

Buddy Garcia, *Chairman*  
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Bryan W. Shaw, Ph.D., *Commissioner*  
Glenn Shankle, *Executive Director*



TEXAS  
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QUALITY

2007 NOV 21 AM 11:20

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY  
*Protecting Texas by Reducing and Preventing Pollution*  
CHIEF CLERKS OFFICE

November 21, 2007

LaDonna Castañuela, Chief Clerk  
Texas Commission on Environmental Quality  
P.O. Box 13087, MC 105  
Austin, Texas 78711-3087

Re: Executive Director's Response Public Comment  
Application by Hays County Water Control & Improvement District No. 1 for TPDES  
Permit No. WQ0014293001

Dear Ms. Castañuela:

Enclosed for filing is the original "Executive Director's Response to Public Comment" in the above referenced case. Please file stamp these documents and return them to Kathy Humphreys, Attorney, Environmental Law Division, MC 173. If you have any questions or comments, please call me at (512) 239-3417.

Sincerely,

A handwritten signature in cursive script that reads "Kathy J. Humphreys".

Kathy Humphreys  
Attorney  
Environmental Law Division

Enclosure

TCEQ Docket No. 2007-1426-MWD  
SOAH Docket No. 582-08-0202

2007 NOV 21 AM 11: 21

<p>APPLICATION BY HAYS COUNTY WATER CONTROL &amp; IMPROVEMENT DISTRICT NO. 1 FOR TPDES PERMIT NO. WQ0014293001</p>	<p>§ § § § §</p>	<p>BEFORE THE  TEXAS COMMISSION ON  ENVIRONMENTAL QUALITY</p>	<p>CHIEF CLERKS OFFICE</p>
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**EXECUTIVE DIRECTOR'S RESPONSE TO PUBLIC COMMENT**

The Executive Director (ED) of the Texas Commission on Environmental Quality (the Commission or TCEQ) files this Response to Public Comment (Response) on the application for a new Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ00014293001 by Hays County WCID No. 1 (Hays County WCID) and the ED's preliminary decision. Pursuant to 30 Texas Administrative Code (TAC) Section 55.156, before an application is approved and a permit issued, the ED must prepare a response to all timely, relevant and material, or significant comments. The Office of the Chief Clerk timely received comments from:

<u>Name</u>	<u>Representing</u>
Gary Anderson	Himself
John Anderson	Goldenwood West Water Supply Corporation (Goldenwood)
Sara Baker	Save Our Springs Alliance (SOS)
Andrew Backus	Hays Trinity Groundwater Conservation District (HTGCD)
Alston Boyd	Himself
Nick Burkhalter	Himself
Elizabeth and Jonathan Carman (Carmans)	Themselves
G.L. Cole	Himself
Sam Cobb	Himself
Laurie Coffin	Herself

Harold Daniel	Save Barton Creek Association (Save Barton Creek)
Brian Dudley	The Friendship Alliance (Friendship)
Brian Dudley	Himself
Roger Durden	Himself
Maria Earich	Herself
John and Angelique Edl	Themselves
Deanna Eischler	Herself
Susan Fein	Herself
Karen Ford	Herself
Newton Hammet	Himself
Karen Ford, Russ Molenaar and Elizabeth Sumter	Hays County Commissioners Court (Hays County)
Jim and Diana George	Themselves
Robert Hejl	Himself
Kirk Holland and Chuck Murphy	Barton Springs/Edwards Aquifer Conservation District (BSEACD)
Roger Kew and Scott Lary	Radiance Water Supply Corporation (Radiance)
Ted Lehr	Himself
Brian Leonard	Himself
Eugene Lowenthal	Hamilton Pool Road Scenic Corridor Coalition (Hamilton)
Debra Morris	Herself
Holly Noelke	City of Austin (Austin)
Kinney Owen and Barbara Stroud	Bear Creek Property Owners Association (BCPOA)
Cat Quintanilla	City of Sunset Valley (Sunset Valley)
Alicia Reinmund	Lower Colorado River Authority (LCRA);
Elizabeth Seiler	Herself
Scott Severson	Himself
Grey and Larry Skelley	Themselves
Jonathan Steinberg	Himself
Barbara Stroud and Robert O'Boyle	Themselves
Lial Tischler	Barbara Stroud and Robert O'Boyle
Jennifer Walker and Donna Tiemann	Lone Star Chapter of the Sierra Club
Tara Weaver	Herself
Fred Werkenthin	The Davis Family Properties, LTD. (Davis Family)
Susan Zachos	City of Dripping Springs (Dripping Springs)

This Response addresses all timely filed public comments received, whether or not withdrawn. If you need more information about this permit application or the

wastewater permitting process, please call the TCEQ Office of Public Assistance at 1-800-687-4040. General information about the TCEQ can be found at our website at [www.tceq.state.tx.us](http://www.tceq.state.tx.us).

## **BACKGROUND**

### Description of Facility

The Hays County WCID Wastewater Treatment Plant (WWTP) is an activated sludge process plant operated in the extended aeration mode in the Interim I Phase and single stage nitrification mode in the Interim II and Final Phases. Treatment units in the Interim I Phase include bar screen, aeration basin, final clarifier, aerobic sludge digester, and a chlorine contact chamber. Treatment units in the Interim II Phase will include bar screen, aeration basin, final clarifier, aerobic sludge digester, chemical feed system ( $\text{FeCl}_3$ ), effluent storage tank, disk cloth filter, a chlorine contact chamber and dechlorination chamber. With the exception of the effluent storage tank, the additional treatment units in the Final Phase will be similar to the Interim II Phase treatment module. The facility is operating in the Interim I Phase. The Interim II and Final Phase facilities have not been constructed.

The plant site is located approximately 1,100 feet west of County Road 163 (Nuttly Brown Road) and approximately 1.16 miles south of the intersection of County Road 163 and U.S. Highway 290 in Hays County, Texas.

The draft permit would authorize a discharge of treated domestic wastewater at an Interim I volume not to exceed a daily average flow of 0.150 million gallons per day (MGD) via non-public access subsurface drip irrigation system with a minimum area of

35 acres. The facility includes a storage tank with a total capacity of 330,000 gallons for storage of treated effluent prior to subsurface drip irrigation. Application rates shall not exceed 0.1 gallons per square foot per day.

The draft permit would authorize the discharge of treated domestic wastewater at an Interim II volume not to exceed a daily average flow of 0.250 MGD and a final volume not to exceed a daily average flow of 0.500 MGD via discharge to Bear Creek; thence to Onion Creek in Segment No. 1427 of the Colorado River Basin.

The unclassified receiving water uses are limited aquatic life use for Bear Creek (downstream 0.94 km to Aspen Drive) and high aquatic life use for Bear Creek (downstream of Aspen Drive). The designated uses for Segment No. 1427 are high aquatic life uses, public water supply, aquifer protection, and contact recreation. The effluent limitations in the draft permit will maintain and protect the existing instream uses.

In accordance with 30 Texas Administrative Code (TAC) § 307.5 and the TCEQ implementation procedures (January 2003) for the Texas Surface Water Quality Standards, an antidegradation review of the receiving waters was performed. A Tier 1 antidegradation review has preliminarily determined that existing water quality uses will not be impaired by this permit action. A Tier 2 antidegradation review has preliminarily determined that by adding permit requirements for total phosphorus of 0.1 mg/l and dechlorination (or alternate method of disinfection), no significant degradation of high aquatic life uses of Bear Creek, its on-channel impoundments, or Onion Creek is

anticipated. Existing uses will be maintained and protected. The preliminary determination can be reexamined and may be modified if new information is received.

### Procedural Background

The application was received on December 13, 2005 and declared administratively complete on January 19, 2006. The Notice of Receipt and Intent was published on January 31, 2006 in the *Austin American-Statesman*. The Executive Director completed the technical review of the application and prepared an initial TPDES draft permit. The Notice of Application and Preliminary Decision was published on July 21, 2007, in the *Austin American-Statesman*. Senator Wentworth, Representative Rose and numerous individuals requested a public meeting. The notice of the public meeting was published on August 24, 2007 in the *Austin American-Statesman* the meeting was held on September 25, 2007 in Dripping Springs, Texas. The comment period ended at the conclusion of the public meeting. House Bill 801 applies to this permit application.

On August 30, 2007, Hays County WCID requested that this matter be directly referred to the State Office of Administrative Hearings for a contested case hearing. The preliminary hearing is set for November 27, 2007, in the Clements Building in Austin, Texas.

### **COMMENTS AND RESPONSES**

#### **Comment 1:**

Austin, BCPOA, Alston Boyd, BSEACD, Nick Burkhalter, the Carmans, Laurie Coffin, G. L. Cole, Sam Cobb, Brian Dudley, Mara Earich, John and Angelique Edl,

Susan Fein, Karen Ford, Friendship, Jim and Diana George, Hamilton, Newton Hammet, Hays County, Robert Hejl, Ted Lehr, Brian Leonard, Debra Morris, Radiance, Save Barton Creek, Elizabeth Seile, Grey and Larry Skelley, Jonathan Steinberg, Sunset Valley, Barbara Stroud and Robert O'Boyle and Tara Weaver, expressed general opposition to the draft permit for Hays County WCID.

**Response 1:**

The Executive Director appreciates the concern expressed regarding this permit. The draft permit for Hays County WCID meets all of the statutory and regulatory requirements applying to TPDES permits.

**Comment 2:**

Austin, BCPOA, BSEACD, the Carmans, Laurie Coffin, LCRA, Friendship, Hamilton, Hays County, Robert Hejl, HTGCD, Save Barton Creek, Sierra Club and SOS expressed concern that if TCEQ issues a permit to Hays County WCID to discharge into Bear Creek, the Edwards Aquifer will be negatively impacted. According to SOS:

Extremely low to non-existent flows are frequently recorded for Bear Creek. Periods of zero flow account for about 20% of the USGS flow record. The flow conditions mean that frequently wastewater discharge will be the only stream flow, exposing downstream landowners to non-attenuated effluent flow impairing their uses of the creek. Wastewater effluent will be directly recharging the Barton Springs/Edwards Aquifer approximately 97% of the year and 100% effluent approximately 85 days per year. (City of Austin). This dominant wastewater flow is unacceptable given the uses of Bear Creek, its sensitivity, and its contributing recharge to the Edwards Aquifer and Barton Springs.

BCPOA, BSEACD and SOS also noted that currently there are no direct discharges of wastewater effluent permitted in the Barton Springs/Edwards Aquifer

contributing or recharge zones because direct discharge is inappropriate for the Aquifer that is the most vulnerable aquifer to pollution in the state.

BCPOA, BSEACD and Save Barton Creek stated that any discharge from Hays County WCID's WWTP could turn intermittent Bear Creek into an effluent dominated stream and could make the Aquifer unusable for the more than 50,000 people who depend on it for their drinking water.

BCPOA and BSEACD noted that approximately 10% of the Edwards Aquifer recharge comes from Bear Creek.

Austin and BSEACD provided the results of a study that demonstrated the connectivity between Bear Creek and Barton Springs.

**Response 2:**

The discharge from Hays County WCID should not negatively impact the Edwards Aquifer. The nutrient model indicated that the concentration of nitrate and phosphorus in Hays County WCID's wastewater would be comparable to existing background groundwater quality at the point Bear Creek recharges to the Edwards Aquifer. Therefore, the Edwards Aquifer should not be negatively impacted by a discharge from Hays County WCID.

**Comment 3:**

BCPOA, BSEACD, Laurie Coffin, Friendship, Hays County, HTGCD and SOS expressed concern that if TCEQ issues a permit to Hays County WCID to discharge into Bear Creek, the Trinity Aquifer will be negatively impacted.

**Response 3:**

A TCEQ geologist surveyed and photographed Bear Creek from the proposed outfall to where Bear Creek leaves the southern boundary of the BelTerra property.<sup>1</sup> The geologist found springs and other features consistent with an area of discharge to Bear Creek rather than recharge features conveying surface water to the Trinity Aquifer. The geologist also reviewed pictures of Bear Creek to Davis pond, which is located 1.92 miles from discharge outfall. According to the geologist review, the pictures show a laterally consistent confining limestone layer composing the bed of Bear Creek, supporting the absence of features that would recharge the Trinity Aquifer. This conclusion is consistent with the Raymond Slade paper “Projected Water Quality Degradation at Ranch Road 1826 Resulting from Direct Discharge Wastewater Permit Requested by Hays County WCID #1” that suggested that Bear Creek stream losses would be minimal from the Hays County WCID discharge point to the gauging station 5.1 miles downstream.<sup>2</sup> Because of the confining limestone layer coupled with the absence of recharge features, the ED has determined that the effluent from Hays County WCID will have little or no impact on the Trinity Aquifer.

Additionally, the nutrient model indicates that the nitrate concentration in the Hays County WCID effluent would be below the EPA primary drinking water standard below Davis pond. Therefore, even if there is recharge to the Trinity Aquifer below Davis pond, the discharge will not negatively impact the aquifer.

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<sup>1</sup> Various TCEQ staff and representatives of Hays County WCID walked the proposed discharge route from the proposed outfall for approximately 1.6 stream miles on October 25, 2007.

<sup>2</sup> Raymond Slade is a hydrologist, who has studied the hydrology of Bear Creek.

**Comment 4:**

BCPOA, BSEACD, and SOS expressed concern that the discharge would degrade the Barton Springs salamander's habitat due to an increase in turbidity, algal growth, nutrients, and fecal-group bacteria.

BCPOA and BSEACD noted that discharge from the proposed Hays County WCID would also impact the Austin blind salamander, a candidate for endangered listing.

Laurie Coffin expressed concern over the impact of Hays County WCID's proposed discharge on endangered species.

**Response 4:**

According to the Memorandum of Understanding between TCEQ and EPA, the presence of endangered species requires EPA review and if appropriate consultation with United States Fish and Wildlife Service (USFWS).

The ED determined that a stringent limit on total phosphorus was necessary to protect the quality of the receiving waters. Additionally, if the permit is issued, Hays County WCID will be required to disinfect its effluent.<sup>3</sup> The draft permit also requires the dechlorination of the effluent to less than 0.1 mg/l chlorine residual.<sup>4</sup> This is less than the minimum residual disinfectant concentration established for water in a drinking water distribution system.<sup>5</sup>

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<sup>3</sup> See Hays County WCID draft permit, pages 2a and 2b.

<sup>4</sup> See Hays County WCID draft permit, pages 2a and 2b.

<sup>5</sup> 30 TAC Section 290.104. Water in a drinking water distribution system can have 0.2 mg/l free chlorine or 0.5 mg/l chloramine.

**Comment 5:**

Austin and SOS stated that the discharge would not be consistent with the 2002 USFW consultation, nor has Hays County WCID demonstrated that it will meet the requirements of TCEQ's optional water quality measures.

**Response 5:**

Because the Hays County WCID proposed discharge is on the Contributing Zone of the Edwards Aquifer, before Hays County WCID can begin construction of any regulated activity it must have an approved contributing zone plan.<sup>6</sup> If Hays County WCID chooses to, it may implement the *Optional Enhanced Measures for the Protection of Water Quality in the Edwards Aquifer* (Optional Measures).<sup>7</sup> If Hays County WCID implements the Optional Measures there will not be a "take" of any endangered species according to the USFWS.<sup>8</sup> Finally, it is ultimately Hays County WCID's responsibility to determine if it needs to consult with USFWS.

**Comment 6:**

BCPOA, BSEACD, Laurie Coffin, Dripping Springs, LCRA, Hays County, HTGCD, Robert Hejl, Radiance, and SOS expressed concern that Bear Creek would be degraded by effluent from Hays County WCID's WWTP.

Friendship expressed concern that Bear Creek could become an effluent-dominated stream during part of the year.

**Response 6:**

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<sup>6</sup> 30 TAC § 213.33(a).

<sup>7</sup> RG-328A

<sup>8</sup> RG-328A, Page 1.

The commentors are correct that during periods of discharge and low-flow, Bear Creek would be effluent dominated if the Hays County WCID draft permit is issued. However, the ED has determined that the effluent limits in the draft permit will be protective of Bear Creek even during periods of low flow.

**Comment 7:**

Dripping Springs and Robert Hejl expressed concern that Onion Creek would be degraded by effluent from Hays County WCID's WWTP.

**Response 7:**

Onion Creek is approximately 15 stream miles from the proposed discharge location. The degree of treatment and distance from the discharge should protect Onion Creek from any potential degradation.

**Comment 8:**

Alston Boyd, Friendship, Hays County, HTGCD and Radiance expressed concern over bacterial contamination during upset conditions.

SOS stated that Bear Creek would be devastated if the WWTP malfunctioned resulting in a release of untreated sewage into the creek. SOS also asked if TCEQ had any statistics regarding the number of upsets from WWTPs similar to the one proposed by Hays County WCID.

BCPOA, BSEACD, Barbara Stroud and Robert O'Boyle stated that poorly treated or untreated sewage could have immediate and lasting effects on Bear Creek, the Edwards Aquifer and Barton Springs.

**Response 8:**

Hays County WCID is required to minimize the possibility of an accidental discharge of untreated wastewater. For example, Hays County WCID must maintain adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failures by means of alternate power sources, standby generators, or retention of inadequately treated wastewater. In addition, the plans and specifications for domestic sewage collection and treatment works associated with any domestic permit must be approved by the ED. Also, Standard Provision 7 of the proposed draft permit states that when the flow reaches 75 percent of the permitted daily average flow for three consecutive months, Hays County WCID must initiate engineering and financial planning for expansion or upgrade of the domestic wastewater treatment or collection facilities. When the flow reaches 90 percent of the permitted daily average flow for three consecutive months, Hays County WCID must obtain authorization from the ED to begin constructing the necessary additional treatment or collection facilities.

All of these permit provisions are designed to help prevent unauthorized discharges of raw sewage. If an unauthorized discharge occurs, Hays County WCID is required to report it to TCEQ within 24 hours. Finally, Hays County WCID is subject to potential enforcement action for failure to comply with TCEQ rules or the permit. Complaints about the facility or suspected incidents of noncompliance with the permit or TCEQ rules may also be reported to the TCEQ Region 11 Office in Austin at 512-339-2929 or 1-800-888-777-3186. Citizens may also gather data to show that a permittee is

not in compliance with TCEQ rules. For more information on citizen collected evidence, please see [www.TCEQ.state.tx.us/enforcement/complaints.html](http://www.TCEQ.state.tx.us/enforcement/complaints.html)

**Comment 9:**

Austin, BCPOA, BSEACD, the Carmans, Mara Earich, Friendship, Hamilton, Hays County, LCRA, Robert Hejl, Radiance and SOS expressed concern that if TCEQ issues a wastewater discharge permit to Hays County WCID, then other entities that have “no-discharge” permits will request amendments to authorize discharges to water in the state.

**Response 9:**

The ED evaluates each permit application on its own merits. Once a permit has been issued, the impact of that discharge to the receiving water is considered in subsequent permitting actions.

**Comment 10:**

Austin stated that wells in the discharge flow path will likely be degraded.

Gary Anderson, the Carmans, the Davis Family, Laurie Coffin, Hays County, and HTGCD expressed concern that the discharge would affect their drinking water wells.

Goldenwood, Barbara Stroud and Robert O’Boyle expressed concern that the discharge would affect its drinking water wells in the Hays-Trinity and Glen Rose strata. According to Goldenwood, its wells could become contaminated by toxins, bacteria and other foreign elements.

BCPOA, BSEACD, Deanna Eishler, Newton Hammet, Radiance and SOS expressed concern that drinking water wells downstream of the proposed WWTP would be negatively impacted by the discharge.

Gary Anderson asked if someone would monitor and test private wells.

**Response 10:**

According to the Texas Water Development Board (TWDB), the water well closest to the Hays County WCID outfall is 1/4 mile down gradient and produces water from 903 feet below ground level. The other water wells within a one mile radius produce water from depths ranging from 750-900+ feet below ground level. According to the TWDB the shallowest water producing zone within three miles of the proposed Hays County WCID discharge point is 400 feet below ground level.

As noted in response 2 above, a TCEQ geologist surveyed and photographed the first 1.6 stream miles of the discharge route and found features consistent with an area of discharge from the outfall to the point where Bear Creek crosses the Hays County WCID southern boundary rather than features indicating recharge to the Trinity Aquifer. The geologist also determined that beyond Hays County WCID's property, the Bear Creek streambed is a confining limestone layer. Because of the confining limestone layer coupled with the absence of recharge features, the ED has determined that the effluent from Hays County WCID will have little or no impact on the nearby water wells.

Additionally, the nutrient model indicates that the nitrate concentration in the Hays County WCID effluent would be below the EPA primary drinking water standard

below Davis pond. Therefore, even if there is some discharge to groundwater, the effluent will not negatively impact nearby water wells.

Additionally, the absence of recharge features, the depth of groundwater and the anticipated quality of the effluent from Hays County WCID, should prevent private water wells from being affected by the discharge. Therefore private water well testing was not recommended as a special provision to the permit.

**Comment 11:**

Alston Boyd, BCPOA, BSEACD, the Carmans, Laurie Coffin, Friendship, Hays County, HTGCD, Radiance, SOS, and Tara Weaver stated that the discharge from the proposed WWTP will negatively impact recreation downstream of the WWTP.

BCPOA, Barbara Stroud and Robert O'Boyle stated that the statement that Bear Creek is used for non-contact recreation in Hays County WCID's application is incorrect. BCPOA asserts that its members use Bear Creek for both contact recreation and for fishing.

**Response 11:**

TCEQ's rules require that existing, designated, and attainable uses of aquatic recreation will be maintained and contact recreation is presumed as a use for most water bodies.<sup>9</sup> If the permit is issued, Hays County WCID will be required to disinfect its effluent before discharging it to Bear Creek,<sup>10</sup> and will therefore be protective of contact recreation use.

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<sup>9</sup> 30 TAC 307.4 (j).

<sup>10</sup> Hays County WCID draft permit, pages 2a and 2b.

**Comment 12:**

BCPOA, BSEACD, and SOS stated that the additional pollutants will degrade the quality of water in Barton Springs and impact recreational use of the springs.

**Response 12:**

The total phosphorus effluent limit proposed in the Hays County WCID draft permit is the lowest in any TPDES permit in the state. The ED determined that a stringent limit on total phosphorus was necessary to protect waters in the state. Based on the phosphorous decay rate data (Miertschin, August, 2006), the ED determined that with an effluent limit of 0.1 mg/l total phosphorus in the effluent from Hays County WCID, the total phosphorus concentration Bear Creek would approach background concentrations by the time Bear Creek reached Davis Pond. Because the total phosphorus in Bear Creek will be near background levels well before Bear Creek reaches the recharge zone for the Edwards Aquifer, there should not be an impact to Barton Springs from the Hays County WCID discharge.

**Comment 13:**

SOS stated Hays County WCID's wastewater discharge permit application is inaccurate because in the Domestic Technical Report 1.1, section 5b Hays County WCID identifies "uses of water body" as non-contact recreation. The designated uses, however for Segment 1427 of the Colorado River Basin are contact recreation, public water supply, aquifer protection and high aquatic life use, requiring a 5.0 mg/l dissolved oxygen. Additionally, according to SOS, TCEQ has identified Bear Creek as limited aquatic life use to Aspen Drive and high aquatic life use downstream of Aspen Drive.

**Response 13:**

To determine the use of unclassified waters the ED routinely relies on information supplied by applicants, as well as other sources such as independent studies and USGS maps. Based on information from Hays County WCID, upstream of Aspen Drive, Bear Creek is ephemeral with two ponds (Dry Pond and Pond 6B). The ED determined that Bear Creek is intermittent with pools and assessed it limited aquatic life use upstream of Aspen Drive. According to TCEQ's rules, unclassified intermittent streams with significant aquatic life uses created by perennial pools are presumed to have a limited aquatic life use.<sup>11</sup> Downstream of Aspen Drive, Hays County WCID noted numerous seeps; therefore, the ED assessed Bear Creek downstream of Aspen drive as having a high aquatic life use. Unclassified perennial streams are presumed to have a high aquatic life use.<sup>12</sup>

Contact recreation is a site specific use for Segment 1427, and is a presumed use for most water bodies.<sup>13</sup> Site specific uses and numerical criteria may also be applied to unclassified waters.<sup>14</sup>

**Comment 14:**

SOS expressed concern over Hays County WCID's compliance history. According to SOS, Hays County WCID has violated its Texas Land Application Permit (TLAP) permit several times over a short period of time.

**Response 14:**

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<sup>11</sup> 30 TAC Section 307.4(h)(4).

<sup>12</sup> 30 TAC Section 307.4(h)(3).

<sup>13</sup> 30 TAC Section 307.4(j).

<sup>14</sup> 30 TAC Section 307.7(a).

A compliance history prepared on February 8, 2007 indicated that Hays County WCID had an average rating. The compliance history showed no enforcement orders and one written notice of violation (NOV), dated April 14, 2006. The NOV was for Hays County WCID's failure to prevent unauthorized discharges from the wastewater collection system, lift station and wastewater treatment plant, and failure to provide adequate signs around the irrigation field stating the irrigation water is from a non-potable water supply. Compliance documentation was received by the TCEQ Austin Region 11 Office on May 25, 2006. The violations have been resolved. If Hays County WCID does not comply with the terms of its permit or TCEQ's statutes and rules, it may be subject to further enforcement action. Complaints about the facility or suspected incidents of noncompliance with the permit or TCEQ rules may also be reported to the TCEQ Region 11 Office in Austin at 512-339-2929, or 1-800-888-777-3186.

**Comment 15:**

Austin, BCPOA, BSEACD, and SOS expressed concern that the proposed phosphorus limit is based on a median daily value, not an average daily value. According to SOS, the average values could be significantly higher while still meeting the median daily value requirement, which would allow high levels phosphorous to be discharged into Bear Creek affecting the creek's trophic status, impairing downstream uses.

**Response 15:**

Both medians and arithmetic means are valid measures of a statistical "average," although averages in permits are typically expressed as an arithmetic mean. The total phosphorus limits in the draft permit were based on a median in order

to better address the potential for sampling error and minor operational variability inherent at the unusually low phosphorus concentrations required in the draft permit.

The permit contains daily maximum limits which, although higher than the median, afford protection from excessive elevations of phosphorus concentrations on a single day. Additional protection is provided by the requirement that Hays County WCID must sample and analyze the effluent every day a discharge occurs.

**Comment 16:**

Austin stated that the proposed total phosphorus limit would increase algae production and result in degradation in the perennial pools in the discharge route.

The Davis Family stated that the proposed discharge from Hays County WCID would elevate the phosphorus concentration in Bear Creek and Davis Pond and cause a proliferation of algae and other aquatic vegetation.

BCPOA and BSEACD stated that the discharge from Hays County WCID would generate algal blooms and decreased dissolved oxygen levels in the portion of the receiving water that have perennial pools.

Alston Boyd expressed concern that excessive nutrients will cause massive algal blooms, resulting in widespread depression of dissolved oxygen, and eutrophication.

The Carmans expressed concern over massive algae growth and depressed dissolved oxygen.

Dripping Springs stated that the proposed effluent limits are not sufficient to protect the quality of the receiving waster from algal growth, nitrate toxicity, and eutrophication.

Friendship expressed concern that excessive nutrient loading could cause seasonal algae blooms. Friendship also expressed concern that decay from excessive organic materials will cause low dissolved oxygen levels, which in turn will make it difficult for aquatic life to thrive.

Hamilton, Hays County, HTGCD and Radiance expressed concern that the effluent from Hays County WCID would cause widespread depression of dissolved oxygen levels from excessive nutrient loading.

LCRA expressed concern over nutrient loading of the Barton Springs segment of the Edwards Aquifer which has little or no assimilative capacity.

**Response 16:**

The total phosphorus limit in the draft permit is the lowest in the state. The ED determined that a stringent limit on total phosphorus was necessary to protect water in the state from eutrophication (excessive algal biomass) and depressed dissolved oxygen concentrations associated with it.

**Comment 17:**

SOS stated that excess nitrogen in nutrient limited streams, such as Bear Creek, can lead to algae growth and lowered dissolved oxygen. According to SOS, nitrogen concentrations as low as 0.28 mg/l to 0.30 mg/l have been associated with nuisance growth of periphyton and 0.25 to 0.30 mg/l associated with plankton. Hays County

WCID's wastewater discharge modeling projects 0.5 mg/l NO<sub>3</sub>-N. According to SOS, this level of excess nitrogen will impact downstream uses of Bear Creek and Barton Springs.

BCPOA and BSEACD stated that even with effluent limits of 5 mg/l BOD and 1 mg/l ammonia nitrogen, the dissolved oxygen (DO) could be reduced by more than 1 ppm.

Austin, the Davis Family, Dripping Springs, and SOS stated that Hays County WCID's draft permit should include effluent limits for total nitrogen.

BCPOA, BSEACD, and Radiance stated that the Hays County WCID draft permit should include effluent limits for organic nitrogen, ammonia nitrogen, nitrate, and nitrite. According to BSEACD, its modeling indicated that during low flow conditions, effluent treated to the proposed limit for ammonia nitrogen will substantially increase the total nitrogen levels above background levels where the effluent reaches the recharge zone and enters the Edwards Aquifer.

According to Austin, hill country stream algae communities have been shown to be co-limited for nitrogen and phosphorus under certain conditions. Studies on Bear Creek algae growth rates indicate this potential in the proposed discharge route; therefore, a total nitrogen limit should be determined that is protective of stream and aquifer water quality.

The Davis Family noted that species of nitrogen other than ammonia are available for uptake by algae, and that the increase in total nitrogen that would be in the discharge

would be a violation of 30 TAC Section 307.5(b)(2) and possibly 30 TAC Section 307.5(b)(1).

**Response 17:**

If nutrients, such as phosphorus and nitrogen, in the proposed discharge cause algae blooms in Bear Creek, it is likely that the range of DO concentrations downstream of the Hays County WCID discharge will increase, that is, minimum DO concentrations (which typically occur in the morning) may be lower and maximum DO concentrations (which typically occur in the afternoon) may be higher. The steady-state dissolved oxygen modeling performed by the ED evaluates whether the average DO will meet the average DO criterion.

Decay of the conventional oxygen-demanding materials, CBOD<sub>5</sub> and NH<sub>3</sub>-N, is included in the QUAL-TX model, which predicted that the resulting DO in the creek will meet the DO criteria assigned by the Standards reviewer. In the upper portion of Bear Creek (upstream of Aspen Drive), the DO model predicts that when Hays County WCID is discharging at its maximum permitted flow, the DO concentrations downstream may be as low as 4.24 mg/l, which meets the assigned criterion of 3 mg/l. In the lower portion of Bear Creek (downstream of Aspen Drive), the DO model predicts DO concentrations as low as 5.41 mg/l when Hays County WCID is discharging at its maximum permitted flow the, which meets the assigned criterion of 5 mg/l.

The ED concurs that nitrogen enrichment can occur in streams, but the very stringent total phosphorus limit of 0.15 mg/l in the Hays County WCID draft permit is expected to be effective in addressing potential nutrient enrichment. The ED opted to

impose a total phosphorus limit rather than a total nitrogen limit because phosphorus can be reduced to much lower relative concentrations than nitrogen.

The legislature stated that “. . .it is the goal of groundwater policy in this state that the existing quality of groundwater not be degraded. This goal of nondegradation does not mean zero-contaminant discharge.”<sup>15</sup> To achieve this goal, the ED uses the EPA primary drinking water standard for nitrate to determine impacts to groundwater quality. The ED has determined that the effluent from Hays County WCID would meet the drinking water standard for nitrate before the effluent reaches recharge features.

**Comment 18:**

Alston Boyd, BCPOA, BSEACD, the Carmans, Friendship, Hays County, HTGCD, Radiance, SOS, Barbara Stroud and Robert O’Boyle expressed concern over various pharmaceuticals in the discharge from Hays County WCID’s WWTP. Friendship also expressed concern over other compounds such as detergents, disinfectants, plasticizers, fire retardants insecticides, herbicides, fertilizers, and antioxidants.

According to SOS:

Recent studies by USGS demonstrate elevated levels of pharmaceuticals in Barton Springs with the highest levels being ibuprofen, acetaminophen, and urinary tract medication. These constituents are from wastewater. During low stream flow conditions loss of wastewater to the Trinity aquifer could pose a threat to wells due to organic compounds including pharmaceuticals in well water. Likewise these compounds will recharge the Edwards Aquifer and remerge at Barton Springs, negatively impacting the habitat of the Barton Springs salamander, and threatening the health and safety of Barton Springs swimmers.

**Response 18:**

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<sup>15</sup> TWC § 26.401(b).

The EPA is investigating Pharmaceutical and Personal Care Products (PPCPs), and has stated that scientists have not found evidence of adverse human health effects from PPCPs in the environment. Detergents and disinfectants are also considered emerging contaminants for which adequate data do not exist to determine a potential environmental or public health risk. Plasticizers, fire retardants, insecticides, herbicides, and fertilizers are not typical constituents of domestic wastewater.

**Comment 19:**

Alston Boyd, BCPOA, BSEACD, Friendship, Hays County, and HTGCD expressed concern over long-term physical degradation of the karst aquifer system by poor-quality water and increased sediment loading.

BCPOA, BSEACD, LCRA, Barbara Stroud and Robert O'Boyle, and SOS stated that TCEQ will be violating its antidegradation policy if it issues a wastewater discharge permit to Hays County WCID. According to Barbara Stroud and Robert O'Boyle and SOS if the permit is issued, Bear Creek will suffer more than de minimis impact.

Barbara Stroud and Robert O'Boyle stated that because Bear Creek is used for contact recreation, the discharge from Hays County WCID would violate TCEQ's anti-degradation policy. According to Barbara Stroud and Robert O'Boyle, if the draft permit is issued, there will be times when the flow in Bear Creek is entirely treated effluent; which, even with disinfection, would prevent the creek from being used for contact recreation.

Dripping Springs stated that Hays County WCID has not demonstrated how the proposed discharge will meet the statutory antidegradation mandate.

**Response 19:**

The nutrient model indicates that the concentration of nitrate and phosphorus in Hays County WCID's wastewater would be comparable to existing background groundwater quality at the point of recharge to the karst aquifer system, thus there should not be any degradation of the Trinity or Edwards karst aquifer systems.

Additionally, "[D]egradation is defined as a lowering of water quality by more than a de minimus extent, but not to the extent that an existing use is impaired."<sup>16</sup> The ED has determined that if the effluent is treated to the level as dictated in the permit, it will not cause degradation but will be protective of the uses of Bear Creek and its on-channel ponds.

When Bear Creek has little to no flow and the Hays County WCID WWTP is discharging, Bear Creek will be effluent dominated. The draft permit requires Hays County WCID to disinfect and dechlorinate its effluent to protect human health and aquatic life.

**Comment 20:**

BCPOA, BSEACD, Dripping Springs, Friendship, and HTGCD expressed concern over aesthetic and deterioration of water quality in surface waters as a result of the discharge from Hays County WCID.

BCPOA, BSEACD, LCRA and SOS stated that TCEQ will be violating general surface water quality standards if it issues a wastewater discharge permit to Hays County

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<sup>16</sup> 30 TAC Section 307.5.

WCID. According to SOS, if the permit is issued, health, aquatic life, vegetation, aesthetics, and the use and enjoyment of surface waters will be negatively impacted.

Laurie Coffin and Radiance expressed concern over the impact of the proposed discharge on surface water with respect to plant and animal life.

Hays County and HTGCD expressed concern over the use of surface water for agricultural irrigation and livestock watering.

Barbara Stroud and Robert O'Boyle stated that the discharge from Hays County WCID would violate the TSWQS. Section 307.4(e) states that "[n]utrients from permitted discharges shall not cause excessive growth of aquatic vegetation which impairs an existing, attainable or designated use." According to Barbara Stroud and Robert O'Boyle, all of the available studies on Bear Creek indicate that the Hays County WCID proposed discharge will result in excessive aquatic vegetation that will impair the recreation and non-recreation uses of their property.

Barbara Stroud and Robert O'Boyle stated that the increase in periphyton, sestonic algae, and aquatic macrophytes in the perennial pond on their property would cause substantial and persistent changes in turbidity and color in violation of 30 TAC Section 307.4(b)(4).

**Response 20:**

If Hays Co. WCID receives its permit, the use and enjoyment of surface waters should not be negatively impacted by the discharge if it is treated according to the effluent limits in the draft permit. According to the Texas Surface Water Quality Standards (TSWQS), "[W]ater in the state shall be maintained to preclude adverse toxic

effects on human health resulting from contact recreation, consumption of aquatic organisms, consumption of drinking water or any combination of the three.”<sup>17</sup> Additionally, “[W]ater in the state shall be maintained to preclude adverse toxic effects on aquatic life, terrestrial life, livestock, or domestic animals resulting from contact, consumption of aquatic organisms, consumption of water, or any combination of the three.”<sup>18</sup> The treated effluent will be disinfected to protect human health and dechlorinated to protect aquatic life.

The general criteria in the surface water standards pertain to aesthetic parameters including: taste and odors, floating debris, suspended solids, sludge deposits, sediment layers, settleable solids, changes in ambient color or clarity, foaming or frothing, oil and grease.<sup>19</sup> The general surface water quality standards should be maintained in the receiving waters provided Hays County WCID meets the requirements of its permit.

**Comment 21:**

Austin stated that it believes that Hays County WCID has sufficient land available to meet the requirements of a Texas Land Application Permit.

The Carmans suggested that Hays County WCID find a different location for its WWTP.

Dripping Springs stated that TCEQ should use its authority protect the Edwards Aquifer to require Hays County WCID to consider less environmentally onerous alternatives.

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<sup>17</sup> 30 TAC Section 307.6 (b)(3).

<sup>18</sup> 30 TAC Section 307.6 (b)(4).

<sup>19</sup> 30 TAC Section 307.4.

BCPOA and Friendship suggested that Hays County WCID use an alternative method of wastewater treatment and recognized that Hays County WCID does not have sufficient acreage for land application. Friendship suggested a seasonal irrigation permit as an alternative.

Goldenwood and Brian Leonard, stated that the only type of permit that TCEQ should authorize is a no-discharge permit.

Hays County stated that it encourages the beneficial reuse of treated wastewater for onsite irrigation.

Sam Cobb, HTGCD, Susan Fein, and Jonathan Steinberg, recommends that Hays County WCID use a no-discharge alternative.

Barbara Stroud and Robert O'Boyle stated that a permit authorizing a direct discharge into Bear Creek is unnecessary and unwarranted. They also stated that Hays County WCID has not demonstrated that other methods of treatment are not feasible.

**Response 21:**

The Texas Water Code provides that the TCEQ may authorize discharges into water in the state.<sup>20</sup> The ED does not have the authority to mandate a different discharge location or different type of wastewater treatment plant. The ED evaluates applications for wastewater treatment plants based on the information provided in the application.

**Comment 22:**

BCPOA, BSEACD, HTGCD, and Tara Weaver expressed concern that if the discharge

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<sup>20</sup> TWC Section 26.027.

permit is issued to Hays County WCID, public health and welfare will be negatively impacted.

**Response 22:**

According to the Texas Surface Water Quality Standards, water in the state shall be maintained to preclude adverse toxic effects on human health resulting from contact recreation, consumption of aquatic organisms, consumption of drinking water or any combination of the three.<sup>21</sup> The effluent limits in the Hays County WCID draft permit were set to meet this standard by maintaining the existing water quality and protecting human health.

**Comment 23:**

HTGCD stated that if the wastewater discharge permit is issued to Hays County WCID, the quality of life for Hill County citizens will be negatively impacted.

**Response 23:**

TCEQ was charged by the legislature to maintain the quality of water in Texas, consistent with public health and enjoyment. Thus, TCEQ's jurisdiction in a wastewater permit application is limited to water quality issues and it does not have authorization to consider quality of life issues, as long as water quality is maintained. The wastewater permit, however, does not allow the permit holder to create or maintain a nuisance that interferes with a landowner's use and enjoyment of his property. The permit does not limit the ability of a landowner to seek relief from a court in response to activities that interfere with the landowner's use and enjoyment of his property.

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<sup>21</sup> 30 TAC Section 307.6 (b)(3).

**Comment 24:**

The Carmans expressed concern over nuisance odors.

**Response 24:**

Hays County WCID proposes to meet the requirement of 30 TAC Section 309.13(e)(1) to abate and control a nuisance of odor by locating all treatment units no closer than 150 feet to the nearest property line. In addition, the proposed wastewater treatment will be an aerobic biological process which uses oxygen from the air to reduce the organic content of the wastewater through biological action. Oxygen turns sulfide compounds (the most common odor-causing compounds) into odorless sulfates. Wastewater without dissolved oxygen can also produce offensive odors. The draft permit requires that the effluent contain a minimum of 5.0 mg/l dissolved oxygen.

Complaints about the facility or suspected incidents of noncompliance with the permit or TCEQ rules may also be reported to the TCEQ Region 11 Office in Austin at 512-339-2929 or 1-800-888-777-3186. Citizens may also gather data to show that a permittee is not in compliance with TCEQ rules. For more information on citizen collected evidence, please see [www.TCEQ.state.tx.us/enforcement/complaints.html](http://www.TCEQ.state.tx.us/enforcement/complaints.html)

**Comment 25:**

SOS stated Hays County WCID's wastewater discharge permit application is inaccurate because in the proposed land use summary, Table 1, Hays County WCID indicated 2,441 living unit equivalents (LUEs) from Belterra contributing with the wastewater flow (HCWCID 1 – 1,351; HCWCID 2 – 1,090). According to SOS, as 250 gallons per day these LUEs require 610,250 gallons per day wastewater treatment

capacity. Hays County WCID's application updates indicate that the WWTP will also be accepting wastewater from Bush 194, Ltd. Therefore, according to SOS, the wastewater flows per LUE and peak flow treatment capacities do not match up for this application, and if the plant is too small overflows and upsets could result, causing irreparable damage to Bear Creek, the aquifer, and Barton Springs.

**Response 25:**

Hays County WCID amended its application several times before the draft permit was completed. In a letter dated March 8, 2007, Hays County WCID stated that the proposed wastewater treatment facility will only serve the Belterra subdivision, including Hays County WCID Nos. 1 and 2; Hays County WCID did not indicate that it intended to serve 194 Bush, Ltd. Therefore, the estimated growth and wastewater projections should no longer include the living unit equivalents (LUE) contributed by Ledge Stone which is served by 194 Bush, Ltd.

A daily average flow of 500,000 gallons per day should provide Hays County WCID with sufficient capacity up to 2011. If the draft permit is issued, Hays County WCID will be bound by the terms and conditions of the permit, including flow limitations. At the final engineering design stage, the preliminary estimate of the wastewater generation rate will be refined further to accurately reflect the expected wastewater generation from the service area based on available historical data on wastewater flows. If Hays County WCID determines that a daily average flow of 500,000 gallons per day is not sufficient, it may request that its permit be amended to authorize additional flow.

**Comment 26:**

SOS stated Hays County WCID’s wastewater discharge permit application is inaccurate because during the administrative and preliminary technical review, Hays County WCID answered “no” to the question in the Technical Report 1.1 as to whether a wastewater treatment plant within three miles of the proposed facility currently had the capacity to accept the volume of wastewater proposed in the application. In response to the ED’s request, Hays County WCID provided the questionnaires it had submitted to 194 Bush Ltd, and Hays County MUD#5. The questionnaire stated that Hays County WCID wished to expand by 650,000 gallons per day (GPD) (i.e. to 800,000 GPD total) and asked if those entities had that capacity. However, Hays County WCID is actually seeking an amendment to expand by 350,000 GPD – that is, from its current capacity of 150,000 GPD to a total capacity of 500,000 GPD. Therefore, according to SOS, Hays County WCID has not shown that there are no facilities in the area that could handle the increased capacity.

**Response 26:**

Hays County WCID’s application is accurate. In its application Hays County WCID provided copies of the letters it sent to wastewater treatment plants within three miles of its proposed plant. Hays County WCID also provided the responses it received. The response from 194 Bush, Ltd indicated that it neither had the capacity nor was willing to expand to serve the needs of Hays County WCID. 194 Bush, Ltd. is authorized

to land apply, via drip irrigation, up to 150,000 gallons per day (gpd) of effluent.<sup>22</sup> Consequently, regardless of whether Hays County WCID applied for 800,000 gpd or 500,000 gpd, 194 Bush, Ltd. would not have the capacity to provide service.

Hays County Municipal Utility District No. 5, did not respond to the questionnaire sent by Hays County WCID inquiring about availability of service or willingness to expand capacity. Nevertheless, the Hays County Municipal Utility District No. 5, has just amended its permit, issued to Pulte Homes of Texas, L.P. and Hays County Municipal Utility District No. 5, to increase its final phase flow to a daily average flow not to exceed 300,000 gpd.<sup>23</sup> This capacity is still less than either 800,000 gpd or 500,000 gpd. Therefore, Hays County Municipal Utility District No. 5, does not have the ability to provide service to Hays County WCID.

**Comment 27:**

SOS stated Hays County WCID's wastewater discharge permit application is inaccurate because the ED asked Hays County WCID to "provide a written statement or contractual agreement with the SAWS Dos Rios Water Recycling Center that it would accept and be responsible for the sludge from the applicant's plant for the life of the permit (at least five years), or provide the landfill's site name, TCEQ permit number and county where the site is located." The information Hays County WCID provided is in a letter from Dos Rios to CapTex, the liquid waste hauler, in which Dos Rios states that it "presently operates a liquid wastehauler receiving station. Liquid wastehaulers that are

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<sup>22</sup> TCEQ Permit No. 14309-001.

<sup>23</sup> TCEQ Permit No. 14358-001, issued September 28, 2007.

registered with SAWS are allowed to discharge approved liquid waste at this facility.” According to SOS, this letter is not a written statement or contractual agreement between Hays County WCID and Dos Rios. Also, according to SOS, the letter does not give any indication that Dos Rios will accept sludge for the life of the permit or provide the landfill site name.

**Response 27:**

Since the Hays County WCID did not provide a written statement or contractual agreement with SAWS Dos Rios Water Recycling Center that it would accept and be responsible for the sludge from Hays County WCID’s plant for the life of the permit, a provision authorizing Hays County WCID to haul sludge to the Dos Rios Water Recycling Center was not included in the draft permit. The draft permit includes the standard language, “[t]he permittee is authorized to dispose of sludge only at a Texas Commission on Environmental Quality (TCEQ) authorized land application site or co-disposal landfill.”<sup>24</sup>

**Comment 28:**

SOS stated that it does not believe that Hays County WCID is committed to using the best technology available and to meeting the 0.15 mg/l Total Phosphorous limit.

**Response 28:**

Permit condition 2(a) in the Definition and Standard Permit Conditions section of the draft permit requires that “[a]cceptance of the permit by the person to whom it is issued constitutes acknowledgment and agreement that such person will comply with all

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<sup>24</sup> See, draft permit, page 14.

the terms and conditions embodied in the permit, and rules and other orders of the Commission.” If the permit is issued, the terms and conditions in the permit will be used as used as design criteria, along with applicable TCEQ design criteria and generally accepted engineering design principles, in developing the final engineering design for the proposed wastewater treatment facility. Moreover, if the permit is issued to Hays County WCID and it does not comply with the effluent limits it will be subject to enforcement action.

**Comment 29:**

SOS stated that the use of algae to absorb phosphorous and other nutrients is not an acceptable method of nutrient disposal given the history and uses of Bear Creek and Barton Springs.

**Response 29:**

The draft permit does not authorize the use of algae as a method of nutrient disposal. If the draft permit is issued Hays County WCID will be limited 0.15 mg/l (daily average) of Total Phosphorus discharged.

**Comment 30:**

SOS expressed concern that TCEQ’s modeling does not take into account all known watershed impacts and does not present an accurate representation of the degradation to Bear Creek and Barton Springs that will occur. According to SOS:

“TCEQ and Applicant modeling is based on current conditions in Bear Creek. This proposed permit, however, is being requested in order to serve new development where non-point source pollution will be discharged into the same watershed as the wastewater discharge, specifically the upper reaches of Bear Creek. Over 2,000 residential home

sites, additional roads, a school and commercial properties will be contributing non-point source pollution when this proposed permit reaches its final phase flow. The modeling undertaken does not represent the characteristics of Bear Creek once this gross urbanization is underway and fulfilled. Any modeling should take into consideration increased non-point source pollution in Bear Creek from new development to be served by the permit. Increased non-point source pollution will affect Bear Creek's ability to attenuate the effluent.”

BCPOA, BSEACD, Dripping Springs, and SOS expressed concern that the modeling that TCEQ used is based on current conditions in Bear Creek and does not take into consideration increased non-point source pollution in Bear Creek from the new development that will be served by the permit.

**Response 30:**

Most nonpoint source pollution is from storm water runoff. Storm water runoff occurring during construction may be regulated by the construction general permit (TXG15000) and by the provisions of 30 TAC Chapter 213, Subchapter B regarding activities in the contributing zone to the Edwards Aquifer.

The ED evaluates the effects of point source discharges on receiving waters under low-flow, effluent-dominated conditions when the effect of point sources is expected to be the greatest. The evaluation is based on data available at the time of the evaluation. Future evaluations of the wastewater discharge may incorporate any changes observed in Bear Creek.

**Comment 31:**

BCPOA and BSEACD stated that the model TCEQ used is not amenable to modeling subsurface flow conditions, so the impact on Barton Springs was not evaluated.

**Response 31:**

The commentors are correct; the ED did not attempt to model subsurface flow. The QUAL-TX model used by the ED is designed to model surface flow only.

The nutrient model indicated that the concentration of nitrate and phosphorus in Hays County WCID's wastewater would be comparable to existing background groundwater quality at the point Bear Creek recharges the Edwards Aquifer. Therefore, the Edwards Aquifer should not be negatively impacted. As the Edwards Aquifer in the Bear Creek watershed flows to Barton Springs, Barton Springs should also not be impacted.

**Comment 32:**

BCPOA and BSEACD stated that the model TCEQ used does not account for the adverse effects on nutrient loads caused by flushing of settled and attached biotic material during heavy runoff events.

Austin stated that the QUAL-TX model used by TCEQ does not sufficiently model nutrient algae variables which impact oxygen dynamics. Therefore the model is not able to predict the level of ecological degradation in Bear Creek from Hays County WCID's proposed wastewater treatment plant. According to Austin, TCEQ should have used either the QUAL-2K or WASP models.

**Response 32:**

The QUAL-2K and WASP models are designed to allow modeling of nutrient algae variables that may impact dissolved oxygen dynamics. The QUAL-TX model has more limited capabilities in this regard. However, as Austin also mentioned, even if a

QUAL-2K or a WASP model had been used, there is insufficient data available to calibrate algae dynamics in Bear Creek. Based on past experience, including algae in a QUAL-TX model generally increases the predicted average dissolved oxygen concentrations in the receiving waters. Therefore, to be conservative, no algae was included in the QUAL-TX model.

**Comment 33:**

Alston Boyd stated that Hays County WCID's draft permit should be amended to require routine, frequent testing of the effluent by independent entities.

**Response 33:**

The ED does not have a basis for establishing more frequent testing, or for requiring sampling by an independent entity because Hays County WCID's compliance history indicates that it has been complying satisfactorily. Effluent monitoring frequencies are established according to the self-monitoring schedule.<sup>25</sup> Sample analyses are performed by analytical laboratories capable of meeting the testing and quality assurance requirements of TCEQ's rules.<sup>26</sup> Sample collection methods are also prescribed and may be provided by the analytical laboratory.<sup>27</sup>

**Comment 34:**

The Carmans requested that TCEQ perform a comprehensive pathogenic microorganism study.

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<sup>25</sup> 30 TAC Section 319.9.

<sup>26</sup> See, 30 TAC Sections 319.9 and 319.11.

<sup>27</sup> 30 TAC Section 319.11.

**Response 34:**

The TCEQ rules do not require a permittee to perform comprehensive pathogenic microorganism studies for individual permits. All municipal permittees are required to disinfect their effluent before it is discharged to address this concern.

**Comment 35:**

The Carmans expressed concern over the use and storage of chlorine and suggested Hays County WCID use an alternative method of disinfection.

**Response 35:**

The TCEQ may authorize discharges into water in the state.<sup>28</sup> The ED does not have the authority to mandate a different discharge location or different type of wastewater treatment plant. TCEQ's rules require "disinfection in a manner conducive to the protection of both public health and aquatic life shall be achieved on all domestic wastewater which discharges into waters in the state. Any appropriate process may be considered and approved on a case-by-case basis."<sup>29</sup> Design of the chlorination facility must follow the specifications in TCEQ's rules<sup>30</sup> as well as the safety requirements.<sup>31</sup>

**Comment 36:**

Austin expressed concern that chlorine combined with in-stream organics will form chloramines, which will recharge the aquifer.

**Response 36:**

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<sup>28</sup> TWC, Section 26.027.

<sup>29</sup> 30 TAC Section 309.3(g).

<sup>30</sup> 30 TAC Section 317.6.

<sup>31</sup> 30 TAC Section 317.7.

The draft permit requires the dechlorination of the effluent to less than 0.1 mg/l chlorine residual.<sup>32</sup> This is less than the minimum residual disinfectant concentration established for water in a drinking water distribution system,<sup>33</sup> so the residual chlorine in the effluent from the Hays County WCID WWTP should not adversely impact either the Trinity or Edwards aquifers.

**Comment 37:**

Dripping Springs and SOS expressed concern that Hays County WCID had not demonstrated how it intends to meet the requirements of TCEQ's Edwards Aquifer Contributing Zone rules.

**Response 37:**

On page 16 of the Domestic Worksheet, Hays County WCID indicated that the facility is in the Edwards Aquifer Contributing Zone. A contributing zone plan is needed for regulated activities "disturbing at least five acres, or regulated activities<sup>34</sup> disturbing less than five acres which are part of a larger common plan of development or sale with the potential to disturb five or more acres."<sup>35</sup>

TCEQ rules provide that if a contributing zone plan is needed, Hays County WCID must obtain ED approval of the plan before construction of a new or additional

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<sup>32</sup> See Hays County WCID draft permit, pages 2a and 2b.

<sup>33</sup> 30 TAC Section 290.104. Water in a drinking water distribution system can have 0.2 mg/l free chlorine or 0.5 mg/l chloramine.

<sup>34</sup> Regulated activities are defined at 30 TAC § 213.22(6).

<sup>35</sup> 30 TAC § 213.21(b).

regulated activity is started.<sup>36</sup> There is no requirement that a contributing zone plan must be filed at the same time as an application for a wastewater discharge permit.

**Comment 38:**

Austin and Friendship stated that if a wastewater discharge permit is issued to Hays County WCID, the permit should require Hays County WCID to dechlorinate its effluent prior to discharge. According to Austin, residual chlorine of 1-3 mg/l will disinfect the creek downstream.

**Response 38:**

The draft permit requires dechlorination of the effluent to less than 0.1 mg/l chlorine residual.<sup>37</sup>

**Comment 39:**

BCPOA stated that there was not sufficient public participation in the permitting process. Robert Hejl expressed concern that Hays County WCID's wastewater discharge permit is a "done deal."

**Response 39:**

The wastewater discharge permit is not a "done deal." Before the ED can issue a permit to Hays County WCID, he must address all the issues raised during the comment period, including those from the public meeting held on September 25, 2007. Additionally, Hays County WCID has requested that the Chief Clerk refer this permit application to the State Office of Administrative Hearings (SOAH) for a contested case

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<sup>36</sup> 30 TAC § 213.21(d).

<sup>37</sup> See Hays County WCID draft permit, pages 2a and 2b.

hearing. The preliminary hearing has been set for November 27, 2007, at 10 a.m. in the William B. Clements Building, 300 W. 15th Street Suite 502, Austin, TX 78701-1649 (for more information on the SOAH hearing process go to <http://www.soah.state.tx.us>). At the conclusion of the contested case hearing, the Administrative Law Judge will issue a Proposal for Decision making a recommendation on whether the permit should be issued or denied. The TCEQ Commissioners will rule on the Administrative Law Judge's recommendation in an open meeting at the TCEQ offices in Austin. The Commissioners will determine if the permit should be issued to Hays County WCID or if it should be denied. If the permit is issued, there is a 30-day period where a person may request a rehearing. If the permit is issued and becomes final, the Commission's decision may be challenged in Travis County District Court.

**Comment 40:**

BCPOA and BSEACD stated that studies in 1986 by the Texas Water Commission and in 1988 by Southwest Texas State University indicated that Bear Creek's tolerance for increases in nutrients is extremely low.

**Response 40:**

The ED is aware of both studies and used them in developing the total phosphorus limit in the Hays County WCID draft permit. This limit is the lowest in the state. The ED determined that a stringent limit on total phosphorus was necessary to protect water in the state from eutrophication (excessive algal biomass) and the associated depressed dissolved oxygen concentrations.

**Comment 41:**

BCPOA and BSEACD stated that if the Hays County WCID permit is issued it should include biomonitoring requirements to assess both acute and chronic effects at 100% effluent.

**Response 41:**

Biomonitoring is only required for domestic discharges over 1.0 MGD, major industrial facilities, and other facilities that have the potential to cause toxicity in the receiving water.<sup>38</sup> Because Hays County WCID's draft permit only authorizes the discharge of dechlorinated domestic wastewater, the ED has determined that Hays County WCID effluent does not have the potential to cause toxicity in the receiving waters. A phosphorus limit was included in the Hays County WCID draft permit to minimize the potential for enrichment of Bear Creek and its on-channel ponds, not because the ED had toxicity concerns.

**Comment 42:**

BCPOA and BSEACD stated that the effluent monitoring location should be more specific and should be located before the effluent has commingled with any other waters.

**Response 42:**

The ED agrees with this comment and has revised the monitoring location in the Hays County WCID draft permit to: “[e]ffluent monitoring samples shall be taken at the following location(s): Following the final treatment unit and before commingling with water in the state.”

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<sup>38</sup> 30 TAC Section 307.6(e)(2)(A).

**Comment 43:**

BCPOA and BSEACD expressed concern over the enforceability of the effluent limits.

**Response 43:**

Chapter 7 of the Texas Water Code (TWC) gives the Commission authority to enforce the TWC and the Texas Health and Safety Code.<sup>39</sup> Chapter 26 of the TCW requires the Commission to maintain and control the quality of water in the state<sup>40</sup> and provides the Commission with authority to issue permits for the discharge of waste or pollutants into or adjacent to water in the state.<sup>41</sup> Permits for the discharge of waste or pollutants require permittees to do a variety of things, including compliance with minimum effluent limits. The effluent limits are clear and objective. Because the Commission can enforce the TWC, and meeting effluent limits is a requirement of the TWC, the proposed effluent limits are enforceable. If Hays County WCID violates its effluent limits it may be subject to both civil and criminal penalties.<sup>42</sup>

**Comment 44:**

BCPOA and BSEACD expressed concern that the treatment process chosen by Hays County WCID would not be subject to peer review. BSEACD stated that the public should have input on the process chosen by Hays County WCID.

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<sup>39</sup> TWC § 7.002.

<sup>40</sup> TWC § 26.011.

<sup>41</sup> TWC §26.027.

<sup>42</sup> TWC Chapter 7.

**Response 44:**

The permit application includes a preliminary engineering report for the proposed wastewater treatment facility for public review and comment.<sup>43</sup> If the ED has concerns that the treatment process initially proposed is not capable of achieving the required effluent limits, the ED can require Hays County WCID to submit plans and specifications in accordance with the requirements in TCEQ's rules before initiating construction.<sup>44</sup> The ED may review the plans and specifications to ensure the proposed treatment process will be capable of meeting the required effluent limits.<sup>45</sup> Approval given by the ED will not relieve Hays County WCID of any liabilities or responsibilities with respect to the proper design, construction, or authorized operation of the project in accordance with applicable TCEQ rules.<sup>46</sup>

**Comment 45:**

Austin and Dripping Springs stated that if Hays County WCID is going to reuse its effluent pursuant to 30 TAC Chapter 210, that authorization should be included in the draft permit.

**Response 45:**

TCEQ's rules require that before an entity can obtain a 30 TAC Chapter 210 authorization, it must have a wastewater permit that provides for an alternative means of disposal during times when there is no demand for the use of the reclaimed water.<sup>47</sup> The

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<sup>43</sup> See, Hays County WCID application, attachment 6.

<sup>44</sup> 30 TAC Section 317.1.

<sup>45</sup> 30 TAC Section 317.1(2).

<sup>46</sup> 30 TAC Section 317.1.

<sup>47</sup> 30 TAC § 210.1.

Chapter 210 authorization is a separate authorization. Since the wastewater discharge permit is a prerequisite for obtaining the 30 TAC Chapter 210 authorization, it is not included in a discharge permit.

**Comment 46:**

LCRA stated that if the draft permit is issued, it should be restricted to match flow conditions in Bear Creek. According to LCRA, USGS studies have indicated that the maximum recharge rate from the streambed of Bear Creek to the Edwards Aquifer is 33 cubic feet per second (cfs). LCRA's suggested flow restriction would minimize the effects of wastewater entering the aquifer as recharge flows. This would also minimize the higher than background nutrient enriched wastewater from entering into the receiving surface water body. LCRA suggested that if the draft permit is issued, the following Special Provision be added: "[D]ischarge to Bear Creek may only occur when the flow at the USGS gauging station exceeds 33 cfs during the 24-hour period in which the discharge occurs."

**Response 46:**

The nutrient model indicates that the concentration of nitrate and phosphorus in Hays County WCID's wastewater would be comparable to existing background ground water quality at the point of recharge to the Edwards Aquifer system. Additional dilution would lower the amount of nutrients, therefore a flow rate cap was not recommended.

**Comment 47:**

LCRA suggested that if the draft permit is issued to Hays County WCID, it should contain a provision that specifically describes when an irrigation site is

“unsuitable for irrigation” and not just “saturated.” Because the sites that Hays County WCID may use for irrigation are separate and distinct areas which may have variable soil types, depth, slope, and vegetative cover, LCRA is concerned that the operator will have difficulty determining when the soil is saturated. Therefore LCRA recommended that the following special condition be added to the draft permit:

Soil moisture monitoring devices shall be positioned throughout the designated areas under supervision of a qualified professional geoscientist. These should be geologically representative of each type of effluent irrigation area, with a minimum number of soil moisture monitors to be determined by the conditions specific to each irrigation area. These shall be monitored to allow the operator to detect when soils are nearly saturated in separate irrigation areas. When the average soil moisture content of the irrigated land is greater than 90 percent of the average water holding capacity of the irrigated soil profile, effluent may be discharged until such time as the moisture content is reduced to 90 percent or below.

LCRA acknowledged that the reuse application is a separate authorization from the requested direct discharge permit.

**Response 47:**

As LCRA acknowledged, the 30 TAC Chapter 210 authorization is a separate authorization from the requested direct discharge permit. Authorization for the use of reclaimed water is granted in accordance with 30 TAC Chapter 210, whereas the wastewater discharge permit is issued in accordance with the requirements of 30 TAC Chapter 305, along with various other rules. Reclaimed water authorized under 30 TAC Chapter 210 may be utilized for various uses, not just for irrigation, and shall be done on a demand basis only.

Consequently, the suggestion to include the provision on soil moisture monitoring devices is not only incompatible with a wastewater discharge permit, but could also be misconstrued to mean a restriction on the scope of reclaimed water use to irrigation only by ignoring the provisions in 30 TAC Chapter 210 for other uses.

**Comment 48:**

LCRA suggested the Other Requirements for Interim and Final Phases No. 9 be revised to:

Daily records of effluent discharges and land application shall be documented monthly and shall include volume of discharge and weather conditions, i.e., temperature, precipitation, etc. Discharge records shall include the 24-hour flow record of Bear Creek as recorded by the USGS station no. 08158810 and/or the soil moisture monitoring results that would indicate saturated conditions as a basis for discharge to Bear Creek. Discharge reports shall be reported to the TCEQ Water Quality Compliance Monitoring Team (MC 224) of the Enforcement Division on a monthly basis. Soil moisture monitoring records shall include the date, time and location of the sample or measurement; the technique or method of sample or measurement; results of the analysis or measurement and action taken based on those results; and identification of the individual who collected the sample or measurement and/or determined the action to be taken.

**Response 48:**

Unless Hays County WCID obtains a 30 TAC Chapter 210 authorization, once Hays County WCID begins operating in the Interim II or Final phases, it will not be authorized to use its wastewater for irrigation. Item 9 of the Other Requirements section (Interim II and Final phases) of the draft permit was intended to require Hays County WCID to account for the effluent flows from the facility; item 9 was not intended to impose the conditions when Hays County WCID can discharge to the receiving body of water or

when it can irrigate. Further, the suggested revision would make irrigation a routine disposal method and not on a demand basis only as intended by 30 TAC Chapter 210.

For clarity, the ED has revised Item 9 (Interim II and Final phases) to: “The permittee shall keep daily records of all effluent discharged from the wastewater treatment plant to Bear Creek; and if separately authorized under 30 TAC Chapter 210, the use of all reclaimed water. These records shall include, at a minimum the following information:

- a. The volume of the discharge;
- b. The weather conditions, i.e., temperature, precipitation, or no precipitation.

These records shall be maintained on a monthly basis and shall be reported to the TCEQ Regional Office (MC Region 11) and the TCEQ Water Quality Compliance Monitoring Team (MC 224) of the Enforcement Division by September 1 of each year.”

**Comment 49:**

Barbara Stroud and Robert O’Boyle stated that the statement that the water in Bear Creek is discolored in Hays County WCID’s application is inaccurate. According to Barbara Stroud and Robert O’Boyle, the water is of exceptional clarity.

**Response 49:**

The ED relies on information provided by applicants in their applications but also verifies information if necessary for the staff’s technical review. In determining the appropriate phosphorus limits, the ED used the information supplied by Hays County WCID in its application as well as numerous special studies that indicated that Bear Creek is a sensitive water body due to its clarity.

TCEQ rules require that surface waters shall be maintained in an aesthetically attractive condition,<sup>48</sup> and that discharges shall not cause substantial and persistent changes from ambient conditions of turbidity or color.<sup>49</sup> The effluent limits in the Hays County WCID draft permit will maintain these aesthetic qualities.

**Comment 50:**

Barbara Stroud and Robert O'Boyle stated that not enough attention has been given to emergency response. They noted that they had not seen an Emergency Response and Notification Plan.

**Response 50:**

TCEQ's rules do not require an Emergency Response and Notification Plan for wastewater treatment facilities. The design of the facility, however, shall follow the safety requirements in 30 TAC Section 317.7.

In its application Hays County WCID stated that it has a 200 kW emergency generator and will equip the facility with alarms, connected to an auto-dialer, to indicate high and low levels in the effluent holding tank, effluent transfer pump failure to start, effluent pump seal failure, high and low chlorine residual, chlorine gas detector, blower failure to start and/or failure, clarifier drive torque overload, and power outage. In addition, Hays County WCID indicated that it had prepared an Emergency Response Plan and a Spill Prevention Control and Response Plan for the facility.

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<sup>48</sup> 30 TAC Section 307.4(b)(4).

<sup>49</sup> 30 TAC Section 307.4(b)(4).

**Comment 51:**

Barbara Stroud and Robert O'Boyle expressed concern that if the permit is issued, Hays County WCID will not have the financial ability to make repairs to the system or to provide for cleanup in the event of a system failure.

**Response 51:**

Texas Water Code Chapter 26 and applicable TCEQ regulations do not require an applicant to demonstrate financial assurance to obtain wastewater discharge permit. After permit issuance, the permittee is responsible for adequately maintaining the facility and remaining in compliance with the permit conditions and regulations. Failure to do so exposes the permittee to enforcement action.

**Comment 52:**

Barbara Stroud and Robert O'Boyle stated that the Hays County WCID permit would violate 30 TAC Section 307.74(i) because the character of Bear Creek would change from intermittent to continuous; especially considering that when the stream flow is continuous it will be composed entirely of treated effluent. According to Barbara Stroud and Robert O'Boyle, the change of character from intermittent to continuous will substantially alter the vegetative components of the perennial pool on Bear Creek.

**Response 52:**

It is doubtful that the vegetative components of the perennial pools on Bear Creek would change in response to a change in flow regime from intermittent to perennial as a result of the discharge because the plants are already immersed and growing in standing water.

**Comment 53:**

Dripping Springs and SOS stated that Hays County WCID had not adequately demonstrated how its discharge will meet the DO requirement for Onion Creek. Dripping Springs noted that Onion Creek (Segment No. 1427 of the Colorado River Basin) is on the state's inventory of impaired and threatened waters for depressed DO.

**Response 53:**

The ED ran the DO model of Bear Creek from the point of discharge downstream to the boundary of the Edwards Aquifer recharge zone. At that point, the concentrations of CBOD<sub>5</sub>, NH<sub>3</sub>-N, and DO were predicted to be at levels typical of background water quality. Once these concentrations have reached better quality than typical background values, the ED does not expect any additional lowering of DO to occur. The TCEQ's DO model and conclusion regarding the effect of the discharge on DO in Onion Creek were provided to the USEPA-Region 6 as part of the update to the Water Quality Management Plan, which EPA approved on July 2, 2007.

**Comment 54:**

Dripping Springs and SOS expressed concern that Hays County WCID will not be able to comply with 30 TAC Section 309.12, which provides “[t]he commission may not issue a permit for a new facility or for the substantial change of an existing facility unless it finds that the proposed site, when evaluated in light of the proposed design, construction or operation features, minimizes possible contamination of surface water and groundwater.” Dripping Springs notes that “aquifer” includes springs.

Dripping Springs stated that Hays County WCID has not performed the necessary studies to locate springs that would be affected by its discharge, nor has Hays County WCID demonstrated how it will protect springs and their associated aquifers and drinking water sources.

**Response 54:**

TCEQ's rules do not require applicants to determine the location of springs along the proposed discharge route, nor does the ED routinely perform a geological assessment of a discharge route. An applicant must select a site for a WWTP that minimizes possible contamination of surface water and groundwater.<sup>50</sup>

Due to additional information the ED obtained at the public meeting, a TCEQ geologist surveyed and photographed Bear Creek.<sup>51</sup> The geologist found features consistent with an area of discharge to Bear Creek rather than features indicating recharge to the Trinity Aquifer. In making this determination, the geologist evaluated the active geological processes, the possibility of aquifer recharge, and the length of spring flow path to points of discharge that satisfies TCEQ's rules.<sup>52</sup> Below the 6B pond (located approximately 200 yards from the proposed outfall), the geologist identified emerging surface seeps and springs. The seeps and springs were found to be developed from precipitation stored in the soil profile that infiltrates down and accumulates atop an impermeable three to four foot layer of marl. The accumulated precipitation laterally

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<sup>50</sup> 30 TAC Section 309.12.

<sup>51</sup> Various TCEQ staff and representatives of Hays County WCID walked the proposed discharge route from the proposed outfall to the southern boundary of the Hays County WCID property (approximately 1.6 stream miles) on October 25, 2007.

<sup>52</sup> 30 TAC Sections 309.12 (1) and 309.12(2).

flows and emerges as seeps and springs along the low elevation of Bear Creek. This seep and spring discharge is comparable to the “rejected recharge” cited in the Raymond Slade paper, “Projected Water Quality Degradation at Ranch Road 1826 Resulting from Direct Discharge Wastewater Permit Requested by Hays County WCID #1.”

The Hays County WCID outfall is in the bed of Bear Creek; the ED does not expect the wastewater discharge to recharge the springs located on the Hays County WCID property.<sup>53</sup>

The geologist also reviewed pictures of Bear Creek from the southern part of Hays County WCID to Davis pond located 1.92 miles from the proposed Hays County WCID outfall. The pictures show a laterally consistent confining limestone layer composing the bed of Bear Creek; supporting the absence of features that would recharge the Trinity Aquifer. Therefore, even if some discharge from Hays County WCID’s WWTP is commingled with spring water, the absence of recharge features would protect the Trinity Aquifer and would not recharge the springs below pond 6B.

**Comment 55:**

Dripping Springs stated that Hays County WCID has not demonstrated that the water quality ponds associated with the facility will comply with the siting and aquifer separation requirements of 30 TAC Section 309.13.

**Response 55:**

Hays County WCID’s water quality ponds appear to be located on more than six feet of impermeable limestone and marl strata which meet the requirements of TCEQ’s

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<sup>53</sup> 30 TAC Sections 309.12(2) and 309.12(3).

rules for wastewater treatment facility surface impoundments. However, the Hays County WCID water quality ponds are not wastewater treatment facility surface impoundments and are therefore not required to meet the 30 TAC Chapter 309 requirements.

**Comment 56:**

Brian Dudley and Dripping Springs expressed concern that the route of the discharge pipeline is not specified in the application. According to Dripping Springs, the application neither specifies how the effluent will be piped from the WWTP to the discharge point, nor explains why the effluent is not being discharged closer to the WWTP.

Additionally, Dripping Springs stated that if Hays County WCID proposed the additional distance to provide additional treatment, TCEQ should consider the additional distance in evaluating the impact of the proposed discharge on Bear Creek.

**Response 56:**

The location of the pipeline is not required in the permit application. The draft permit for Hays County WCID provides:

The issuance of this permit does not grant to the permittee the right to use private or public property for conveyance of wastewater along the discharge route described in this permit. This includes, but is not limited to, property belonging to any individual, partnership, corporation or other entity. Neither does this permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the discharge route.<sup>54</sup>

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<sup>54</sup> Hays County WCID draft permit, page 1.

Hays County WCID proposed discharge location in its application, is to Bear Creek; thence to Onion Creek in Segment No. 1427 of the Colorado River Basin. According to the maps provided by Hays County WCID, approximately the first 1.6 miles of Bear Creek is on BelTerra property.

The ED evaluated the effect on the uses of the receiving stream starting at the point of discharge. In this case the receiving stream is water in the state and is not part of the wastewater treatment process.

**Comment 57:**

Brian Dudley asked if the existing 330,000 gallon tank is adequate to protect against upset conditions. Brian Dudley stated that ponds are more reliable, so TCEQ should require Hays County WCID use ponds rather than a holding tank.

**Response 57:**

In its application, Hays County WCID indicated that it will continue to use its existing 333,000 gallon effluent holding tank. An effluent holding or storage tank is not a typical component of a wastewater treatment facility designed to discharge to surface water; hence, there is no specific design criteria in TCEQ's rules. However, there are applicable engineering design specifications for the construction of storage tanks in general.<sup>55</sup>

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<sup>55</sup> See, for example, American Water Works Association (AWWA) standards.

The ED does not agree that ponds are more reliable. When properly designed, installed, operated, and maintained, ponds and tanks will have the same reliability. Ponds must be meet the permeability requirements of TCEQ's rules.<sup>56</sup>

**Comment 58:**

Brian Dudley asked how the neighbors could be assured that unmonitored wastewater would not runoff the irrigation fields into Bear Creek.

**Response 58:**

If the draft permit is issued, in the Interim I Phase of the draft permit, Hays County WCID will be required to continue treating and land applying its effluent via subsurface drip irrigation and must continue to ensure that there is no discharge of pollutants into water in the state.

In the Interim II and Final Phases, Hays County WCID would only be authorized to discharge effluent directly into Bear Creek, it would not be authorized to discharge its effluent to the existing subsurface drip fields. If separately authorized, Hays County WCID would be able to reclaim its effluent, on a demand basis, in accordance with the requirements of 30 TAC Chapter 210.

**Comment 59:**

Brian Dudley expressed concern that if Hays County WCID obtains 30 TAC Chapter 210 reuse authorization, any effluent it reuses will not be subject to the same effluent limits as effluent that would be discharged directly to Bear Creek. Brian Dudley stated that some of the effluent that is reused could end up in either the groundwater or

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<sup>56</sup> 30 TAC Section 317.4(j) or 309.13(d).

Bear Creek so Hays County WCID should be required to meet the same effluent limits for the water it intends to reuse.

**Response 59:**

If separately authorized, beneficial reuse of the effluent under 30 TAC Chapter 210 will have the same effluent quality as the effluent discharged into Bear Creek, as long as only a portion of the total effluent is utilized for Chapter 210 beneficial reuse. When the entire effluent is utilized for Chapter 210 beneficial reuse, the effluent quality must meet the standards in 30 TAC Chapter 210.

**Comment 60:**

LCRA stated that because Bear Creek has background concentrations of total phosphorus as low as .0009 milligrams per liter, it is concerned about the cumulative pollutant loading into Bear Creek.

**Response 60:**

While the total phosphorus concentration in Bear Creek can be as low as 0.0009 mg/l, the average concentrations may be higher. The ED determined that a total phosphorus limit of 0.15 mg/l would be protective of Bear Creek as well as the on-channel ponds. Modeling based on decay rates taken from the Miertschin report for the BSEACD (July 2006) indicates that if the discharge from Hays County WCID was limited to 0.1 mg/l total phosphorus, the total phosphorus concentration in Bear Creek would approach background concentrations of 0.01-0.05 mg/l at the time it reaches Davis Pond. Concentrations between 0.01-0.05 mg/l total phosphorus have been indicated as the threshold concentration for algal growth in phosphorus limited, effluent dominated,

Bear Creek (Short, July 1988). The ED also considered factors such as accumulation, sedimentation and flushing during storm events in developing the total phosphorus limit for Hays County WCID.

**Comment 61:**

BCPOA asked if the phosphorus effluent limit in Hays County WCID's draft permit is 0.1 mg/l or 0.15 mg/l.

**Response 61:**

The daily average effluent concentration limit in the Hays County WCID draft permit is 0.15 mg/l. This limit is based on a long term average of 0.10 mg/l Total Phosphorus.

The ED addressed concerns of attainability and sampling variability in the draft permit by (1) applying the recommended phosphorus concentration as a long-term average, so that the daily average limit is 0.15 mg/l total phosphorus, (2) applying the phosphorus limit as a median rather than a mean to reduce the effects of high sampling variability at low phosphorus concentrations, and (3) switching the limit to a mean of 0.3 mg/l phosphorus for months with less than three days of discharge.

**Comment 62:**

BCPOA stated that it is logically inconsistent for TCEQ to allow Hays County WCID to discharge phosphorus but not be able to dechlorinate.

**Response 62:**

The draft permit requires Hays County WCID to dechlorinate its effluent to less than 0.1 mg/l chlorine residual.

**Comment 63:**

BCPOA expressed concern that some of the wastewater that Hays County WCID would receive would be commercial wastewater. BCPOA expressed specific concern over waste from butchering operations associated with a proposed grocery store.

**Response 63:**

Butchering operations would generate wastewater that is more representative of an industrial wastewater than domestic wastewater. The permit application only indicates Hays County WCID would accept domestic wastewater. The draft permit for Hays County WCID states: “Prior to accepting or generating wastes which are not described in the permit application or which would result in a significant change in the quantity or quality of the existing discharge, the permittee must report the proposed changes to the Commission.”<sup>57</sup>

**Comment 64:**

BCPOA expressed concern that Hays County WCID is not willing to share all of its information with the neighboring homeowners. Specifically, BCPOA wants to obtain the effluent data for the existing permit.

**Response 64:**

According to the Texas Public Information act:

Under the fundamental philosophy of the American constitutional form of representative government that adheres to the principle that government is the servant and not the master of the people, it is the policy of this state that each person is entitled, unless otherwise expressly provided by law, at all times to complete information about the affairs of government and the

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<sup>57</sup> See, Hays County WCID draft permit, Definitions and Standard Permit Conditions Section, condition 4d.

official acts of public officials and employees. The people, in delegating authority, do not give their public servants the right to decide what is good for the people to know and what is not good for them to know. The people insist on remaining informed so that they may retain control over the instruments they have created. The provisions of this chapter shall be liberally construed to implement this policy.<sup>58</sup>

Hays County WCID is a “governmental body” and is subject to the Public Information Act.<sup>59</sup> Certain information may be withheld under certain circumstances, subject to review by the Texas Attorney General. More information on the Texas Public Information Act can be found at: <http://www.oag.state.tx.us/opinopen/opengovt.shtml>

**Comment 65:**

BCPOA stated that TCEQ should “step outside the box” to do what is right for the environment. BSEACD stated that TCEQ should do what is right and ask the tough questions. Brian Leonard stated that TCEQ should do what is morally right.

**Response 65:**

The legislature created the TCEQ as the agency with primary responsibility for implementing the constitution and laws of Texas relating to the conservation of natural resources and the protection of the environment.<sup>60</sup> The legislature also authorized TCEQ to issue permits for the discharge of waste or pollutants into or adjacent to water in the state.<sup>61</sup> As part of TCEQ’s legislative mandate, it has adopted rules regarding permits for the discharge of waste into water in the state.<sup>62</sup>

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<sup>58</sup> TEX. GOV’T. CODE, Section 552.001.

<sup>59</sup> Tex. GOV’T CODE, Section 552.003(1)(A).

<sup>60</sup> TWC Section 5.012.

<sup>61</sup> TWC Section 27.027.

<sup>62</sup> TWC Section 5.103.

After evaluating Hays County WCID's permit amendment requests, all applicable rules and statutes, all additional information from the comments, public meeting, and site visit, the ED has determined that the draft permit will be protective of the environment and complies with all applicable TCEQ statutes and rules.

**Comment 66:**

BCPOA stated that it is concerned that the BelTerra property owners will not want to spend their tax money on upkeep for the WWTP.

**Response 66:**

The purpose of a district, such as Hays County WCID, is to supply and store water; to operate waste water treatment facilities; and to provide irrigation, drainage, and water quality services. The taxes assessed by a district must be used for the district's operational expenses. If Hays County WCID does not properly maintain and operate the facility Hays County WCID could be subject to enforcement action with civil or administrative penalties.

**Comment 67:**

BSEACD asked what the difference is between a Texas Land Application Permit (TLAP) and a beneficial reuse authorization.

**Response 67:**

Domestic facilities that dispose of treated effluent by land application (surface irrigation, evaporation, drainfields or subsurface land application) are required to obtain a TLAP. All the effluent limits, reporting and monitoring requirements, and permit conditions are included in the TLAP.

A beneficial reuse authorization, often referred to as a “210 authorization,” applies to the reclaimed water producer, provider, and user. If the producer of the reclaimed water is the same as the user, then the use of reclaimed water is permissible only if the use occurs after the wastewater has been treated in accordance with the producer's wastewater permit and the permit provides for an alternative means of disposal during times when there is no demand for the use of the reclaimed water.<sup>63</sup>

**Comment 68:**

BCEACD asked what the total daily load for Bear Creek is.

**Response 68:**

The ED is unsure as to what BCEACD means by "Total Daily Load." The ED does not calculate a “total daily load” for all water bodies. If it is determined that a stream segment does not meet a water quality standard, then the ED may develop a total maximum daily load (TMDL) for each pollutant contributing to the impairment of water quality. Since Bear Creek is currently meeting all water quality standards, the TCEQ has not developed a TMDL for Bear Creek.

**Comment 69:**

BCEACD stated TCEQ should consider factors beyond those in the Streeter-Phelps equations.

**Response 69:**

The Streeter-Phelps model is an older model used to predict impacts from a discharger on DO in a stream or river. The TCEQ discontinued use of the Streeter-Phelps

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<sup>63</sup>30 TAC Section 210.1.

model in November 2002. The QUAL-TX model was used to evaluate the effect of the proposed discharge on DO in Bear Creek. The QUAL-TX model is more sophisticated than the Streeter-Phelps model and includes additional parameters and algorithms that were not included in the Streeter-Phelps model.

**Comment 70:**

SOS commented that because Hays County WCID was using the “anticipation of litigation” as a reason to not fully respond to questions, it would be better to have the public meeting earlier in the process.

**Response 70:**

The ED appreciates the SOS’s concern. A public meeting is intended for the taking of public comment.<sup>64</sup> It is TCEQ’s policy to provide a question and answer session regarding the draft permit before taking formal comment, however the question and answer session is not a statutory or regulatory requirement.

TCEQ’s rules provide that a public meeting may be held at any time if the ED determines that there is substantial or significant public interest in the permit.<sup>65</sup> Typically the ED waits until a draft permit is available before holding a public meeting. This provides the public with a draft permit that the ED has determined meets all of the statutory and regulatory requirements. However, if the ED obtains new information during the public meeting, he may make changes to the draft permit. If a public meeting is held earlier in the process before a draft permit is prepared, the public does not have

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<sup>64</sup> 30 TAC Section 154.154(a).

<sup>65</sup> 30 TAC Section 55.154(c).

anything substantial to comment on and often the ED cannot offer a complete response because the draft permit has not gone through all levels of technical review.

**Comment 71:**

SOS asked what the actual anticipated water usage per household is. According to SOS, Hays County WCID originally used 250 gallons per day per LUE, then changed it to 160 gallons per day per LUE.

**Response 71:**

The wastewater generation projection in the permit application is based on a wastewater generation rate of 250 gallons per living unit equivalent (LUE). This is a preliminary estimate. At the final engineering design stage, the preliminary estimate of the wastewater generation rate will be further refined to more accurately reflect the expected wastewater generation from the service area based on available historical and current data on wastewater flows.

**Comment 72:**

SOS asked why TCEQ does not consider the effect of a proposed discharge on periods of high flow in the receiving water.

**Response 72:**

The TCEQ evaluates proposed wastewater discharges under hot, dry, low-flow conditions when dissolved oxygen levels are typically lower and dilution with receiving water is at a minimum. These are considered critical conditions for the effect of a discharge on the receiving water. During periods of high flow, more dilution occurs with

the receiving water. Also, higher flow conditions in Texas generally occur with lower temperatures; these are less critical conditions for dissolved oxygen.

**Comment 73:**

SOS asked if TCEQ is sure that the proposed phosphorus limit of 0.15 mg/l can be met.

**Response 73:**

The Hays County WCID draft permit provides: “Acceptance of the permit by the person to whom it is issued constitutes acknowledgment and agreement that such person will comply with all the terms and conditions embodied in the permit, and rules and other orders of the Commission.”<sup>66</sup> If the permit is issued, the terms and conditions in the permit will be used as design criteria, along with applicable TCEQ design criteria<sup>67</sup> and generally accepted engineering design principles, in developing the final engineering design for the proposed wastewater treatment facility. The New Jersey Department of Environmental Protection, in its response to permittee comments on water quality-based effluent limits for total phosphorus, concluded that a total phosphorus effluent concentration of 0.1 mg/l is achievable based on examples of actual plants operation.<sup>68</sup>

**Comment 74:**

Deanna Eishler and SOS stated that the draft permit should have provisions for notifying downstream landowners if there is an upset.

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<sup>66</sup> Hays County WCID draft permit, Standard Permit Conditions, Condition 2(a).

<sup>67</sup> 30 TAC Chapter 317.

<sup>68</sup> New Jersey Department of Environmental Protection, Water Quality-based Effluent Limits for Total Phosphorus, A Synopsis of the Department’s Responses to Permittee Comments (October 2002).

**Response 74:**

TCEQ's rules require that Hays County WCID must notify appropriate local government officials and the local media in the event of a spill. The types of spills that require notification include spills, regardless of volume, that will adversely affect a public or private source of drinking water or a spill with a volume of 50,000 gallons or more if the spill occurs up-gradient and within 1/2-mile of a karst terrain.<sup>69</sup>

**Comment 75:**

Roger Durden and Scott Severson stated that they are in favor of the Hays County WCID draft permit.

**Response 75:**

The ED notes the comment.

**Comment 76:**

Alston Boyd, Friendship, Radiance, Barbara Stroud and Robert O'Boyle expressed concern over the negative impact on property values.

The Carmans, Goldenwood stated that if the draft permit is issued, it should assign liability in case of groundwater contamination.

Jim and Diana George commented that the citizens in northern Hays County want to maintain the rural character of the area and are opposed to the proposed development.

BCPOA, BSEACD, Robert Hejl, SOS, Barbara Stroud and Robert O'Boyle, and Tara Weaver expressed concern over increased flooding due to the discharge from the proposed WWTP.

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<sup>69</sup> 30 TAC Section 319.302(b).

SOS expressed concern over erosion caused by the discharge from the proposed WWTP.

SOS expressed concern that Hays County WCID's proposed permit is not consistent with the BelTerra development's previous 2002 consultation with the United States Fish and Wildlife Service.

**Response 76:**

The permitting process is intended to control the discharge of pollutants into water in the state and to protect the water quality of the state's rivers, lakes and coastal waters. TCEQ does not have jurisdiction to address concerns such as those listed in Comment 76 above in the wastewater permitting process.

**CHANGES MADE TO THE DRAFT PERMIT IN RESPONSE TO COMMENT**

In response to comments made during the comment period, the ED has clarified the sampling location. The sampling location is now defined on pages 2a and 2b as: "Effluent monitoring samples shall be taken at the following location(s): Following the final treatment unit and before commingling with water in the state."

Also, in response to comments made during the comment period, the ED has clarified Item 9 of the "Other Requirements For Interim II And Final Phases" section of the draft permit. Item 9 has been revised to: "The permittee shall keep daily records of all effluent discharged from the wastewater treatment plant to Bear Creek; and if separately authorized under 30 TAC Chapter 210, the use of all reclaimed water. These records shall include, at a minimum the following information:

- a. The volume of the discharge;

- b. The weather conditions, i.e., temperature, precipitation, or no precipitation.

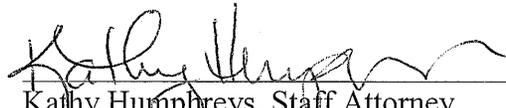
These records shall be maintained on a monthly basis and shall be reported to the TCEQ Regional Office (MC Region 11) and the TCEQ Water Quality Compliance Monitoring Team (MC 224) of the Enforcement Division by September 1 of each year.”

Respectfully submitted,

Texas Commission on Environmental Quality

Glenn Shankle  
Executive Director

Robert Martinez, Director  
Environmental Law Division

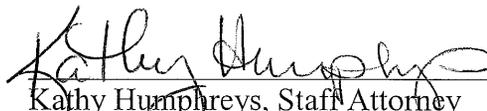


Kathy Humphreys, Staff Attorney  
Environmental Law Division  
State Bar No. 24006911  
P.O. Box 13087, MC 173  
Austin, Texas 78711-3087  
(512) 239-3417  
(512) 239-0606

REPRESENTING THE  
EXECUTIVE DIRECTOR OF THE  
TEXAS COMMISSION ON  
ENVIRONMENTAL QUALIT

**CERTIFICATE OF SERVICE**

I certify that on November 21, 2007, a copy of the foregoing Executive Director's Response to Public Comment was filed with the Office of the Chief Clerk and sent by first class, agency mail and/or facsimile to the persons on the attached Mailing List.

  
Kathy Humphreys, Staff Attorney  
Environmental Law Division

TEXAS  
COMMISSION  
ON ENVIRONMENTAL  
QUALITY

2007 NOV 21 AM 11:21

CHIEF CLERKS OFFICE

# MAILING LIST

## HAYS COUNTY WCID #1

ANDY BARRETT  
BARRETT & SMITH PLLC  
505 WEST 14<sup>TH</sup> STREET  
AUSTIN, TEXAS 78701

CHRISTINA MANN, TCEQ  
OPIC, MC 103  
PO BOX 13087  
AUSTIN, TEXAS 78711-3087

W.F. (KIRK) HOLLAND, P.G.  
BARTON SPRING/EDWARDS AQUIFER  
CONSER  
1124 REGAL ROW  
AUSTIN, TEXAS 78748-3708

SCOTT LARY  
RADIANCE WSC  
29 CONCORD CIR  
AUSTIN, TEXAS 78737

ED PEACOCK  
CITY OF AUSTIN WPRD  
505 BARTON SPRINGS RD  
AUSTIN, TEXAS 78704-1245

HOLLY NOELKE  
ASSISTANT CITY ATTORNEY  
CITY OF AUSTIN  
PO BOX 1088  
AUSTIN, TEXAS 78767-8828

ROBERT LARSEN, PHD  
PRESIDENT, BOARD OF DIRECTORS  
1124 REGAL ROW  
AUSTIN, TEXAS 78748

BEAR CREEK PROPERTY OWNERS  
ASSOCIATION  
PO BOX 92258  
AUSTIN, TEXAS 78759-2258

ALSTON BOYD  
14607 BEAR CREEK PASS  
AUSTIN, TEXAS 78737

ALICIA REINMUND  
LCRA  
PO BOX 220  
AUSTIN, TEXAS 78767

MARA EARICH  
20314 HAMILTON POOL RD  
DRIPPING SPRINGS, TEXAS 78620

DEANNA ELCHER  
13701 EVERGREEN WAY  
AUSTIN, TEXAS 78737

OWEN KINNEY  
14100 NUTTY BROWN RD  
AUSTIN, TEXAS 78737

NEWTON HAMMET  
590 LOST VALLEY ROAD  
DRIPPING SPRINGS, TEXAS 78620

SARAH BAKER  
PO BOX 684881  
AUSTIN, TEXAS 78768

SCOTT SEVERSON  
540 MANCHESTER LANE  
AUSTIN, TEXAS 78737

BRIAN LEONARD  
8212 WASHITA DR.  
AUSTIN, TEXAS 78749

ELIZABETH M. SEILER  
1338 CANYON VIEW RD  
DRIPPING SPRINGS, TEXAS 78620

GREY & LARRY SHELLEY  
10404 WILDWOOD HILLS  
AUSTIN, TEXAS 78737

GOLDENWOOD WEST WATER  
SUPPLY CORPORATION  
C/O ECO RESOURCES, INC.  
9511 RANCH ROAD 920 NORTH  
AUSTIN, TEXAS 78726

NICK BURKHALTER BUILDER  
13500 NUTTY BROWN ROAD  
AUSTIN, TEXAS 78737

ELIZABETH AND JONATHAN  
CARMAN  
2 CRYSTAL CREEK TRAIL  
AUSTIN, TEXAS 78737

LAURIE COFFIN  
13030 FIELDSTONE LOOP  
AUSTIN, TEXAS 78737

HAROLD DANIEL  
SAVE BARTON CREEK ASSOCIATION  
PO BOX 5923  
AUSTIN, TEXAS 78763

JOHN AND ANGELIQUE EDL  
6 LONG CREEK ROAD  
AUSTIN, TEXAS 78737

KAREN FORD  
HAYS COUNTY COMMISSIONER PCT. 4  
PO BOX 1158  
DRIPPING SPRINGS, TEXAS 78620

TED LEHR  
1320 FIELDSTONE LOOP  
AUSTIN, TEXAS 78737

BARBARA L. STROUD  
ROBERT M. O'BOYLE  
14045 ROBIN'S RUN  
AUSTIN, TEXAS 78737

LIAL TISCHER, P.E., PH.D, B.C.E.E.  
107 SOUTH MAYS  
ROUND ROCK, TEXAS 78664

JENNIFER WALKER  
SIERRA CLUB  
PO BOX 1931  
AUSTIN, TEXAS 78767

DONNA TIEMANN  
SIERRA CLUB  
PO BOX 1931  
AUSTIN, TEXAS 78767

KAREN FORD  
WHITE HAT CREATIVE  
13500 NUTTY BROWN ROAD  
AUSTIN, TEXAS 78737

CAT QUINTANILLA, MAYOR  
CITY OF SUNSET VALLEY  
3205 JONES ROAD  
SUNSET VALLEY, TEXAS 78745

GARY ANDERSON  
13901 NUTTY BROWN RD  
AUSTIN TX 78737

ANDREW BACKUS  
HAYS TRINITY GROUNDWATER CONSERVATIO  
16204 HIDDEN SPRINGS LN  
AUSTIN TX 78737-9023

ALSTON BOYD  
14607 BEAR CREEK PASS  
AUSTIN TX 78737

JOHN BURGESS  
16 CRYSTAL CREEK TRL  
AUSTIN TX 78737

GERNOT BURMEISTER  
271 LEXINGTON  
AUSTIN TX 78737

SAM COBB  
13751 FM 1826  
AUSTIN TX 78737

G L COLE  
15004 CROSSCREEK  
AUSTIN TX 78737

DON DAVIS  
3361 COUNTY ROAD 211  
HONDO TX 78861-6847

STEPHEN C DICKMAN ATTORNEY  
KELLY HART & HALLMAN PC  
301 CONGRESS AVE STE 2000  
AUSTIN TX 78701-2960

BRIAN DUDLEY  
THE FRIENDSHIP ALLIANCE  
16904 GOLDENWOOD WAY  
AUSTIN TX 78737-9022

ROGER DURDEN  
160 STRATTON CT  
AUSTIN TX 78737

GINGER FAUGHT  
CITY OF DRIPPING SPRINGS  
PO BOX 384  
DRIPPING SPRINGS TX 78620-0384

SUSAN FEIN  
3009 JUBILEE TRL  
AUSTIN TX 78748

NEWTON HAMMET  
590 LOST VALLEY RD  
DRIPPING SPRINGS TX 78620-3539

MARGIE HAYS  
13751 FM 1826  
AUSTIN TX 78737

ROBERT D HEJL  
PO BOX 541  
MANCHACA TX 78652-0541

THOMAS HOULE  
16711 RIVENDELL LN  
AUSTIN TX 78737

DARYL HOWARD  
14100 NUTTY BROWN RD  
AUSTIN TX 78737

LAURA KUBENKA  
10100 WILDWOOD HILLS LN  
AUSTIN TX 78737

EUGENE LOWENTHAL  
9600 CRUMLEY RANCH RD  
AUSTIN TX 78738-6016

JAMES L MACHIN PE  
R J BRANDES COMPANY  
4900 SPICEWOOD SPRINGS RD  
AUSTIN TX 78759-8422

CHARLES MURPHY  
BSEACD  
473 FAIRCREST DR  
BUDA TX 78610-3725

CHARLES O'DELL EXECUTIVE DIRECTOR  
HAYS COMMUNITY ACTION NETWORK  
14034 ROBINS RUN  
AUSTIN TX 78737-9227

GREGG OWENS  
14710 CROSS CREEK  
AUSTIN TX 78737

SCOTT SEVERSON  
540 MANCHESTER LN  
AUSTIN TX 78737

KIM & JOEL STEARNS  
10400 WILDWOOD HILLS LN  
AUSTIN TX 78737

KENNY TEAGUE  
500 MADRONE RANCH TRL  
DRIPPING SPRINGS TX 78620

TERRY TULL  
16712 RIVENDELL LN  
AUSTIN TX 78737-9053

KRISTEN WEATHERS  
201 KENSINGTON LN  
AUSTIN TX 78737

TARA WEAVER  
8000 WHITE HAWK CIR  
AUSTIN TX 78737

FRED B WERKENTHIN JR  
BOOTH AHRENS & WERKENTHIN PC  
STE 1515  
515 CONGRESS AVE  
AUSTIN TX 78701-3504

SUSAN G ZACHOS  
LAW OFFICES OF SUSAN G ZACHOS  
BARTON OAKS PLAZA ONE - STE 300  
901 S MOPAC EXPRESSWAY  
AUSTIN TX 78746