

Lone Star Groundwater Conservation District  
Groundwater Management Plan

Adopted October 14, 2003

# **Lone Star Groundwater Conservation District**

## **Groundwater Management Plan**

### **I. District Mission**

The Lone Star Groundwater Conservation District (the “District”) is committed to managing and protecting the groundwater resources of Montgomery County and to working with others to ensure a sustainable, adequate, high quality and cost effective supply of water. The District will strive to develop, promote, and implement water conservation, augmentation, and management strategies to protect water resources for the benefit of the citizens, economy, and environment of Montgomery County. The preservation of this most valuable resource can be managed in a prudent and cost-effective manner through conservation, education, management, and permitting. Any action taken by the District shall only be after full consideration and respect has been afforded to the individual property rights of all citizens of Montgomery County.

### **II. Purpose of Management Plan**

The 75<sup>th</sup> Texas Legislature in 1997 enacted Senate Bill 1 (“SB 1”)<sup>1</sup> to establish a comprehensive statewide water planning process. In particular, SB 1 contained provisions that required groundwater conservation districts to prepare management plans to identify the water supply resources and water demands that will shape the decisions of each district. SB 1 designed the management plans to include management goals for each district to manage and conserve the groundwater resources within their boundaries. In 2001, the Texas Legislature enacted Senate Bill 2 (“SB 2”)<sup>2</sup> to build on the planning requirements of SB 1 and to further clarify the actions necessary for districts to manage and conserve the groundwater resources of the state of Texas.

The Lone Star Groundwater Conservation District’s management plan satisfies the requirements of SB 1, SB 2, the statutory requirements of Chapter 36 of the Texas Water Code, and the administrative requirements of the Texas Water Development Board’s (TWDB) rules.

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<sup>1</sup> Act of June 2, 1997, 75<sup>th</sup> Leg., R.S., ch. 1010, 1997 Tex. Gen. Laws 3610.

<sup>2</sup> Act of May 27, 2001, 77<sup>th</sup> Leg., R.S., ch. 966, 2001 Tex. Gen. Laws 1991.

### **III. District Information**

#### **A. Creation**

In 2001, the creation of the District was authorized by the 77<sup>th</sup> Texas Legislature through House Bill 2362<sup>3</sup>. The creation of the District was confirmed by the voters of Montgomery County on November 6, 2001, with 73.85 percent of the voters casting favorable ballots. As required by 31 TAC § 356.3, this management plan is being submitted within two years of the confirmation election.

#### **B. Location and Extent**

The District is located in Montgomery County in southeastern Texas. The boundaries of the District are coterminous with the boundaries of Montgomery County, Texas. The District is bordered by Walker County on the north, San Jacinto and Liberty Counties on the east, Harris County on the south, and Waller and Grimes Counties on the west. Peach Creek is the boundary with San Jacinto County, and Spring Creek forms most of the boundary with Harris County. The District comprises an area of approximately 1,090 square miles.

#### **C. Background**

The Board of Directors for the District consists of nine members. The Board of Directors is made up of the following members:

1. two members appointed by the Commissioners Court of Montgomery County;
2. one member appointed by the Board of Directors of the Montgomery County Soil and Water Conservation District;
3. one member appointed by the Board of Directors of the San Jacinto River Authority;
4. one member appointed by the Mayor of the City of Conroe;
5. one member appointed by the mayors of all of the incorporated municipalities, other than the City of Conroe, located in whole or in part in Montgomery County;
6. one member appointed by the Board of Trustees of the Woodlands Joint Powers Agency;
7. one member appointed by the boards of directors of all of the municipal utility districts located in whole or in part in Montgomery County that are not

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<sup>3</sup> Chapter 1321, Acts of the 77th Legislature, Regular Session, 2001.

members of the Woodlands Joint Powers Agency and the district boundaries of which are located primarily to the east of Interstate Highway 45; and

8. One member appointed by the boards of directors of all of the municipal utility districts located in whole or in part in Montgomery County that are not members of the Woodlands Joint Powers Agency and the district boundaries of which are located primarily to the west of Interstate Highway 45.

#### **D. Authority / Regulatory Framework**

In its preparation of its management plan, the District has followed all procedures and satisfied all requirements required by Chapter 36 of the Texas Water Code and Chapter 356 of the Texas Water Development Board's (TWDB) rules contained in Title 30 of the Texas Administrative Code. The District exercises the powers that it was granted and authorized to use by and through the special and general laws that govern it, including Chapter 1321, Acts of the 77th Legislature, Regular Session, 2001, Chapter 994, Acts of the 78th Legislature, Regular Session, 2003, and Chapter 36 of the Texas Water Code.

#### **E. Groundwater Resources of Montgomery County**

The principal source of useable groundwater in Montgomery County is the Gulf Coast aquifer. The Gulf Coast aquifer consists of four subdivisions, of which three are water-bearing and recognized as aquifers in their own right: the Chicot aquifer; the Evangeline aquifer; and the Jasper aquifer. The Burkeville confining zone separates the Evangeline and Jasper aquifers.

The water-bearing subdivisions of the Gulf Coast aquifer consist of semi-consolidated or unconsolidated sands with interbedded clays from one or more geologic formations. Clay zones may separate the water-bearing zones in each subdivision of the Gulf Coast aquifer. The Burkeville confining zone is the largest of the clay zones separating water-bearing units in the Gulf Coast aquifer. In some areas, however, this subdivision consists of clay with interbedded sands that allow the passage of water. The Chicot aquifer is the youngest of the Gulf Coast aquifer subdivisions, followed by the Evangeline aquifer and the Burkeville confining zone. The Jasper aquifer is the oldest of the Gulf Coast aquifer subdivisions located in the District. (Fig.1)

Each of these Gulf Coast aquifer subdivisions occurs in outcrop in Montgomery County. The outcrop pattern is a series of belts, which are generally parallel to the coastline. The younger units occur nearest the coast and form a terraced plain. The successively older units crop out progressively further inland at higher elevations and form cuestas or sand hills.

The geologic structure of the Gulf Coast aquifer dips from the inland areas into the subsurface towards the coast at an angle greater than the slope of the land surface. The geologic units composing the Gulf Coast aquifer generally thicken towards the coast in the down-dip direction. The rate of dip in feet per mile increases with depth below land surface. The base of the Chicot aquifer dips at approximately 10 feet per mile while the rate of dip for the Catahoula Sand below the Jasper aquifer is approximately 90 feet per mile. The increased rate of dip with depth is caused by the thickening of geologic units towards the coast. (Popkin, 1971) (Fig. 2)

<b>System</b>	<b>Series</b>	<b>Geologic Unit</b>	<b>Hydrologic Unit</b>
Quaternary	Holocene	Alluvium	Chicot aquifer
Tertiary	Pleistocene	Beaumont Clay Montgomery Formation Bentley Formation	
	Pliocene (?)	Willis Sand	
	Pliocene	Goliad Sand	Evangeline aquifer
	Miocene	Fleming Formation	Burkeville Confining Zone
			Upper Jasper aquifer
Lower Jasper aquifer			

Fig. 1, Geologic and Hydrologic Units of the Gulf Coast aquifer in Montgomery County, Modified (Popkin, 1971).

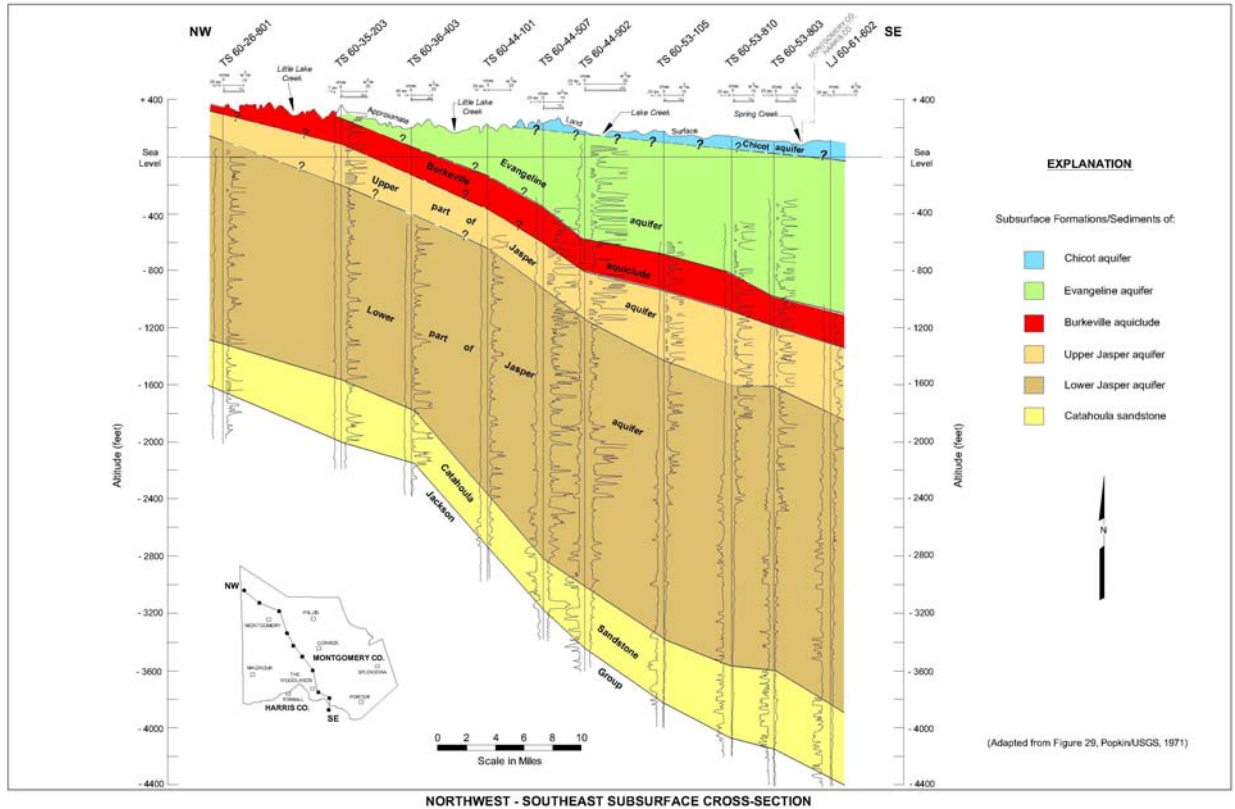


Fig. 2, Northwest to Southeast Cross-section Showing Dip and Thickening of Gulf Coast aquifer Subdivisions (Popkin, 1971).

## **F. Topography and Drainage**

“The topographic surfaces vary from almost flat near the larger streams and in the southern part of the county to hilly in the northern part. Altitudes range from about 45 feet above mean sea level in the southeastern corner of the county to about 440 feet in the northwestern corner.

The county is in the San Jacinto River drainage basin in which the primary drainage trends from northwest to southeast. The larger streams are the West Fork San Jacinto River, Peach, Spring, Stewart, and Caney Creeks. Secondary drainage which is roughly west to east is principally by Lake and Spring Creeks. The primary drainage is controlled by the southeasterly slope of the land surface while the secondary drainage is controlled to a large extent by the occurrence of alternating outcrops of sand and clay.

West Fork San Jacinto River has a stream gradient of about 5 feet per mile in the northern part of the county and about 3 feet per mile in the central and southern parts. Caney Creek has a gradient of 8 to 12 feet per mile in the northern part of the county and about 5 feet per mile in the central and southern parts. Spring Creek has a gradient of about 5 feet per mile in the southwestern part of the county and about 3 feet per mile in the southeastern part.” (Popkin at p. 8, 1971).

Although Lake Creek is described as a secondary drainage in TWDB Report 136, it is reported by the San Jacinto River Authority (SJRA) to have experienced flow in excess of 80,000 cubic feet per second (cfs) during storm run-off events on October 18, 1994. SJRA estimated the volume of flow was from data recorded at USGS gauging stations on a reach of the West Fork San Jacinto River where Lake Creek is the major tributary. During storm run-off events this stream could be considered to have flow equal to or exceeding the flow of streams given in TWDB Report 136 as primary drainages. (SJRA, 2003)

**IV. Technical District Information Required by Texas Administrative Code**

**A. Estimate of Total Usable Amount of Groundwater in District – 31 TAC § 356(a)(5)(A)**

The amount of useable groundwater available from the Gulf Coast aquifer is estimated to be 64,000 acre-feet per year. This estimate is based on the rate of annual deep recharge to the Gulf Coast aquifer of approximately 1.1 inches per year used in the development of the Northern Gulf Coast aquifer Groundwater Availability Model (GAM). This value was presented during the Stakeholder Advisory Forum meeting for the Northern Gulf Coast aquifer GAM of January 29, 2003. The annual deep recharge value expressed as a fraction of a foot was applied to the area of the District in acres (697,600 acres) to determine the useable amount of groundwater available from the Gulf Coast aquifer in acre-feet per year. In order to manage the groundwater resources of the District as practicably as possible in a sustainable manner, the groundwater availability is designated as the amount of effective annual recharge to the Gulf Coast aquifer in the District.

**B. Amount of Groundwater Being Used within the District on an Annual Basis - 31 TAC §356.5(a)(5)(B)**

The estimate of the amount of groundwater being used within the District on an annual basis is 49,002 acre-feet per year. This estimate is derived from the TWDB Annual Water Use Survey from the year 2000, which is the most recent data available.

Aquifer	Year	Municipal	Mfg	Power	Mining	Irrigation	Livestock
Gulf Coast	1980	18,109	1,108	810	652	0	139
Gulf Coast	1984	22,599	1,239	812	2,533	13	201
Gulf Coast	1985	23,425	1,014	810	348	50	166
Gulf Coast	1986	24,376	981	810	397	50	151
Gulf Coast	1987	22,476	876	810	452	50	158
Gulf Coast	1988	26,496	979	812	435	50	177
Gulf Coast	1989	26,329	953	808	61	19	155
Gulf Coast	1990	26,595	924	810	73	20	160
Gulf Coast	1991	25,776	1,143	810	383	20	163
Gulf Coast	1992	26,751	1,152	810	204	20	168
Gulf Coast	1993	32,507	1,151	810	204	0	163
Gulf Coast	1994	34,582	692	810	319	0	179
Gulf Coast	1995	36,539	698	810	330	0	192
Gulf Coast	1996	39,732	646	816	330	0	159
Gulf Coast	1997	39,633	806	810	313	0	163
Gulf Coast	1998	40,433	774	810	266	0	206
Gulf Coast	1999	51,559	689	810	266	0	234
Gulf Coast	2000	46,699	820	810	403	66	204

Table 1, Amount of Groundwater Used in Each Category of Use in the Annual TWDB Water Use Surveys.

**C. Annual Amount of Recharge to the Groundwater Resources within the District – 31 TAC § 356.5(a)(5)(C)**

The estimated annual amount of recharge to the groundwater resources of the District is 64,000 acre-feet per year. This estimate is based on the rate of annual deep recharge to the Gulf Coast aquifer of approximately 1.1 inches per year used in the development of the Northern Gulf Coast aquifer Groundwater Availability Model (GAM). This value was presented during the Stakeholder Advisory Forum meeting for the Northern Gulf Coast aquifer GAM of January 29<sup>th</sup>, 2003. The annual deep recharge value expressed as a fraction of a foot was applied to the area of the District in acres (697,600 acres) to determine the annual amount of recharge to the groundwater resources of the District.

**D. How Natural or Artificial Recharge of Groundwater within the District Might be Increased - 31 TAC § 356.5(a)(5)(C)**

Increasing the recharge of groundwater within the District may be difficult. A high percentage of the total amount of recharge is rejected by the aquifer and supports the base flow of streams. The natural or artificial recharge to the groundwater within the District might be feasibly increased by the construction of rainfall runoff retention structures on ephemeral streams.

**E. Projected Water Supply within the District – 31 TAC § 356.5(a)(5)(D)**

The estimates of projected water supplies are taken from Table 5 of the 2001 Region H, Regional Water Plan.

Water User Group	Source of Water Supply	2000	2010	2020	2030	2040	2050
Chateau Woods	Gulf Coast Aquifer	163	174	183	194	199	208
Conroe	Gulf Coast Aquifer	13,064	14,488	13,508	13,508	13,508	13,508
County-Other	Gulf Coast Aquifer	16,864	15,404	16,050	15,590	15,247	14,834
Cut and Shoot	Gulf Coast Aquifer	177	189	195	210	214	222
Houston	Gulf Coast Aquifer	5	5	5	6	7	8
Irrigation	Livingston Lake/Reservoir	20	20	20	20	20	20
Livestock	Livestock Local Supply	420	420	420	420	420	420
Magnolia	Gulf Coast Aquifer	220	245	262	305	348	370
Manufacturing	Gulf Coast Aquifer	1,670	1,670	1,670	1,670	1,670	1,670
Oak Ridge North	Gulf Coast Aquifer	754	832	792	810	941	1,100
Panorama Village	Gulf Coast Aquifer	678	841	841	841	841	841
Patton Village	Gulf Coast Aquifer	123	155	192	232	262	308
Roman Forest	Gulf Coast Aquifer	334	356	390	447	510	591
Shenandoah	Gulf Coast Aquifer	486	663	858	1,065	1,065	1,065
Splendora	Gulf Coast Aquifer	126	130	149	173	197	220
Steam Electric Power	Lake/Reservoir	6,300	6,300	6,300	6,300	6,300	6,300
Steam Electric Power	Trinity River Run-of-River	4,996	0	0	0	0	0
Steam Electric Power	Gulf Coast Aquifer	800	800	800	800	800	800
The Woodlands	Gulf Coast Aquifer	12,181	18,146	18,001	18,001	18,001	18,001
Willis	Gulf Coast Aquifer	623	731	906	906	906	906
Woodbranch	Gulf Coast Aquifer	146	171	198	242	284	348
Mining	No Available Supply	0	0	0	0	0	0
	Total Supplies =	60,150	61,740	61,740	61,740	61,740	61,740

Table 2, Estimates of the Projected Water Supplies in the District through 2050.

## **F. Projected Water Demand within the District – 31 TAC § 356.5(a)(5)(D)**

Estimates of projected demands are from Table 2 of the 2001 Region H, Regional Water Plan.

Water User Group	Category of Use	2000	2010	2020	2030	2040	2050
Chateau Woods	Municipal	163	174	183	194	199	208
Conroe	Municipal	13,064	16,098	19,691	24,140	28,896	34,906
County-Other	Municipal	16,864	19,750	26,764	40,190	53,572	67,419
Cut and Shoot	Municipal	177	189	195	210	214	222
Houston	Municipal	5	5	5	6	7	8
Irrigation	Irrigation	20	20	20	20	20	20
Livestock	Livestock	420	420	420	420	420	420
Magnolia	Municipal	220	245	262	305	348	370
Manufacturing	Manufacturing	1,670	1,935	2,128	2,317	2,604	2,897
Mining	Mining	196	98	53	30	19	15
Oak Ridge North	Municipal	754	832	956	1,181	1,373	1,604
Panorama Village	Municipal	678	841	1,026	1,262	1,521	1,834
Patton Village	Municipal	123	155	192	232	262	308
Roman Forest	Municipal	334	356	390	447	510	591
Shenandoah	Municipal	486	663	858	1,065	1,243	1,451
Splendora	Municipal	126	130	149	173	197	220
Steam Electric Power	Power	6,000	6,000	6,000	6,000	6,000	6,000
The Woodlands	Municipal	12,181	21,602	22,049	21,515	20,981	20,847
Willis	Municipal	623	731	906	1,108	1,279	1,503
Woodbranch	Municipal	146	171	198	242	284	348
	Total Demands =	<b>54,250</b>	<b>70,415</b>	<b>82,445</b>	<b>101,057</b>	<b>119,949</b>	<b>141,191</b>

Table 3, Estimates of the Projected Water Demand in the District Through 2050.

## **V. Water Management Strategies To Meet Needs of Water User Groups**

The projected water supplies and demand totals for the District given in Tables 2 and 3 indicate that projected demand would exceed supplies by 2010. To meet the needs of water user groups in the District, Region H adopted water management strategies to develop additional supplies.

WUG	Water Mgt. Strategy	Source	County	2000	2010	2020	2030	2040	2050
Conroe	New Contracts with SJRA	Lake Conroe	N/A	0	780	4,865	5,470	5,470	5,470
Conroe	Bedias Res. Contracts w/SJRA	Bedias Res.	N/A	0	0	0	3,632	8,388	14,398
Conroe	Municipal Conservation	Conservation	Montgomery	0	830	1,318	1,530	1,715	2,072
Oak Ridge North	New Contracts with SJRA	Lake Conroe	N/A	0	0	94	290	345	402
Oak Ridge North	Municipal Conservation	Conservation	Montgomery	0	0	70	81	87	102
Panorama Village	New Contracts with SJRA	Lake Conroe	N/A	0	0	83	306	541	824
Panorama Village	Municipal Conservation	Conservation	Montgomery	0	0	102	115	139	169
Shenandoah	New Contracts with SJRA	Lake Conroe	N/A	0	0	0	0	113	310
Shenandoah	Municipal Conservation	Conservation	Montgomery	0	0	0	0	65	76
The Woodlands	Increase SJRA Contract	Lake Conroe	N/A	0	3,456	4,048	3,514	2,980	2,846
Willis	Municipal Conservation	Conservation	Montgomery	0	0	0	69	70	97
Willis	New Well Fields	Gulf Coast aq.	Walker	0	0	0	133	303	500
County-Other	Municipal Conservation	Conservation	Montgomery	0	1,043	1,744	2,429	2,874	3,626
County-Other	Bedias Res. Contracts w/SJRA	Bedias Res.	N/A	0	0	0	13,600	27,325	40,750
County-Other	New Contracts with SJRA	Lake Conroe	N/A	0	3,303	8,970	8,970	8,970	8,970
Manufacturing	New Contracts with SJRA	Lake Conroe	N/A	0	265	458	647	934	1,227
Mining	New Contracts with SJRA	Lake Conroe	N/A	196	98	53	30	19	15
<b>Total Amount of Water From Water Management Strategies =</b>				<b>196</b>	<b>9,775</b>	<b>21,805</b>	<b>40,816</b>	<b>60,338</b>	<b>81,854</b>

Table 4, Water Management Strategies to Meet Needs in the District.

The water management strategies adopted by Region H include only one strategy to supply groundwater to a water user group in the District. This strategy supplies the City of Willis with groundwater from the Gulf Coast aquifer from a well field to be developed in Walker County. Table 4 indicates that none of the water management strategies recommended in the Region H, Regional Water Plan would be affected by the District's adoption of a value of 64,000 acre-feet per year for the availability of groundwater from the Gulf Coast aquifer.

## **VI. Management of Groundwater Supplies – 31 TAC § 356.5(a)(6)**

The Texas Legislature has established that groundwater conservation districts ('districts'), such as the Lone Star Groundwater Conservation District ("District"), are the state's preferred method of groundwater management. The Texas Legislature codified its policy decision in Section 36.0015 of the Texas Water Code, which establishes that districts will manage groundwater resources through rules developed and implemented in accordance with Chapter 36 of the Texas Water Code ("Chapter 36"). Chapter 36 gives directives to districts and the statutory authority to carry out such directives, so that districts are given the proper tools to protect and manage the groundwater resources within their boundaries.

In addition to the statutory authority provided to districts in Chapter 36, the District has the powers expressly granted to the District by Chapter 1321, Acts of the 77th Legislature, Regular Session, 2001, and Chapter 994, Acts of the 78th Legislature, Regular Session, 2003 (collectively "the District Act"). In accordance with Chapter 36 and the District Act, the District has implemented a claims process in which the District may require an existing or historic user of groundwater to obtain a historic use permit. In order to obtain a historic use permit, an existing or historic user must prove the maximum annual amount of groundwater that the user put towards a beneficial use during an existing and historic use period established by the District. In accordance with the District Act and the District's rules, the District established an initial existing and historic use period as the period from January 1, 1992, to the date of first adoption of the District's rules, August 26, 2002. Pursuant to Section 36.116(b) of the Texas Water Code, the District Act, the District's rules, the claims process and the existing and historic use period preserve historic use to the maximum extent practicable consistent with the District's management plan.

The claims process instituted by the District will also protect existing use in accordance with Section 36.113(e) of the Texas Water Code. The District protects existing use by imposing more restrictive permit conditions on new permit applications and increased use by historic users by establishing limitations that: (1) apply to all subsequent new permit applications and increased use by historic users, regardless of type or location of use; (2) bear a reasonable relationship to the District's management plan; and (3) are reasonably necessary to protect existing use.

Another significant management tool that the District is authorized to utilize by the District Act and Chapter 36 is the use of management zones. The District may establish management zones within the boundaries of the District in order to better manage and regulate the groundwater resources of Montgomery County. The District may use the management zones to adopt different rules under Section 36.116 of the Texas Water Code for each aquifer, subdivision of an aquifer, or geologic stratum located in whole or in part within the boundaries of the District, or

different geographic areas of an aquifer or subdivision of an aquifer located in whole or in part within the boundaries of the District. Management zones shall serve as areas for which the District shall determine total water availability, authorize total production, implement proportional reduction of production among classes of users, and within which the District shall allow the transfer of the right to produce groundwater, as set forth in the District's rules.

As set forth in the District's rules and this Management Plan, the District shall seek to limit production of groundwater from the resources within its boundaries to a sustainable level, so that the groundwater resources of Montgomery County are not depleted for future generations. For purposes of this plan, the word "sustainable" means limiting total groundwater production in the District or in a management zone designated by the District to an amount that does not exceed the amount of effective deep aquifer recharge in the District or the management zone, as applicable, when averaged over a term of years to be determined by the District. To the extent that groundwater use in a particular management zone exceeds groundwater availability in that zone, the District shall implement proportional adjustment regulations to reduce overall production in that zone to a level that does not exceed availability when averaged over time. The regulatory scheme for proportional adjustment is set forth in Section 4 of the District's rules. Generally speaking, that regulatory scheme calls for any necessary reductions to first be assessed against non-historic users of groundwater, then against Historic Use permittees. The District Rules also expressly recognize that, in establishing or implementing any proportional adjustment regulations that contemplate the reduction of authorized production or a prohibition on authorization for new or increased production, the District shall consider the time necessary for water users to secure alternate sources of water, including surface water, by economically feasible means. This consideration may necessitate that the District authorize total production to exceed availability, either within a particular management zone or in the District as a whole, for a period of time to be determined by the District until economically feasible alternative water sources may reasonably be expected to be available to such groundwater users, and nothing in this plan shall be construed to limit the ability of the District to utilize that regulatory flexibility.

## **VII. Methodology to Track District Progress in Achieving Management Goals – 31 TAC § 356.5(a)(6)**

The general manager of the District will prepare and submit an annual report ("Annual Report") to the Board of Directors of the District. The Annual Report will include an update on the District's performance in regards to achieving management goals and objectives. The general manager of the District will present the Annual Report within ninety (90) days following the completion of the District's fiscal year, beginning with the fiscal year that starts January 1, 2004. The Annual Report for the Fiscal year beginning January 1, 2004, will also include information on the District's performance in the portion of the prior fiscal year following the certification of the management plan as administratively complete by TWDB. The Board will maintain a copy of the Annual Report on file for public inspection at the District's offices upon adoption.

**VIII. Actions, Procedures, Performance, and Avoidance for District Implementation of Management Plan – 31 TAC § 356.5 (a)(4)**

The District will implement the goals and provisions of this management plan and will utilize the objectives of this management plan as a guideline in its decision-making. The District will ensure that its planning efforts, operations, and activities will be consistent with the provisions of this plan.

The District will adopt rules in accordance with Chapter 36 of the Texas Water Code, and all rules will be followed and enforced. The District may amend the District rules as necessary to comply with changes to Chapter 36 of the Texas Water Code and to insure the best management of the groundwater within the District. The development and enforcement of the rules of the District will be based on the best scientific and technical evidence available to the District.

The District will encourage cooperation and coordination in the implementation of this plan. All operations and activities of the District will be performed in a manner that best encourages cooperation with the appropriate state, regional or local water entity.

**IX. Management Goals**

**A. Providing the Most Efficient Use of Groundwater – 31 TAC § 356.5(a)(1)(A)**

- A. 1. **Objective** – Each year, the District will require all new exempt or permitted wells that are constructed within the boundaries of the District to be registered or permitted with the District in accordance with the District Rules.
- A. 1. **Performance Standard** – The number of exempt and permitted wells registered or permitted by the District for the year will be incorporated into the Annual Report submitted to the Board of Directors of the District.
- A. 2. **Objective** – Each year, the District will regulate the production of groundwater by maintaining a system of permitting the use and production of groundwater within the boundaries of the District in accordance with the District Rules.
- A. 2. **Performance Standard** – Each year the District will accept and process applications for the permitted use of groundwater in the District in accordance with the permitting process established by the District Rules. The number and type of applications made for the permitted use of groundwater in the District, and the number and type of permits issued by the District, will be included in the Annual Report given to the Board of Directors.

**B. Controlling and Preventing Waste of Groundwater – 31 TAC § 356.5(a)(1)(B)**

- B. 1. Objective** – Each year, the District will make an evaluation of the District Rules to determine whether any amendments are recommended to decrease the amount of waste of groundwater within the District.
- B. 1. Performance Standard** – The District will include a discussion of the annual evaluation of the District Rules and the determination of whether any amendments to the rules are recommended to prevent the waste of groundwater in the Annual Report of the District provided to the Board of Directors.
- B. 2. Objective** – Each year, the District will apply a water use fee structure to the permitted use of groundwater in the District to encourage the elimination and reduction of waste of groundwater.
- B. 2. Performance Standard** – Each year, with the exception of wells exempt from permitting, the District will apply a water use fee to the permitted use of groundwater in the District pursuant to District rules. The amount of fees generated by the water use fee structure and the amount of water used for each type of permitted use of groundwater will be included in a section of the Annual Report given to the Board of Directors of the District.
- B. 3. Objective** – Each year, the District will provide information to the public on eliminating and reducing wasteful practices in the use of groundwater by including information on groundwater waste reduction on the District’s website.
- B. 3. Performance Standard** – Each year, a copy of the information provided on the groundwater waste reduction page of District’s website will be included in the District’s Annual Report to be given to the District’s Board of Directors.

**C. Controlling and Preventing Subsidence – 31 TAC § 356.5(a)(1)(C)**

- C.1. Objective** – Each year, the District will hold a joint conference with the Harris-Galveston Coastal Subsidence District and the Fort Bend Subsidence District focused on sharing information regarding subsidence and the control and prevention of subsidence through the regulation of groundwater.
- C.1. Performance Standard** – Each year, a summary of the joint conference on subsidence issues will be included in the Annual Report submitted to the Board of Directors of the District.

- C. 2. **Objective** – Each year, the District will provide one article annually on the District’s website to educate the public on the subject of subsidence.
- C. 2. **Performance Standard** – The Annual Report submitted to the Board of Directors will include a copy of the article posted on the District’s website.

**D. Conjunctive Surface Water Management Issues – 31 TAC § 356.5(a)(1)(D)**

- D. 1. **Objective** – Each year, the District will participate in the regional planning process by attending at least 75 percent of the Region H – Regional Water Planning Group meetings to encourage the development of surface water supplies to meet the needs of water user groups in the District.
- D. 1. **Performance Standard** – The attendance of a District representative at each Region H Regional Water Planning Group will be noted in the Annual Report presented to the District Board of Directors.

**E. Drought Conditions – 31 TAC § 356.5(a)(1)(F)**

- E. 1. **Objective** – Each month, the District will download the updated Palmer Drought Severity Index (PDSI) map and check for the periodic updates to the Drought Preparedness Council Situation Report (Situation Report) posted on the Texas Water Information Network website [www.txwin.net](http://www.txwin.net) .
- E. 1. **Performance Standard** – Quarterly, the District will make an assessment of the status of drought in the District and prepare a quarterly briefing to the Board of Directors. The downloaded PDSI maps and Situation Reports will be included with copies of the quarterly briefing in the District Annual Report to the Board of Directors.

**F. Conservation – 31 TAC § 356.5(a)(1)(G)**

- F. 1. **Objective** – The District will annually submit an article regarding water conservation for publication to at least one newspaper of general circulation in Montgomery County.
- F. 1. **Performance Standard** – A copy of the article submitted by the District for publication to a newspaper of general circulation in Montgomery County regarding water conservation will be included in the Annual Report to the Board of Directors.

- F. 2. **Objective** – The District will develop or implement a pre-existing educational program for use in public or private schools in Montgomery County to educate students on the importance of water conservation by January 1, 2005.
- F. 2. **Performance Standard** – A description of the educational program developed or implemented by the District for use in Montgomery County public or private schools will be included in the Annual Report to the Board of Directors for the year 2005.
- F. 3. **Objective** – Each year, the District will include an informative flier on water conservation within at least one mail out to groundwater use permit holders distributed in the normal course of business for the District.
- F. 3. **Performance Standard** – The District’s Annual Report will include a copy of the informative flier distributed to groundwater use permit holders regarding water conservation and the number of fliers distributed.

**X. Management Goals Not-Applicable to District**

- A. **Natural Resource Issues – 31 TAC § 356.5(a)(1)(E)** – The District has not been advised as to any threatened or endangered species that exist within the boundaries of the District and are significantly impacted by groundwater usage.

**XI. Action Required for Plan Certification – 31 TAC § 356.6**

**A. Planning Period – 31 TAC § 356.5(a)**

The Board of Directors of the District adopted the management plan for the District by resolution on October 14, 2003. The management plan will remain in effect for ten years from the date of certification as administratively complete by the Texas Water Development Board, unless the District adopts an amended management plan that is certified by the Texas Water Development Board. The amended management plan will take effect as of the date of certification. In accordance with the provisions of Chapter 36 of the Texas Water Code, the District’s management plan shall be reviewed annually and readopted with or without revisions at least every five years.

**B. Certified Copy of District’s Resolution Adopting Management Plan – 31 TAC § 356.6(a)(2)**

A certified copy of the District’s resolution adopting the plan is located in Appendix A – District Resolution.

**C. Evidence of Management Plan Adoption After Notice and Hearing –  
31 TAC § 356.6(a)(3)**

Evidence, such as public notices, that the management plan was adopted following applicable public meetings and hearings is located in Appendix B - Notice of Meetings.

**D. Coordination with Surface Water Management Entities –  
31 TAC § 356.6(a)(4)**

Evidence, such as correspondence or agendas from regional water planning group planning meetings, that the District coordinated with surface water management entities in regards to the District's management plan is located in Appendix C.

**References**

1. Popkin, Barney P., 1971. Texas Water Development Board Report 136, "Ground-Water Resources of Montgomery County, Texas", prepared by the United States Geological Survey in cooperation with the Texas Water Development Board, Montgomery County Commissioners Court, the San Jacinto River Authority and the City of Conroe.
2. Regional Water Management Plan, Region H – Regional Water Planning Group.
3. Rules of the Lone Star Groundwater Conservation District, as amended.
4. San Jacinto River Authority - Jim Adams, General Manager personal communication August 2003 based on USGS Stream Gage Data for October 18, 1994, from Site No.s 08067650 and 08068000 located near the confluence of Lake Creek and the West Fork of the San Jacinto River.
5. Turner Collie & Braden Project Team – Bill Couch, AICP Project Manager personal communications May – August 2003.