WLA_{CBODMS4} = 1077.9 \text{ lbs/day} * 0.59$   
 $WLA_{CBODMS4} = 635.9 \text{ lbs/day}$
- (l)  $WLA_{NHMS4} = LA * \% \text{ Watershed Urbanized}$ , where  
 $WLA_{NHMS4} = 26.3 \text{ lbs/day} * 0.59$   
 $WLA_{NHMS4} = 15.5 \text{ lbs/day}$

**Total Loads**

The current, estimated total loads of CBOD and ammonia-nitrogen to Mid Cibolo Creek are presented in Table 3. The loading responsible for the impairment is primarily from the municipal point source discharge, as expressed in the waste load allocation (WLA).

Table 3: Summary of Current Loadings to Mid Cibolo Creek

Source	Constituent (lbs/day)	
	CBOD	NH <sub>3</sub> -N
LA	442.4	10.8
WLA	1230.5	592.3
Total	1672.9	603.1

## Linkage Analysis

Observed minimum levels of dissolved oxygen in Mid Cibolo Creek currently do not meet the criterion for the protection of a limited aquatic life use. This condition corresponds to increased loadings of oxygen-demanding substances from the CCMA discharge to Mid Cibolo Creek. This situation is expected to persist until upgrades to the CCMA facility have been completed and the stream is allowed to return to equilibrium. After the upgrades have been completed, dissolved oxygen concentrations should return to levels above the minimum criterion specified in the water quality standards.

## Seasonal Variation

Seasonal trends in dissolved oxygen are evident from the water quality data collected in Mid Cibolo Creek. These trends can be attributed more to differences in seasonal temperatures and instream flows rather than to varying concentrations of CBOD and ammonia-nitrogen.

The CCMA discharge, however, exhibits variability in flow, and thus effluent loads, related to seasonal factors. During the summer months, increased water re-use reduces the discharge flow (and load). This has resulted in decreased loadings of CBOD and ammonia-nitrogen during summer periods relative to other times of the year.

## Margin of Safety

The margin of safety (MOS) is a required component of the TMDL to account for any lack of knowledge concerning the relationship between effluent limitations and water quality and thus provide a higher level of assurance that the goal of the TMDL will be met. According to EPA guidance (Guidance for Water Quality-Based Decisions: The TMDL Process, 1991), the MOS can be incorporated into the TMDL implicitly by using conservative model assumptions to develop allocations. The QUAL-TX model applies conservative assumptions when deriving the target instream concentrations and therefore provides additional assurance that permits issued by the TCEQ will comply with applicable water quality standards.

## Pollutant Load Allocation

Typically, there are several possible allocation strategies that would achieve the TMDL endpoint and water quality standards. Available control options depend on the number, location, and character of pollutant sources. In this situation, the observed impairment is due to the noncompliance of a single point source discharger. Bringing that discharger into compliance with current permit limits should allow the stream to attain water quality standards. Since the low concentrations of dissolved oxygen observed were associated with low flows, reductions in runoff loads will not be necessary to achieve the endpoint concentrations of 10 mg/L of CBOD and 3 mg/L of NH<sub>3</sub>-N.

Tables 4 and 5 compare the load, concentration, and flow calculated for the current and target scenarios for CBOD and NH<sub>3</sub>-N using the existing permitted flows (included in the WLA). They also present the load reductions required to achieve the target values and attain the aquatic life use. Based on analysis of these data, the CCMA facility must reduce BOD must by 77.6 lbs/day and ammonia-nitrogen by 421.6 lbs/day in order to comply with its TPDES permit limits.

Table 4. Comparison of Load (L), Concentration (C), and Flow (Q) for the Current, Target, and Load Reductions Necessary to Achieve the Targeted CBOD Concentration

Scenarios	CBOD Load (lbs/day) <sup>1</sup>	Concentration (mg/L)	Flow (MGD)
Current	595.0	11.50	6.2
Permitted Load	517.4	10	6.2
Load Reduction	77.6 (13%)	---	---

$$\begin{aligned}
 {}^1L \text{ (lbs/day)} &= C \text{ (mg/L)} * Q \text{ (MGD)} * (\text{Conversion Factor}) \\
 &= C \text{ (mg/L)} * Q \text{ (MGD)} * (8.345) \\
 &= C * Q * 8.345
 \end{aligned}$$

Table 5. Comparison of Loads (L), Concentrations (C), and Flows (Q) for the Current, Target, and Load Reductions Necessary to Achieve the Targeted NH<sub>3</sub>-N Concentration

Scenarios	NH <sub>3</sub> -N Load (lbs/day) <sup>1</sup>	Concentration (mg/L)	Flow (MGD)
Current	576.78	11.15	6.2
Permitted Load	155.2	3	6.2
Load Reduction	421.6 (73%)	---	---

$$\begin{aligned}
 {}^1L \text{ (lbs/day)} &= C \text{ (mg/L)} * Q \text{ (MGD)} * (\text{Conversion Factor}) \\
 &= C \text{ (mg/L)} * Q \text{ (MGD)} * (8.345) \\
 &= C * Q * 8.345
 \end{aligned}$$

Several scenarios were tested to determine the TMDL. The load allocations for the selected scenarios were calculated using the following equation:

$$\begin{aligned}
 \text{(m)} \quad \text{TMDL} &= \text{LA} + \text{WLA} \quad \text{Where:} \\
 \text{LA} &= \text{load allocation (nonpoint source contributions);} \\
 \text{WLA} &= \text{wasteload allocation (point source allocation); and}
 \end{aligned}$$

Values derived in the source analysis were used in this equation to develop the TMDL for Mid Cibolo Creek for CBOD and ammonia-nitrogen.

- (n)  $TMDL_{CBOD} = \sum LA + \sum WLA$ , where  
 $TMDL_{CBOD} = (LA_{CBOD} - WLAC_{CBODMS4}) + (WLA + WLA_{CBODMS4})$   
 $TMDL_{CBOD} = (1077.9 \text{ lbs/day} - 635.9 \text{ lbs/day}) + (517.4 \text{ lbs/day} + 635.9 \text{ lbs/day})$   
 $TMDL_{CBOD} = 442 \text{ lbs/day} + 1153.3 \text{ lbs/day}$   
 $TMDL_{CBOD} = 1595.3 \text{ lbs/day}$
- (o)  $TMDL_{NH3-N} = \sum LA + \sum WLA$ , where  
 $TMDL_{NH3-N} = (LA_{NH3-N} - WLA_{NH3MS4}) + (WLA + WLA_{NH3MS4})$   
 $TMDL_{NH3-N} = (26.3 \text{ lbs/day} - 15.5 \text{ lbs/day}) + (155.2 \text{ lbs/day} + 15.5 \text{ lbs/day})$   
 $TMDL_{NH3-N} = 10.8 \text{ lbs/day} + 170.7 \text{ lbs/day}$   
 $TMDL_{NH3-N} = 181.5 \text{ lbs/day}$

Reducing the current CBOD and NH<sub>3</sub>-N loads should have a significant positive impact on downstream dissolved oxygen concentrations. This is demonstrated in Figure 6, which depicts the results produced by the QUAL-TX model when using both permitted and actual conditions. Average dissolved oxygen concentrations should reach a minimum value of 2.9 mg/L approximately 1.2 miles downstream from the CCMA discharge point. Although the QUAL-TX model does not predict effects on 24-hour dissolved oxygen concentrations, they should also be positively affected by the reductions in loads.

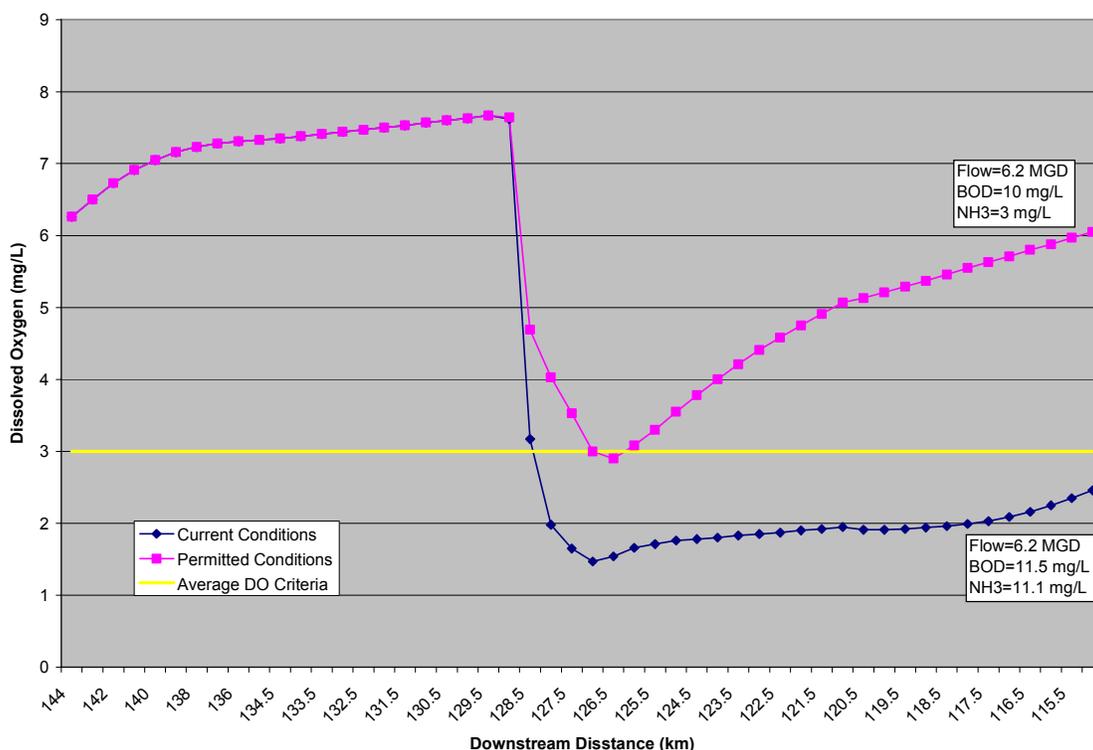


Figure 6. Predicted Downstream Dissolved Oxygen Concentrations Based upon QUAL-TX Calculations

As shown in Figure 6, the model indicates that under current conditions the average dissolved oxygen values (blue line) in the stream will not meet the 24-hour average criterion of

3.0 mg/L. However, field measurements taken during the 2002-2004 period indicate that average dissolved oxygen values met the criteria (Figure 4b). This discrepancy between simulated and measured dissolved oxygen values may be the result of several factors including, but not limited to:

- 1) Use of wrong flow and/or quality values.
- 2) Eutrophication not represented in the QUAL-TX model.
- 3) The conservative nature of the QUAL-TX model.
- 4) Inappropriate assumptions with respect to the terms applied in the model.

## Public Participation

The TCEQ maintains an inclusive public participation process. From the inception of the investigation, the project team sought to ensure that stakeholders were informed and involved. The project team also recognized that communication and comments from the stakeholders in the watershed would strengthen the project and its implementation.

The TCEQ held a public meeting for this project on July 27, 2006, in Cibolo, Texas. This meeting provided background information on the water quality impairment and the objectives and status of the current study. The meeting was attended by local residents and representatives from government and utilities, including representatives of the discharger affected by this TMDL.

## Implementation and Reasonable Assurances

The TMDL development process involves the preparation of two documents:

- 1) **a TMDL**, which determines the maximum amount of pollutant a water body can receive in a single day and still meet applicable water quality standards, and
- 2) **an implementation plan (I-Plan)**, which is a detailed description and schedule of the regulatory and voluntary management measures necessary to achieve the pollutant reductions identified in the TMDL.

During TMDL development, the TCEQ determines the acceptable pollutant load for impaired water bodies and apportions the load among broad categories of pollutant sources in the watershed. This information is summarized in a TMDL report such as this document.

During TMDL implementation, the TCEQ develops the management strategies needed to restore water quality to an impaired water body. This information is summarized in an I-Plan that references, but is separate from, the TMDL document. The I-Plan details load reduction and other mitigation measures planned to restore water quality in an impaired water body.

The TCEQ is committed to developing I-Plans for all TMDLs adopted by the commission and to ensuring the plans are implemented. I-Plans are critical to ensure water quality standards are restored and maintained. They are not subject to EPA approval.

The TCEQ works with stakeholders to develop the strategies summarized in the I-Plan. I-Plans may use an adaptive management approach that achieves initial loading allocations from a subset of the source categories. Adaptive management allows for development or refinement of methods to achieve the environmental goal of the plan.

Periodic and repeated evaluations of the effectiveness of implementation measures assure that progress is occurring, and may show that the original distribution of loading among sources should be modified to increase efficiency. This adaptive approach provides reasonable assurance that the necessary regulatory and voluntary activities to achieve the pollutant reductions will be implemented.

This approach provides reasonable assurances that the necessary regulatory and voluntary activities to achieve the pollutant reductions identified will be implemented. In addition, the CCMA is currently under an enforcement order by the TCEQ. Under the terms of the Enforcement Order (Docket No. 2001-0896-MWD-E; Enforcement Case No 7995), the CCMA must be in compliance with its permit limits by June 2007.

### **Implementation Processes to Address the TMDL**

Together, a TMDL and an I-Plan direct the correction of unacceptable water quality conditions in an impaired surface water of the state. A TMDL broadly identifies the pollutant load goal after assessment of existing conditions, and the impact on those conditions from probable or known sources. A TMDL identifies a total loading from the combination of point sources and nonpoint sources that would allow attainment of the established water quality standard.

An I-Plan specifically identifies required or voluntary implementation actions that will be taken to achieve the pollutant loading goals of the TMDL. Regulatory actions identified in the I-Plan could include adjustment of an effluent limitation in a wastewater permit, a schedule for the elimination of a certain pollutant source, identification of any nonpoint source discharge that would be regulated as a point source, a limitation or prohibition for authorizing a point source under a general permit, or a required modification to a storm water management program (SWMP) and pollution prevention plan (PPP).

Strategies to optimize compliance and oversight are identified in an I-Plan when necessary. Such strategies may include additional monitoring and reporting of effluent discharge quality to evaluate and verify loading trends, adjustment of an inspection frequency or a response protocol to public complaints, and escalation of an enforcement remedy to require corrective action of a regulated entity contributing to an impairment.

A TMDL and the underlying assumptions, model scenarios, and assessment results are not and should not be interpreted as required effluent limitations, pollutant load reductions that will be applied to specific permits, or any other regulatory action necessary to achieve attainment of the water quality standard. In simple terms, a TMDL is like a budget that determines the amount of a particular pollutant that the water body can receive and still meet a water quality standard. The I-Plan adopted by the Commission will

direct implementation requirements applicable to certain sources contributing a pollutant load to the impaired water.

The I-Plan will be developed through effective coordination with stakeholders affected by or interested in the goals of the TMDL. In determining which sources need to accomplish what reductions, the I-Plan may consider factors such as cost, feasibility, the current availability or likelihood of funding, existing or planned pollutant reduction initiatives such as watershed-based protection plans, whether a source is subject to an existing regulation, the willingness and commitment of a regulated or unregulated source, and a host of additional factors.

Ultimately, the I-Plan will identify the commitments and requirements to be implemented through specific permit actions and other means. For these reasons, the I-Plan that is adopted may not approximate the predicted loadings identified category by category in the TMDL and its underlying assessment, but with certain exceptions, the I-Plan must nonetheless meet the overall loading goal established by the Commission-adopted and EPA-approved TMDL.

An exception would include an I-Plan that identifies a phased implementation that takes advantage of an adaptive management approach. It is not practical or feasible to approach all TMDL implementation as a one-time, short-term restoration effort. This is particularly true when a challenging wasteload reduction or load reduction was required by the TMDL, high uncertainty with the TMDL analysis exists, there is a need to reconsider or revise the established water quality standard, or the pollutant load reduction would require costly infrastructure and capital improvements. Instead, activities contained in the first phase of implementation may be the full scope of the initial I-Plan and include strategies to make substantial progress towards source reduction and elimination, refine the TMDL analysis, conduct site-specific analyses of the appropriateness of an existing use, and monitor in stream water quality to gage the results of the first phase. Ultimately, the accomplishments of the first phase would lead to development of a phase two or final I-Plan or revision of TMDL. This adaptive management approach is consistent with established guidance from EPA (USEPA 2006).

The TCEQ maintains an overall water quality management plan (WQMP) that directs the efforts to address water quality problems and restore water quality uses throughout Texas. The WQMP is continually updated with new, more specifically focused WQMPs, or “water quality management plan elements” as identified in federal regulations (40 CFR 130.6(c)). Consistent with federal requirements, each TMDL is a plan element of a WQMP and Commission adoption of a TMDL is state certification of the WQMP update.

Because the TMDL does not reflect or direct specific implementation by any one pollutant discharger, the TCEQ certifies additional “water quality management plan elements” to the WQMP once the I-Plan is adopted by the Commission. Based upon the TMDL and I-Plan, the TCEQ will propose and certify WQMP updates to establish required water-quality-based effluent limitations necessary for specific TPDES wastewater discharge permits. The TCEQ would normally establish best management practices (BMPs), which

are a substitute for effluent limitations in TPDES MS4 storm water permits as allowed by the federal rules where numeric effluent limitations are infeasible (USEPA 2002). Thus, TCEQ would not identify specific implementation requirements applicable to a specific TPDES storm water permit through an effluent limitation update. However, the TCEQ would revise a storm water permit, require a revised SWMP or PPP, or implement other specific revisions affecting storm water dischargers in accordance with an adopted I-Plan.

## References

- City of Austin 2005. *Preliminary Report on Storm Water Runoff from Effluent-Irrigated Golf Courses*. <[www.ci.austin.tx.us/watershed/downloads/prelim\\_golf\\_course.pdf](http://www.ci.austin.tx.us/watershed/downloads/prelim_golf_course.pdf)>.
- TWC 1987. *Waste Load Evaluation for Cibolo Creek Below the Edwards Aquifer Recharge Zone in the San Antonio River Basin: Segment 1902-Lower Cibolo Creek, Segment 1913-Mid Cibolo Creek*. WLE 87-01.
- TCEQ 2004. *2004 Texas Water Quality Inventory and 303(d) List*. <[www.tceq.state.tx.us/compliance/monitoring/water/quality/data/wqm/305\\_303.html](http://www.tceq.state.tx.us/compliance/monitoring/water/quality/data/wqm/305_303.html)>.
- TCEQ 2002. *Guidance for Assessing Texas Surface and Finished Drinking Water Quality Data*. <[www.tceq.state.tx.us/assets/public/compliance/monops/water/02twqmar/02\\_305guide\\_final.pdf](http://www.tceq.state.tx.us/assets/public/compliance/monops/water/02twqmar/02_305guide_final.pdf)>.
- TCEQ 2000. *Texas Surface Water Quality Standards*. Title 30, Texas Administrative Code, Chapter 307. <[www.tceq.state.tx.us/permitting/water\\_quality/wq\\_assessment/standards/WQ\\_standards\\_2000.html](http://www.tceq.state.tx.us/permitting/water_quality/wq_assessment/standards/WQ_standards_2000.html)>.
- TCEQ 1999. *State of Texas 1999 Clean Water Act Section 303(d) List and Schedule for Total Maximum Daily Loads*. SFR-58/99.
- USEPA 2006. Memorandum. "Clarification Regarding 'Phased' Total Maximum Daily Loads." August 2, 2006 (Benita Best-Wong to Water Division Directors).
- USEPA 2002. Memorandum. "Establishing Total Maximum Daily Load (TMDL) Waste-load Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs." November 22, 2002 (Robert H. Wayland, III to Water Division Directors).

## **Attachment I: Enforcement Order**

Robert J. Huston, *Chairman*  
R. B. "Ralph" Marquez, *Commissioner*  
John M. Baker, *Commissioner*  
Jeffrey A. Saitas, *Executive Director*



# TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

November 08, 2001

**CERTIFIED MAIL - RETURN RECEIPT REQUESTED** - 7000 0520 0022 7530 7134

Mr. David R. Dennis, General Manager  
Cibolo Creek Municipal Authority  
Post Office Box 930  
Schertz, TX 78154

Re: Notice of Enforcement Action  
Cibolo Creek Municipal Authority  
2.25 miles northeast of the center of Randolph Air Force Base on the south bank of Cibolo Creek,  
Bexar County  
TPDES Permit No. 11269-001  
Docket No. 2001-0896-MWD-E; Enforcement ID No. 16513  
**FOR SETTLEMENT PURPOSES ONLY**

Dear Mr. Dennis:

The Executive Director of the Texas Natural Resource Conservation Commission ("Commission" or "TNRCC") is pursuing an enforcement action against Cibolo Creek Municipal Authority for violations of the Texas Water Code and Commission Rules. These violations were discovered during record reviews conducted on June 15 and August 13, 2001 and documented in a letter dated July 31, 2001 from the TNRCC Enforcement Division.

Please find enclosed a proposed agreed order which we have prepared in an attempt to expedite this enforcement action. The order assesses an administrative penalty of Ten Thousand Dollars (\$10,000). We are proposing a one time offer to defer Two Thousand Dollars (\$2,000) of the administrative penalty if you satisfactorily comply with all the ordering provisions within the time frames listed. Therefore, the administrative penalty to be paid is Eight Thousand Dollars (\$8,000). The order also identifies the violations that we are addressing, and identifies specific technical requirements necessary to resolve them.

If you have any questions regarding this matter, we are available to discuss them in a conference in Austin or over the telephone. If we reach agreement in a timely manner, the TNRCC will then proceed with the remaining procedural steps to settle this matter. These steps include publishing notice of the proposed order in the *Texas Register*, and scheduling the matter for the Commission's agenda. We believe that handling this matter expeditiously could save Cibolo Creek Municipal Authority and the TNRCC a significant amount of time, as well as the expense associated with litigation.

A copy of the order is provided for your files. Also enclosed for your convenience is a return envelope. If you agree with the order as proposed, please sign and return the original order **and** the penalty payment (check payable to "TNRCC" and referencing Cibolo Creek Municipal Authority, Docket No. 2001-0896-MWD-E) to:

Mr. David R. Dennis  
Page 2  
November 08, 2001

Financial Administration Division, Revenues  
Attention: Cashier's Office, MC 214  
Texas Natural Resource Conservation Commission  
P.O. Box 13088  
Austin, Texas 78711-3088

Should you believe you are unable to pay the proposed administrative penalty, you may claim financial inability to pay part or all of the penalty amount. If this is the case, please contact us immediately to obtain a list of financial disclosure documents we will need from you. These documents, once properly completed and submitted, will be thoroughly reviewed to determine if we agree with the claim of financial inability. Please be aware that if financial inability is proven to the satisfaction of staff, discussions pertaining to the penalty amount adjustment will focus only on deferral and not on waiver of the penalty amount. The Commission will make the final decision on the staff recommendation.

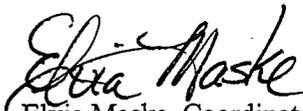
You may be able to perform or pay for a Supplemental Environmental Project ("SEP"), which is a project that benefits the environment, to offset a portion of your penalty. Please contact us for additional information regarding SEPs.

Please note that any agreements we reach are subject to final approval by the Commission.

**If we cannot reach a settlement of this enforcement action or you do not wish to participate in this expedited process, we will proceed with enforcement under the Commission's Enforcement Rules, 30 TEX. ADMIN. CODE ch. 70. Specifically, if the signed order and penalty are not mailed and postmarked within 60 days from the date of this letter, your case will be forwarded to the Litigation Division and this settlement offer, including the penalty deferral, will no longer be available. If you would like to obtain a copy of 30 TEX. ADMIN. CODE ch. 70 or any other TNRCC rules, you may contact any of the sources listed in the enclosed brochure entitled *Obtaining TNRCC Rules*. The enforcement process described in 30 TEX. ADMIN. CODE ch. 70 requires the staff to prepare and issue an Executive Director's Preliminary Report and Petition to the Commission.**

For any questions or comments about this matter or to arrange a meeting, please contact me at (512)239-0789.

Sincerely,



Elvia Maske, Coordinator  
Enforcement Division  
Texas Natural Resource Conservation Commission

Enclosures: Proposed Agreed Order, File Copy, Return Envelope, *Obtaining TNRCC Rules*, Penalty Calculation Worksheet

cc: Mr. Bobby Caldwell, Manager, Water Section, San Antonio Regional Office, TNRCC

# TEXAS NATURAL RESOURCE CONSERVATION COMMISSION



<b>IN THE MATTER OF AN</b>	§	<b>BEFORE THE</b>
<b>ENFORCEMENT ACTION</b>	§	
<b>CONCERNING</b>	§	
<b>CIBOLO CREEK MUNICIPAL</b>	§	<b>TEXAS NATURAL RESOURCE</b>
<b>AUTHORITY</b>	§	
<b>TEXAS POLLUTANT DISCHARGE</b>	§	
<b>ELIMINATION SYSTEM ("TPDES")</b>	§	
<b>PERMIT NO. 11269-001</b>	§	<b>CONSERVATION COMMISSION</b>

## AGREED ORDER DOCKET NO. 2001-0896-MWD-E

### I. JURISDICTION AND STIPULATIONS

At its JUL 24 2002 agenda, the Texas Natural Resource Conservation Commission ("the Commission" or "TNRCC") considered this agreement of the parties, resolving an enforcement action regarding Cibolo Creek Municipal Authority ("Cibolo Creek") under the authority of TEX. WATER CODE chs. 7 and 26. The Executive Director of the TNRCC, through the Enforcement Division, and Cibolo Creek appear before the Commission and together stipulate that:

1. Cibolo Creek owns and operates a 6.2 million gallon per day ("MGD") wastewater treatment facility located 2.25 miles northeast of the center of Randolph Air Force Base on the south bank of Cibolo Creek, Bexar County, Texas (the "Facility").
2. Cibolo Creek discharges wastewater to waters in the state. Cibolo Creek holds TPDES Permit No. 11269-001 for wastewater operations at the Facility.
3. The Commission and Cibolo Creek agree that the Commission has jurisdiction to enter this Agreed Order, and that Cibolo Creek is subject to the Commission's jurisdiction.
4. Cibolo Creek received notice of the violations alleged in Section II ("Allegations") on or about August 6, 2001.
5. The occurrence of any violation is in dispute and the entry of this Agreed Order shall not constitute an admission by Cibolo Creek of any violation alleged in Section II ("Allegations"), nor of any statute or rule.
6. An administrative penalty in the amount of Ten Thousand Dollars (\$10,000) is assessed by the Commission in settlement of the violations alleged in Section II ("Allegations"). Eight Thousand Dollars (\$8,000) shall be conditionally offset by Cibolo Creek's completion of a Supplemental Environmental Project and Two Thousand Dollars (\$2,000) is deferred contingent upon Cibolo Creek's timely and satisfactory compliance with all the terms of this Agreed Order. The deferred amount will be waived upon full compliance with the terms of this Agreed Order. If Cibolo Creek

- fails to timely and satisfactorily comply with all requirements of this Agreed Order, the Executive Director may require Cibolo Creek to pay all or part of the deferred penalty.
7. Any notice and procedures which might otherwise be authorized or required in this action are waived in the interest of a more timely resolution of the matter.
  8. The Executive Director of the TNRCC and Cibolo Creek have agreed on a settlement of the matters alleged in this enforcement action, subject to the approval of the Commission.
  9. The Executive Director recognizes that Cibolo Creek has implemented the following corrective measures at the Facility:
    - a. Began conducting a study of treatment capacity to meet permit requirements; and
    - b. Began arranging for a standby biosolids hauler to haul biosolids off site if necessary.
  10. The Executive Director may, without further notice or hearing, refer this matter to the Office of the Attorney General of the State of Texas ("OAG") for further enforcement proceedings if the Executive Director determines that Cibolo Creek has not complied with one or more of the terms or conditions in this Agreed Order.
  11. This Agreed Order shall terminate five years from its effective date or upon compliance with all the terms and conditions set forth in this Agreed Order, whichever is later.
  12. The provisions of this Agreed Order are deemed severable and, if a court of competent jurisdiction or other appropriate authority deems any provision of this Agreed Order unenforceable, the remaining provisions shall be valid and enforceable.

## II. ALLEGATIONS

As owner and operator of the Facility, Cibolo Creek is alleged to have failed to comply with permitted limits for  $\text{NH}_3\text{-N}$  daily average concentration,  $\text{NH}_3\text{-N}$  daily maximum concentration, and  $\text{NH}_3\text{-N}$  daily average loading, in violation of 30 TEX. ADMIN. CODE § 305.125(1), TPDES Permit No. 11269-001 Effluent Limitations and Monitoring Requirements (1), Operational Requirements (4), Standard Permit Condition (2)(b), and TEX. WATER CODE § 26.121, as documented during record reviews conducted on June 15 and August 13, 2001 and as follows:

Parameter and Permitted Limit	Reported Value	Month of Violation
Ammonia Nitrogen (NH <sub>3</sub> -N) daily average concentration limit of 3 milligrams per liter ("mg/L")	4.54 mg/L	January 2000
	3.88 mg/L	November 2000
	7.74 mg/L	December 2000
	4.19 mg/L	January 2001
	3.95 mg/L	February 2001
	4.52 mg/L	March 2001
	3.20 mg/L	April 2001
NH <sub>3</sub> -N daily maximum concentration limit of 7 mg/L	7.02 mg/L	November 2000
	10.6 mg/L	December 2000
	7.90 mg/L	January 2001
	9.92 mg/L	July 2001
NH <sub>3</sub> -N daily average loading limit of 155 pounds per day ("lbs/dy")	191.34 lbs/dy	December 2000

### III. DENIALS

Cibolo Creek generally denies each allegation in Section II ("Allegations").

### IV. ORDERING PROVISIONS

1. It is, therefore, ordered by the TNRCC that Cibolo Creek pay an administrative penalty as set forth in Section I, Paragraph 6 above. The imposition of this administrative penalty and Cibolo Creek's compliance with all the terms and conditions set forth in this Agreed Order resolve only the allegations in Section II. The Commission shall not be constrained in any manner from requiring corrective action or penalties for violations which are not raised here. Administrative penalty payments shall be made payable to "TNRCC" and shall be sent with the notation "Re: Cibolo Creek Municipal Authority, Docket No. 2001-0896-MWD-E" to:

Financial Administration Division, Revenues Section  
Attention: Cashier's Office, MC 214  
Texas Natural Resource Conservation Commission  
P.O. Box 13088  
Austin, Texas 78711-3088

2. Cibolo Creek shall implement and complete a Supplemental Environmental Project (SEP) in accordance with TEX. WATER CODE § 7.067. As set forth in Section I, Paragraph 6, Eight Thousand Dollars (\$8,000) of the assessed administrative penalty shall be offset with the condition that Cibolo Creek implement the SEP defined in Attachment A, incorporated herein by reference. Cibolo Creek's obligation to pay the conditionally offset portion of the administrative penalty assessed shall be discharged upon final completion of all provisions of the SEP agreement.

3. It is further ordered that within 15 months after distribution of funds by the Texas Water Development Board, Cibolo Creek shall submit written certification of compliance with the effluent limits of TPDES Permit No. 11269-001 to:

Ms. Elvia Maske, Coordinator  
Enforcement Division, MC 149  
Texas Natural Resource Conservation Commission  
P.O. Box 13087  
Austin, Texas 78711-3087

with a copy to;

Mr. Bobby Caldwell, Manager  
Water Section  
San Antonio Regional Office  
Texas Natural Resource Conservation Commission  
14250 Judson Road  
San Antonio, Texas 78233-4480

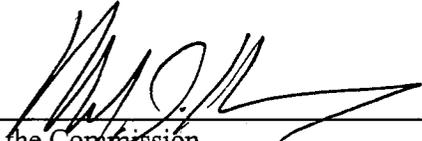
4. The provisions of this Agreed Order shall apply to and be binding upon Cibolo Creek. Cibolo Creek is ordered to give notice of the Agreed Order to personnel who maintain day-to-day control over the Facility operations referenced in this Agreed Order.
5. If Cibolo Creek fails to comply with any of the Ordering Provisions in this Agreed Order within the prescribed schedules, and that failure is caused solely by an act of God, war, strike, riot, or other catastrophe, Cibolo Creek's failure to comply is not a violation of this Agreed Order. Cibolo Creek shall have the burden of establishing to the Executive Director's satisfaction that such an event has occurred. Cibolo Creek shall notify the Executive Director within seven days after Cibolo Creek becomes aware of a delaying event and shall take all reasonable measures to mitigate and minimize any delay.
6. The Executive Director may grant an extension of any deadline in this Agreed Order or in any plan, report, or other document submitted pursuant to this Agreed Order, upon a written and substantiated showing of good cause. All requests for extensions by Cibolo Creek shall be made in writing to the Executive Director. Extensions are not effective until Cibolo Creek receives written approval from the Executive Director. The determination of what constitutes good cause rests solely with the Executive Director.
7. This Agreed Order, issued by the Commission, shall not be admissible against Cibolo Creek in a civil proceeding, unless the proceeding is brought by the OAG to: (1) enforce the terms of this Agreed Order; or (2) pursue violations of a statute within the Commission's jurisdiction, or of a rule adopted or an order or permit issued by the Commission under such a statute.
8. If this Agreed Order becomes effective prior to February 1, 2002, it is not intended to become a part of Cibolo Creek's compliance history. If this Agreed Order becomes effective on or after February 1, 2002, it will become a part of Cibolo Creek's compliance history. Under 30 TEX. ADMIN. CODE

Cibolo Creek Municipal Authority  
DOCKET NO. 2001-0896-MWD-E  
Page 5

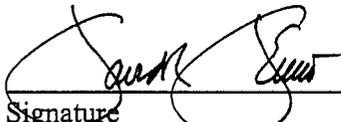
§ 70.10(b), the effective date is the date of hand-delivery of the Order to Cibolo Creek, or three days after the date on which the Commission mails notice of the Order to Cibolo Creek, whichever is earlier. The Chief Clerk shall provide a copy of this Agreed Order to each of the parties.

**SIGNATURE PAGE**

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

  
\_\_\_\_\_  
For the Commission

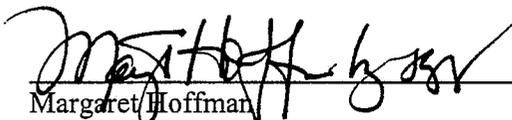
I, the undersigned, have read and understand the attached Agreed Order. I am authorized to agree to the attached Agreed Order on behalf of the entity, if any, indicated below my signature, and I do agree to the terms and conditions specified therein.

  
\_\_\_\_\_  
Signature

March 19, 2002  
\_\_\_\_\_  
Date

David R. Dennis  
\_\_\_\_\_  
Name (Printed or typed)  
Authorized Representative of  
Cibolo Creek Municipal Authority

General Manager  
\_\_\_\_\_  
Title

  
\_\_\_\_\_  
Margaret Hoffman  
Deputy Director  
Office of Legal Services  
Texas Natural Resource Conservation Commission

6/20/02  
\_\_\_\_\_  
Date

**Instructions:** Send the original, signed Agreed Order with penalty payment to the Financial Administration Division, Revenues Section at the address in Section IV, Paragraph 1 of this Agreed Order.

## Attachment A

### SUPPLEMENTAL ENVIRONMENTAL PROJECT

The Texas Natural Resource Conservation Commission ("TNRCC") agrees to offset a portion of the administrative penalty assessed in this Agreed Order with the condition that Cibolo Creek Municipal Authority shall perform and comply with the following Supplemental Environmental Project ("SEP") provisions. The total amount of the conditional offset for the SEP, upon completion according to the terms and schedules listed below, shall be Eight Thousand Dollars (\$8,000.00) of the administrative penalty of Eight Thousand Dollars (\$8,000.00).

#### 1. Project Description

##### A. Project

Cibolo Creek Municipal Authority will contribute to the Schertz-Cibolo-Universal City Independent School District. The contribution will be used in accordance with the *Supplemental Environmental Project Agreement between Schertz-Cibolo-Universal City Independent School District and the Texas Natural Resource Conservation Commission*. The contribution will be used in the Schertz-Cibolo-Universal City Independent School District's reclaimed water irrigation project. Specifically, the contribution will be used to extend a reclaimed water line approximately 375 ft. which will allow the connection of the irrigation system to Schertz-Cibolo-Universal City Independent School District's baseball field and adjoining practice fields in Schertz, TX. All dollars contributed will be used solely for the direct cost of the project and no portion will be spent on administrative costs. The SEP will be done in accordance with all federal, state, and local environmental laws and regulations.

Cibolo Creek Municipal Authority certifies that there is no prior commitment to make this contribution and that it is being done solely in an effort to settle this enforcement action.

This SEP will provide a discernible environmental benefit by reducing the use of Edwards Aquifer potable water by approximately 27,000 gallons per day. The SEP will also reduce the wastewater effluent discharged into segment 1913 of Cibolo Creek by over 5 million gallons per year, therefore reducing the wasteload contribution to segment 1913.

##### B. Minimum Expenditure

The offset of Eight Thousand Dollars (\$8,000.00) of the administrative penalty is based upon Cibolo Creek Municipal Authority's agreement to contribute Eight Thousand Dollars (\$8,000.00) to the project described above and to comply with all other provisions of this SEP.

#### 2. Performance Schedule

Within 30 days after the effective date of this Agreed Order, Cibolo Creek Municipal Authority will make the required contribution to Schertz-Cibolo-Universal City Independent School District. The contribution, with a copy of the Agreed Order, will be mailed to:

David Fluker  
Director of Auxiliary Services  
Schertz-Cibolo-Universal City Independent School District  
1060 Elbel Rd.  
Schertz, TX 78154

3. **Records and Reporting**

Concurrent with the payment of the SEP contribution, Cibolo Creek Municipal Authority shall provide the TNRCC SEP Coordinator with a copy of the check and transmittal letter indicating full payment of the contribution to the Schertz-Cibolo-Universal City Independent School District. A copy of the check and transmittal letter will be mailed to:

Litigation Division  
Attention: SEP Coordinator, MC 175  
Texas Natural Resource Conservation Commission  
P.O. Box 13087  
Austin, Texas 78711-3087

4. **Failure to Fully Perform**

If Cibolo Creek Municipal Authority does not perform its obligations under this SEP in any way, including full expenditure of all required funds and the submittal of an adequate report, the Executive Director may require immediate payment of all or part of the Eight Thousand Dollars (\$8,000.00) conditionally offset.

The check for any amount due shall be made out to "Texas Natural Resource Conservation Commission" and mailed to:

Texas Natural Resource Conservation Commission  
Financial Administration Division, Revenues  
Attention: Cashier, MC 214  
P.O. Box 13088  
Austin, Texas 78711-3088

A copy of the check shall be mailed to the TNRCC SEP Coordinator at the address in Section 3 above.

5. **Publicity**

Any public statements concerning this SEP made by, or on behalf of, Cibolo Creek Municipal Authority must include a clear statement that the project was performed as part of the settlement of an enforcement action brought by the TNRCC. Such statements include, but are not limited to, advertising, public relations, and press releases.

6. **Clean Texas Program**

Cibolo Creek Municipal Authority shall not include this SEP in any application made to TNRCC under the "Clean Texas" (or any successor) program(s). Similarly, Cibolo Creek Municipal Authority may not seek recognition for this contribution in any other State or Federal regulatory

program.

7. **Other SEPs by TNRCC or Other Agencies**

The SEP identified in this Agreed Order has not been, and shall not be, included as an SEP for Cibolo Creek Municipal Authority under any other Agreed Order negotiated with the TNRCC or any other agency of the State or Federal government.

U.S. Postal Service™  
**CERTIFIED MAIL™ RECEIPT**  
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at [www.usps.com](http://www.usps.com)

**CIBOLO CREEK MUNICIPAL AUTHORITY**

Postage	\$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$

2/27/06 TT

Postmark  
Here



**ORDER ON ENVIRONMENTAL QUALITY**

*as by Reducing and Preventing Pollution*

February 27, 2006

Sent To  
**MR DAVID R DENNIS**  
P.O. BOX 930  
SCHERTZ, TEXAS 78154

**PT REQUESTED 7004 2510 0003 9121 9303**

PS Form 3800, June 2002 See Reverse for Instructions

Mr. David R. Dennis, General Manager  
Cibolo Creek Municipal Authority  
P.O. Box 930  
Schertz, Texas, 78154

Re: Second Amended Schedule for Compliance With Ordering Provisions  
Cibolo Creek Municipal Authority located approximately 2.25 miles northeast of the center of  
Randolph Air Force Base on the south bank of Cibolo Creek, Bexar County, Texas  
Docket No. 2001-0896-MWD-E; Enforcement Case No. 7995  
Agreed Order Effective Date: August 2, 2002

Dear Mr. Dennis:

We are in receipt of your letter dated February 14, 2006, which requested an amended schedule for completion of Ordering Provision No. 3 of the above-referenced Agreed Order. Your letter also provided specific reasons for delays in complying with this provision.

Based on the reviewed information, we approve of the amended schedule you have requested. The new deadline for compliance with Ordering Provision No. 3 is June 2007.

Thank you for your continuing efforts to achieve compliance. If you have any questions, please contact Ms. Meri Matl of the Enforcement Division staff at (512) 239-4572.

Sincerely,

John Sadlier, Director  
Enforcement Division

cc: Manager, Water Section, San Antonio Regional Office, TCEQ  
Ms. Cindy Ikard, Section Manager, Water Quality Compliance Monitoring Section, Enforcement Division  
Ms. Meri Matl, Coordinator, Enforcement Division  
Central Records, Building E, MC 212  
Enforcement Division Reader File

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



**A RESOLUTION**

adopting one total maximum daily load (TMDL) for dissolved oxygen in Mid Cibolo Creek (Segment 1913) of the San Antonio River Basin, in Bexar, Guadalupe, and Comal Counties, as a certified update to the State of Texas Water Quality Management Plan to satisfy federal water quality management planning requirements. TCEQ Docket No. **2007-0066-TML**

WHEREAS, under 40 Code of Federal Regulations §130.6, the State must ensure that State and areawide Water Quality Management Plans (WQMP) together include all necessary plan elements and that such plans are consistent with one another;

WHEREAS, under Texas Water Code, §26.037, The Texas Commission on Environmental Quality (Commission) is charged with the approval of WQMP updates;

WHEREAS, the Texas Water Code, §5.122 allows for delegation of Commission authority to the Executive Director under certain terms and conditions;

WHEREAS, by resolution issued on February 18, 1999 (Resolution), the Commission authorized the Executive Director to approve WQMP revisions and updates;

WHEREAS, under the terms of the Resolution, the Commission may, in its discretion, choose to consider and approve or disapprove proposed revisions to the WQMP;

WHEREAS, the Executive Director has drafted one TMDL for dissolved oxygen in Mid Cibolo Creek (see Attachment A) and presented it for the Commission's consideration;

WHEREAS, the Commission finds that the TMDL for dissolved oxygen in Mid Cibolo Creek complies with all state and federal law and regulations and are consistent with all other parts of the Texas WQMP;

NOW, THEREFORE, it is resolved and ordered by the Commission that the TMDL for dissolved oxygen in Mid Cibolo Creek (Attachment A) is adopted and shall be submitted to the EPA for approval to be included in the Texas WQMP.

Issue Date:

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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For the Commission

## Attachment A