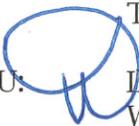


TCEQ Interoffice Memorandum

TO: Office of the Chief Clerk
Texas Commission on Environmental Quality

THRU:  Liliana Delgado, Team Leader
Water Rights Permitting Team

FROM: Sarah Henderson, Project Manager
Water Rights Permitting Team

DATE: May 20, 2016

SUBJECT: TCEQ Docket No. 2016-0160-WR
City of Pearland
WRPERM 13071, CN600595052, RN107142614
Application No. 13071 for a Water Use Permit
Texas Water Code §§ 11.121, 11.042, Requiring Full Basin Mailed and
Published Notice
Clear Creek, San Jacinto River Basin
Brazoria County

The Executive Director received an application from the City of Pearland seeking a Water Use Permit pursuant to Texas Water Code § 11.121 and Texas Commission on Environmental Quality Rules Title 30 Texas Administrative Code §§ 295.1, *et seq.*

The application was received on August 1, 2013. The application was declared administratively complete and filed with the Office of the Chief Clerk on March 7, 2014. The notice of the application was filed with the Chief Clerk on August 13, 2015, and notice was subsequently published and mailed to the water right holders in the San Jacinto River Basin. Two requests for a contested case hearing were received.

Because this application was declared administratively complete after September 1, 1999, the rules in Chapter 55, Subchapter G, Section 55.250 - 55.256 apply. The Chief Clerk shall mail notice to the applicant, executive director, public interest counsel, and timely hearing requestors not later than 35 days prior to the agenda setting. Applicants, the public interest counsel, and the executive director shall file a response no later than 23 days before agenda, and the hearing requestors shall reply no later than nine days before agenda.

The application is now technically complete and the staff has recommended that the application be granted based on the analysis in the technical review memos.

Below is the caption for this application:

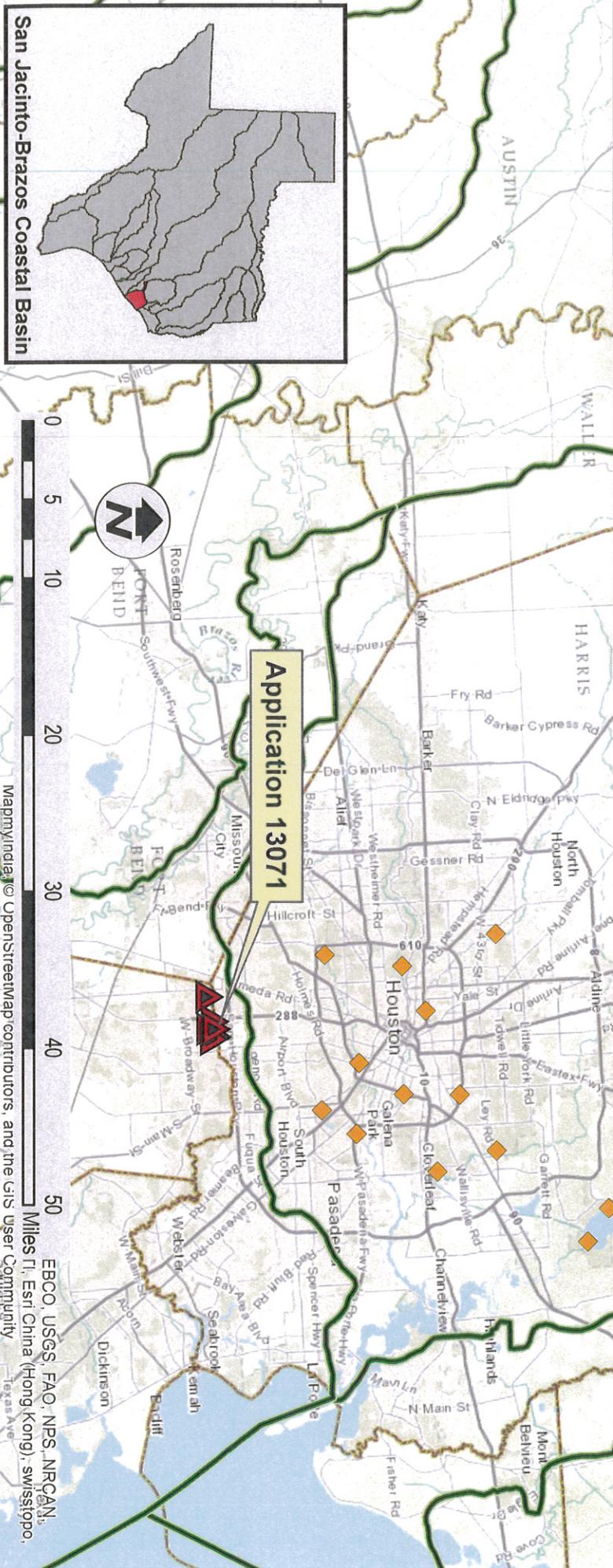
Consideration of the application by the City of Pearland (Applicant) for Water Use Permit No. 13071, seeking authorization to divert and use not to exceed 280 acre-feet per year of historically discharged surface water and groundwater-based return flows from the Far Northwest Wastewater Treatment Facility, Texas Pollutant Discharge Elimination System Permit No. WQ0010134008, approximately 60% of which are surface water based, for storage in five off-channel reservoirs for recreational

purposes and for subsequent diversion for agricultural purposes in Brazoria County. Applicant also seeks authorization to use the bed and banks of an unnamed tributary of Clear Creek and Clear Creek, tributary of the San Jacinto River, San Jacinto-Brazos Coastal Basin, to convey the return flows to the diversion point for diversion at a maximum rate of 1.546 cfs (694 gpm) for agricultural purposes to irrigate 280 acres out of a 583 acre tract of land in Brazoria County. The Commission will consider all timely filed hearing requests and related responses and replies. (Sarah Henderson, Linda Horng)



Sarah Henderson, Project Manager
Water Rights Permitting Team

Enclosure



San Jacinto-Brazos Coastal Basin

EBCO, USGS, FAO, NPS, NRCAN, ...
Miles | Esri, China (Hong Kong), swisstopo, ...

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



NOTICE OF AN APPLICATION FOR A WATER USE PERMIT

APPLICATION NO. 13071

City of Pearland has applied for a Water Use Permit to use the bed and banks of an unnamed tributary of Clear Creek and Clear Creek, San Jacinto-Brazos Coastal Basin, Brazoria County to convey return flows from the City's Far Northwest Wastewater Treatment Facility for off-channel recreation storage and subsequent diversion. More information on the application and how to participate in the permitting process is given below.

APPLICATION. City of Pearland, 3519 Liberty Drive, Pearland, Texas 77581, Applicant, seeks a Water Use Permit pursuant to Texas Water Code §§11.121, 11.042 and Texas Commission on Environmental Quality Rules 30 Texas Administrative Code (TAC) §295.1, *et seq.* Notice is being mailed and published pursuant to title 30 TAC §295.151 to the water right holders of record in the San Jacinto-Brazos Coastal Basin.

The Applicant has applied for a Water Use Permit to divert and use not to exceed 280 acre-feet per year of those historically discharged surface water and groundwater-based return flows from the Far Northwest Wastewater Treatment Facility permitted under TPDES Permit No. WQ0010134008.

The Applicant also seeks to use the bed and banks of an unnamed tributary of Clear Creek and Clear Creek, San Jacinto-Brazos Coastal Basin to convey return flows.

The return flows will be diverted from a point on Clear Creek at a maximum diversion rate of 1,546 cfs (694 gpm) for storage in off-channel recreation reservoirs and subsequent diversion for agricultural purposes to irrigate 280 acres of land in Brazoria County, Texas.

The Applicant estimates that a maximum of 60% of the return flows originate from surface water.

The Applicant and Country Place Master Community Association (CPMCA) have entered into a *Transferred Water Agreement by and between Country Place Master Community Association and City Of Pearland, Texas*, as CPMCA owns the land

inundated by the off-channel reservoirs and the land to be irrigated. The reservoirs are located approximately 29 miles north, northeast of the City of Angleton in Brazoria County, and described as follows:

1. Amenity Lake No. 1, is located at 29.584942°N Latitude, 95.375078°W Longitude also bearing N 80°W, 1,442.31 feet from the southeast corner of the F. Drake Original Survey, Abstract No. 503.
2. Amenity Lake No. 2, is located at 29.583788°N Latitude, 95.383122°W Longitude also bearing N 80°W, 1,442.31 feet from the southeast corner of the F. Drake Original Survey, Abstract No. 503.
3. Amenity Lake No. 3, is located at 29.582515°N Latitude, 95.364149°W Longitude also bearing S 74°E, 2,153.98 feet from the southeast corner of the F. Drake Original Survey, Abstract No. 503.
4. Lake No. 1, is located at 29.579256°N Latitude, 95.375280°W Longitude also bearing S 42°W, 2,378.17 feet from the southeast corner of the F. Drake Original Survey, Abstract No. 503.
5. Lake No. 10/11, is located at 29.582545°N Latitude, 95.368908°W Longitude also bearing S 42°E, 847.47 feet from the southeast corner of the F. Drake Original Survey, Abstract No. 503.

The proposed discharge point is located on an unnamed tributary of Clear Creek at 29.579967°N Latitude, 95.409467°W Longitude also bearing S 74 °E, 969 feet from the northwest corner of the T.C.R.R Co Original Survey, Abstract No. 678, approximately 28.5 miles north of the City of Angleton in Brazoria County, Texas.

The proposed diversion point is located on Clear Creek at 29.585118°N Latitude, 95.366299°W Longitude also bearing N 79°E, 1,395.60 feet from the southeast corner of the F. Drake Original Survey, Abstract No. 503, approximately 28.8 miles north of the City of Angleton in Brazoria County, Texas.

The application was received on August 1, 2013, and additional information and fees were received on December 13, 2013, February 25, 2014, and June 3, 2015. The application was declared administratively complete and filed with the Office of the Chief Clerk on March 7, 2014.

The TCEQ Executive Director has completed the technical review of the application and prepared a draft permit. The draft permit, if granted, would contain special conditions, including but not limited to, streamflow restrictions and recorded daily measurement of return flows. The application and Executive Director's draft permit are available for viewing and copying at the Office of the Chief Clerk, 12100 Park 35 Circle, Building F, Austin, TX 78753.

PUBLIC COMMENT / PUBLIC MEETING. Written public comments and requests for a public meeting should be submitted to the Office of Chief Clerk, at the address provided in the information section below, within 30 days of the date of

newspaper publication of the notice. A public meeting is intended for the taking of public comment, and is not a contested case hearing. A public meeting will be held if the Executive Director determines that there is a significant degree of public interest in the application.

CONTESTED CASE HEARING. The TCEQ may grant a contested case hearing on this application if a written hearing request is filed within 30 days from the date of newspaper publication of this notice. The Executive Director may approve the application unless a written request for a contested case hearing is filed within 30 days after newspaper publication of this notice.

To request a contested case hearing, you must submit the following: (1) your name (or for a group or association, an official representative), mailing address, daytime phone number, and fax number, if any; (2) applicant's name and permit number; (3) the statement "[I/we] request a contested case hearing"; (4) a brief and specific description of how you would be affected by the application in a way not common to the general public; and (5) the location and distance of your property relative to the proposed activity. You may also submit proposed conditions for the requested permit which would satisfy your concerns. Requests for a contested case hearing must be submitted in writing to the Office of the Chief Clerk at the address provided in the information section below.

If a hearing request is filed, the Executive Director will not issue the permit and will forward the application and hearing request to the TCEQ Commissioners for their consideration at a scheduled Commission meeting.

INFORMATION. Written hearing requests, public comments, or requests for a public meeting should be submitted to the Office of the Chief Clerk, MC 105, TCEQ, P.O. Box 13087, Austin, TX 78711-3087 or electronically at <http://www.tceq.texas.gov/about/comments.html> by entering WRPERM 13071 in the search field. For information concerning the hearing process, please contact the Public Interest Counsel, MC 103, at the same address. For additional information, individual members of the general public may contact the Public Education Program at 1-800-687-4040. General information regarding the TCEQ can be found at our web site at www.tceq.texas.gov. Si desea información en Español, puede llamar al 1-800-687-4040 o por el internet al <http://www.tceq.texas.gov>

Issued: August 20, 2015

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



WATER USE PERMIT

PERMIT NO. 13071

TYPE §§11.121, 11.042

Permittee: City of Pearland

Address: 3519 Liberty Drive
Pearland, Texas 77581

Filed: March 7, 2014

Granted:

Purpose: Agriculture, Recreation

County: Brazoria

Watercourse: unnamed tributary of
Clear Creek and Clear
Creek

Watershed: San Jacinto-Brazos Coastal
Basin

WHEREAS, City of Pearland (Applicant) has applied for a Water Use Permit to divert and use not to exceed 280 acre-feet per year of historically discharged surface water and groundwater-based return flows from the Far Northwest Wastewater Treatment Facility permitted under Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0010134008;

WHEREAS, the Applicant also seeks to use the bed and banks of an unnamed tributary of Clear Creek and Clear Creek, San Jacinto-Brazos Coastal Basin to convey return flows; and

WHEREAS, the return flows will be diverted from a point on Clear Creek at a maximum diversion rate of 1.546 cfs (694 gpm) for storage in off-channel recreation reservoirs and subsequent diversion for agricultural purposes to irrigate 280 acres of land in Brazoria County, Texas; and

WHEREAS, the Applicant estimates that a maximum of 60% of the return flows originate from surface water; and

WHEREAS, the Applicant and Country Place Master Community Association (CPMCA) have entered into a *Transferred Water Agreement by and between Country*

Place Master Community Association and City Of Pearland, Texas, as CPMCA owns the land inundated by the off-channel reservoirs and the land to be irrigated. The reservoirs are located approximately 29 miles north, northeast of the City of Angleton in Brazoria County, and described as follows:

1. Amenity Lake No. 1, is located at 29.584942°N Latitude, 95.375078°W Longitude also bearing N 80°W, 1,442.31 feet from the southeast corner of the F. Drake Original Survey, Abstract No. 503;
2. Amenity Lake No. 2, is located at 29.583788°N Latitude, 95.383122°W Longitude also bearing N 80°W, 1,442.31 feet from the southeast corner of the F. Drake Original Survey;
3. Amenity Lake No. 3, is located at 29.582515°N Latitude, 95.364149°W Longitude also bearing S 74°E, 2,153.98 feet from the southeast corner of the F. Drake Original Survey;
4. Lake No. 1, is located at 29.579256°N Latitude, 95.375280°W Longitude also bearing S 42°W, 2,378.17 feet from the southeast corner of the F. Drake Original Survey;
5. Lake No. 10/11, is located at 29.582545°N Latitude, 95.368908°W Longitude also bearing S 42°E, 847.47 feet from the southeast corner of the F. Drake Original Survey;

WHEREAS, the proposed discharge point is located on unnamed tributary of Clear Creek at 29.579967°N Latitude, 95.409467°W Longitude also bearing S 74°E, 969 feet from the northwest corner of the T.C.R.R Co Original Survey, Abstract No. 678, approximately 28.5 miles north of the City of Angleton in Brazoria County, Texas; and

WHEREAS, the proposed diversion point is located on Clear Creek at 29.585118°N Latitude, 95.366299°W Longitude also bearing N 79°E, 1,395.60 feet from the southeast corner of the F. Drake Original Survey, Abstract No. 503, approximately 28.8 miles north of the City of Angleton in Brazoria County, Texas; and

WHEREAS, the Texas Commission on Environmental Quality finds that jurisdiction over the application is established; and

WHEREAS, the Executive Director recommends that special conditions be included in the permit; and

WHEREAS, no requests for a contested case hearing were received for this application; and

WHEREAS, the Commission has complied with the requirements of the Texas Water Code and Rules of the Texas Commission on Environmental Quality in issuing this water use permit;

NOW, THEREFORE, this Water Use Permit No. 13071 is issued to the City of Pearland subject to the following terms and conditions:

1. USE

- A. Permittee is authorized to divert and use not to exceed 280 acre-feet of return flows per year for storage in off-channel recreation reservoirs and subsequent diversion for agricultural purposes to irrigate 280 acres out of a 583 acre-tract in Brazoria County, Texas.
- B. Permittee is authorized to use the bed and banks of an unnamed tributary of Clear Creek and Clear Creek, San Jacinto-Brazos Coastal Basin to convey 280 acre-feet of return flows from the Far Northwest Wastewater Treatment Facility permitted under TPDES permit No. WQ0010134008 to the point of diversion.

2. DISCHARGE

Permittee's discharge point is located on an unnamed tributary of Clear Creek at 29.579967°N Latitude, 95.409467°W Longitude also bearing S 74 °E, 969 feet from the northwest corner of the T.C.R. Co Original Survey, Abstract No. 678, approximately 28.5 miles north of the City of Angleton in Brazoria County, Texas.

3. DIVERSION

- A. Permittee is authorized to divert from a point located on Clear Creek, tributary of San Jacinto River, San Jacinto-Brazos Coastal Basin at 29.585118°N Latitude, 95.366299°W Longitude also bearing N 79°E, 1,395.60 feet from the southeast corner of the F. Drake Original Survey, Abstract No. 503, approximately 28.8 miles north of the City of Angleton in Brazoria County, Texas.
- B. The maximum diversion rate is 1.546 cfs (694 gpm).

3. TIME PRIORITY

The time priority for this right is March 7, 2014.

4. CONSERVATION

Permittee shall implement water conservation plans that provide for the utilization of those practices, techniques, and technologies that reduce or maintain the consumption of water, prevent or reduce the loss or waste of water, maintain or improve the efficiency in the use of water, increase the recycling and reuse of water, or prevent the pollution of water, so that a water supply is made available for future or alternative uses. Such plans shall include a requirement that in every water supply contract entered into, on or after the effective date of this permit, including any contract extension or renewal, that each successive wholesale customer develop and implement conservation measures. If the customer intends to resell the water, then the contract for resale of the water shall have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures.

5. SPECIAL CONDITIONS

- A. Permittee shall not divert the return flows under this permit unless streamflow exceeds the following environmental flow values at USGS Gage No. 08076997 – Clear Creek at Mykawa Street, TX, subject to the requirements of Special Conditions B-C below.

Season	Subsistence
Winter	0.91 cfs
Spring	0.95 cfs
Summer	0.39 cfs
Fall	0.39 cfs

cfs = cubic feet per second

- B. Seasons are defined as follows: Winter (December through February), Spring (March through May), Summer (June through August), and Fall (September through November).
- C. Permittee shall not divert return flows authorized by this permit if streamflow at USGS Gage No. 08076997 is equal to or below the applicable subsistence flow for a season.
- D. In order to minimize entrainment and impingement of aquatic organisms, the Permittee shall install screens on any new diversion structure(s) with a mesh size no greater than 0.25 inches and a maximum flow-through velocity of 0.5 feet per second.

- E. Diversions authorized by this permit are dependent upon potentially interruptible return flows or discharges and are conditioned on the availability of those discharges. The right to divert the discharged return flows is subject to revocation if discharges become permanently unavailable for diversion and may be subject to reduction if the return flows are not available in quantities and qualities sufficient to fully satisfy the permit. Should the discharges become permanently unavailable for diversion, Permittee shall immediately cease diversion under this permit and either apply to amend the permit, or voluntarily forfeit the permit. If Permittee does not amend the permit or forfeit the permit, the Commission may begin proceedings to cancel this permit.
- F. Diversions under this permit are limited to the actual amount of return flows discharged from the City of Pearland's Far Northwest Wastewater Treatment Facility on a daily basis.
- G. Permittee shall measure and record the daily volume of return flows discharged and diverted. Permittee shall maintain these records and make them available to the Executive Director upon request.
- H. Prior to diversion of any discharged return flows in excess of 280 acre-feet per year, Permittee shall apply for and be granted the right to reuse those return flows.
- I. The authorization described in Paragraph 1. USE is subject to the continued maintenance of the *Transferred Water Agreement by and between Country Place Master Community Association and City Of Pearland, Texas*, as such agreement may be amended or extended from time to time. Should the agreement be amended in a way that changes the amount of return flows, the diversion rate, or the type or location of use, Permittee shall amend the permit to conform to the terms of the agreement. Upon expiration of the agreement, Permittee shall immediately cease diversion and storage of the return flows and either apply to amend the permit or voluntarily forfeit the permit. Permittee shall notify the Commission upon amendment or expiration of the agreement and provide the Commission with copies of appropriate documents effectuating such changes.

This permit is issued subject to all senior and superior water rights in the San Jacinto-Brazos Coastal Basin.

Permittee agrees to be bound by the terms, conditions, and provisions contained herein and such agreement is a condition precedent to the granting of this permit.

All other matters requested in the application which are not specifically granted by this permit are denied.

This permit is issued subject to the Rules of the Texas Commission on Environmental Quality and to the right continuing supervision of State resources exercised by the Commission.

For the Commission

Date Issued:

DRAFT

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: Melissa Carugati, Project Manager
Water Rights Permits Team
Water Rights Permitting & Availability Section

Date: June 19, 2015

Through:  Kathy Alexander, Ph.D.,
Technical Specialist
Water Availability Division

 Christine Peters, Senior Hydrologist
Water Rights Permitting & Availability Section

 Tracie Tolle, Team Leader
Surface Water Availability Team

From: Kathy Buckley, Hydrologist
Surface Water Availability Team

Subject: City of Pearland
WRPERM 13071
CN600595052
Unnamed tributary of Clear Creek and Clear Creek
San Jacinto-Brazos Coastal Basin
Brazoria County

WATER AVAILABILITY REVIEW

Application Summary

The City of Pearland (City) applied for a Water Use Permit to divert and reuse 280 acre-feet of its historically discharged return flows from the City's Far Northwest Wastewater Treatment Facility permitted under TPDES Permit 10134-008 to discharge up to 2.0 MGD (2,241 acre-feet per year). The City estimated that a maximum of 60% of the return flows originate from surface water.

The City requests authorization to use the bed and banks of an unnamed tributary of Clear Creek and Clear Creek, to convey the return flows approximately three miles downstream where the return flows will be diverted for irrigation, or stored in multiple off-channel reservoirs for subsequent diversion for irrigation use. The application indicated minimal conveyance losses.

The application was declared administratively complete on March 7, 2014.

Water Availability Review

Resource Protection staff recommended the following Special Conditions be included in the permit, if granted:

1. Permittee shall not divert return flows under this permit unless streamflow exceeds the following environmental flow values at USGS Gage No. 08076997 – Clear Creek at Mykawa Street, TX; subject to the requirements of Special Conditions 2-4 below.

Season	Subsistence
Winter	0.91 cfs
Spring	0.95 cfs
Summer	0.39 cfs
Fall	0.39 cfs

cfs = cubic feet per second

2. Seasons are defined as follows: Winter (December through February), Spring (March through May), Summer (June through August), and Fall (September through November).
3. Permittee shall not divert return flows authorized by this permit if streamflow at USGS Gage No. 08076997 is equal to or below the applicable subsistence flow for a season.
4. In order to minimize entrainment and impingement of aquatic organisms, the Permittee shall install screens on any new diversion structure(s) with a mesh size no greater than 0.25 inches and a maximum flow-through velocity of 0.5 feet per second.

The request to reuse groundwater- and surface water-based return flows must be evaluated in accordance with Texas Water Code §11.042 and 30 Texas Administrative Code (TAC) §295.112 and §295.113. Staff evaluated the City's request to reuse its return flows by evaluating whether the City's reuse of return flows, irrespective of source, would affect senior water rights. Staff reviewed water rights in the San Jacinto-Brazos Coastal Basin to determine whether any existing water rights were explicitly granted based on the City's return flows, and determined that, based on available commission records, no water rights were explicitly granted based on these return flows.

The Water Rights Availability Package (WRAP) simulates management of the water resources of a river basin. TCEQ uses WRAP in the evaluation of water right permit applications using priority-based water allocation. WRAP is a generalized simulation model for application to any river basin, and input datasets must be developed for the

particular river basin of concern. The TCEQ developed water availability models (WAMs) for Texas' river basins that include geographical information, water right information, naturalized flows, evaporation rates, and specific management assumptions. Hydrology staff operates WRAP to evaluate water rights applications to determine water availability and to ensure that senior water rights are protected.

In order to evaluate whether reuse of the return flows originating from groundwater would affect other water rights that may have been granted based on the use or availability of these return flows, and to determine the availability of return flows originating from surface water, staff used the Full Authorization simulation of the San Jacinto-Brazos WAM where all water rights use their full authorized amounts and return flows are not included. The period of record for the San Jacinto-Brazos WAM is 1940 through 1997.

Staff first modified the San Jacinto-Brazos WAM to include the historically discharged groundwater-based return flows submitted by the City for the period 2006 thru 2013, calculated the minimum monthly discharge for each month, and used 40% of that value to represent the portion of the City's return flows that were based on groundwater. Staff first performed a simulation without the City's diversion of groundwater-based return flows and calculated the volume reliability of all basin water rights. Volume reliability is defined as the percentage of the total target demand for each water right that is actually supplied. Next, staff performed a simulation using the modified version of the WAM dataset described above and included the City's diversion of 280 acre-feet of its discharged groundwater-based return flows, assuming that those diversions had the most senior priority date in the basin.

Staff then compared the results of the two simulations. The analysis indicated that one water right could be negatively affected by diversion of a portion of the groundwater-based return flows, although the impact was minimal (.27%). Staff notes that the application only requests to divert 280 acre-feet of the total discharged amount. The additional return flows would be available to other basin rights; therefore, staff does not believe other water rights would be affected if the City only diverted groundwater-based return flows.

Staff then used the modified San Jacinto-Brazos WAM, which included the discharged groundwater-based return flows and added the portion of the return flows originating from surface water. Staff calculated the monthly discharge amount as discussed above and used 60% of that value to represent the portion of the City's return flows that were based on surface water. Staff then modeled the City's diversion of surface water-based return flows at a priority date of March 7, 2014. The simulation results indicate that 100% of the surface water-based return flows were available in 69% of the years and at least 75% of the monthly return flows were available in 95% of the months.

Conclusion

Staff's analysis indicates that 280 acre-feet of return flows is available, irrespective of the source of the return flows. Staff can support granting the application provided any

permit include the Resource Protection staff's recommendations and the following special conditions:

1. Diversions authorized by this permit are dependent upon potentially interruptible return flows or discharges and are conditioned on the availability of those discharges. The right to divert the discharged return flows is subject to revocation if discharges become permanently unavailable for diversion and may be subject to reduction if the return flows are not available in quantities and qualities sufficient to fully satisfy the permit. Should the discharges become permanently unavailable for diversion, Permittee shall immediately cease diversion under this permit and either apply to amend the permit, or voluntarily forfeit the permit. If Permittee does not amend the permit or forfeit the permit, the Commission may begin proceedings to cancel this permit.
2. Diversions under this permit are limited to the actual amount of return flows discharged from the City of Pearland's Far Northwest Wastewater Treatment Facility on a daily basis.
3. Permittee shall measure and record the daily volume of return flows discharged and diverted. Permittee shall maintain these records and make them available to the Executive Director upon request.
4. Prior to diversion of any discharged return flows in excess of 280 acre-feet per year, Permittee shall apply for and be granted the right to reuse those return flows.



Kathy Buckley, Hydrologist

HYDROLOGY UNIT ANALYSIS FACT SHEET

Applicant: City of Pearland Basin: San Jacinto-Brazos Coastal
 Water Right: 13071 County: Brazoria
 Stream: Clear Creek Drainage Area: 16.53 sq. miles
 Requested Amount: 280 acft Return Flows

Changes to Run 3 & 8:

Changes to *.dis file

**13071 Pearland
 FD130711 CLPECI 0
 WP130711 16.53

Changes to *.dat file

**13071
 UC 13071 56 51 58 57 58 23
 UC 24 24 23 24 23 56 477
 **

**13071 GW based Return Flows

CH101343 23 22 25 28 28 26
 CI 29 30 30 38 30 35 344

**13071 SW based Return Flows

CH101343 34 30 37 43 43 39
 CI 43 46 45 57 46 53 516

**

IFCLPECI 477 1307111010102 1 IF13071_1
 WR130711 0, 411010102 1 13071_GW 13071
 TS ADD 1997 19 18 20 23 23 21 24 24 24 31 24 28
 IFCLPECI 0 1307111010102 IF13071_2

**

IFCLPECI 477 1307120140307 1 IF13071_3
 WR130711 0, 20140307 1 13071_SW 13071
 TS ADD 1997 18 16 20 23 23 21 23 25 24 31 25 29
 **

Remarks: Resource Protection Staff recommended streamflow restrictions for this application.

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: Melissa Carugati, Project Manager Date: June 19, 2015
Water Rights Permits Team
Water Rights Permitting & Availability Section

Through: *OK*
6/19/15 Chris Loft, Team Leader
Resource Protection Team
Water Rights Permitting & Availability Section

RM
6/19/15 Robert Hansen, Senior Aquatic Scientist
Resource Protection Team
Water Rights Permitting & Availability Section

From: *OK*
6/19/15 Lori Hamilton, Program Support Coordinator
Water Rights Permitting & Availability Section

Subject: City of Pearland
WRPERM 13071
CN600595052
Application No. 13071 for a Water Use Permit
Unnamed tributary of Clear Creek, Clear Creek, San Jacinto-Brazos
Coastal Basin
Brazoria County

Environmental reviews of water right applications are conducted in accordance with §11.042, §11.147, §11.1491, §11.150, and §11.152 of the Texas Water Code (TWC) and with Texas Commission on Environmental Quality (TCEQ) administrative rules which include 30 Texas Administrative Code (TAC) §297.53 through §297.56. These statutes and rules require the TCEQ to consider the possible impacts of the granting of a water right on fish and wildlife habitat, water quality, and instream uses associated with the affected body of water. Possible impacts to bays and estuaries are also addressed.

Application Summary: The City of Pearland (City) applied for a Water Use Permit to divert and reuse 280 acre-feet of its historically discharged return flows from the City's Far Northwest Wastewater Treatment Facility permitted under TPDES Permit 10134-008 to discharge up to 2.0 MGD (2,241 acre-feet per year). The City estimated that a maximum of 60% of the return flows originate from surface water.

The City requests authorization to use the bed and banks of an unnamed tributary of Clear Creek and Clear Creek, to convey the return flows approximately 3 miles downstream where the return flows will be diverted for irrigation, or stored in multiple off-channel reservoirs for subsequent diversion for irrigation use.

ENVIRONMENTAL ANALYSIS

Aquatic and Riparian Habitats: The proposed project area is located in the Northern Humid Gulf Coastal Prairies of the Western Gulf Coastal Plain. Almost all of the coastal prairies have been converted to cropland, rangeland, pasture, or urban land uses. Soils are mostly fine-textured: clay, clay loam, or sandy clay loam (Griffith et al. 2004). According to the *Handbook of Texas Online*, Clear Creek rises a mile west of the Blue Ridge oilfield in the northeast corner of Fort Bend County and runs east for forty-one miles, forming the southern boundary of Harris County and the northern boundary of Brazoria and Galveston counties, to its mouth on Galveston Bay. The surrounding flat to rolling terrain supports mixed hardwoods and pines (*Handbook of Texas Online* 2014).

Studies within the San Jacinto-Brazos Basin have described a total of 257 species of ichthyofauna with 202 species occurring within Brazoria County (Hendrickson and Cohen 2012). According to Texas Parks and Wildlife Department's (TPWD) *Rare, Threatened, and Endangered Species of Texas*, approximately 45 species have the potential or known presence in Brazoria County (TPWD 2015). No federally endangered and threatened aquatic and aquatic-dependent species are known to occur in Clear Creek Above Tidal (Segment No. 1102) (TCEQ 2010). No critical habitats for federally listed endangered or threatened species are known to occur within the vicinity of the proposed project (USFWS 2015).

The TCEQ regulates bed and banks authorizations to convey groundwater and surface water based effluent under the authority of TWC §11.042. That provision allows the commission to place special conditions in the authorization to "maintain instream uses and freshwater inflows to bays and estuaries." On April 20, 2011, the TCEQ adopted environmental flow standards for the Trinity and San Jacinto Rivers, and Galveston Bay. These environmental flow standards are considered adequate to support a sound ecological environment (30 TAC §298.210). This review is conducted in accordance with TWC §11.042, and although this is not a new appropriation of water, technical review will utilize TCEQ administrative rules which include 30 TAC Chapter 298 Subchapter B (Trinity and San Jacinto Rivers, and Galveston Bay) to provide consistency in water rights administration.

In 30 TAC §298.225, environmental flow standards were established at United States Geological Survey (USGS) Gage No. 08068000 – West Fork San Jacinto River near Conroe, Texas. This measurement point is located north (approximately 46 aerial miles) of the proposed diversion point. Resource Protection staff prorated environmental flow standards from USGS Gage No. 08068000 – West Fork San Jacinto River near Conroe, Texas to USGS Gage No. 08076997 – Clear Creek at Mykawa Street, Texas (Table 1), which is closer to the Applicant's proposed diversion point (approximately 4.9 stream miles downstream of the proposed diversion point).

Table 1. Environmental Flow Values (cfs) at USGS Gage No. 08076997 -- Clear Creek at Mykawa Street, Texas.

Season	Subsistence
Winter	0.91 cfs
Spring	0.95 cfs
Summer	0.39 cfs
Fall	0.39 cfs

cfs = cubic feet per second

The applicable subsistence flow varies depending on seasons. Seasons are defined in 30 TAC §298.205 as follows: Winter (December through February), Spring (March through May), Summer (June through August), and Fall (September through November).

Diversion of the 280 acre-feet of return flows, if authorized under this proposed permit, shall be limited to times when streamflow exceeds the above environmental flow values at USGS Gage No. 08076997 -- Clear Creek at Mykawa Street, Texas, subject to the requirements of the Special Conditions below.

In addition, the Applicant indicated that a bar screen will be utilized on the diversion structure to minimize entrainment and impingement of aquatic life with the following design criteria: bar space opening of 0.25 inches and maximum flow-through velocity of 0.5 feet per second.

Recreational Uses: According to TPWD's *An Analysis of Texas Waterways*, Clear Creek is an extremely scenic waterway, passing through a heavily vegetated region. The lower 12-15 miles are suitable for recreational use (TPWD 1974). According to Harris County Flood Control District (HCFCD), a number of natural and recreational parks have been developed along Clear Creek, which are commonly referred to as the "Chain-of-Parks" (HCFCD 2014). Authorization to use the bed and banks of an unnamed tributary of Clear Creek and Clear Creek to convey the return flows approximately 3 miles downstream where the return flows will be diverted for irrigation, or stored in multiple off-channel reservoirs for subsequent diversion should not adversely impact recreational uses.

Water Quality: According to the 2014 *Texas Surface Water Quality Standards*, Clear Creek Above Tidal is a classified segment (Segment No. 1102) and its designated uses are primary contact recreation 1 and high aquatic life use (TCEQ 2014). Segment 1102 is on the 2012 *Texas 303(d) List* for polychlorinated biphenyls (PCBs) in edible tissue and a Total Maximum Daily Load (TMDL) is underway, scheduled, or will be scheduled (TCEQ 2012). TMDLs have been completed and approved by the Environmental Protection Agency for the following parameters: bacteria, chloride, total dissolved solids, chlordane, and two volatile organic compounds (1,2-dichloroethane and 1,1,2-trichloroethane). Segment 1102 was also identified in the 2012 *Texas Integrated Report*

with concerns for use attainment and screening levels for the following parameters: depressed dissolved oxygen, impaired habitat, nitrate, orthophosphorus, and total phosphorus (TCEQ 2012). Authorization to use the bed and banks of an unnamed tributary of Clear Creek and Clear Creek to convey the return flows approximately 3 miles downstream where the return flows will be diverted for irrigation, or stored in multiple off-channel reservoirs for subsequent diversion should not adversely impact water quality.

Freshwater Inflows: Freshwater inflows are important for maintaining the historical productivity of bays and estuaries along the Gulf Coast. Authorization to use the bed and banks of an unnamed tributary of Clear Creek and Clear Creek to convey the return flows approximately 3 miles downstream where the return flows will be diverted for irrigation, or stored in multiple off-channel reservoirs for subsequent diversion should not result in any additional adverse impacts in Galveston Bay.

SUMMARY

The City of Pearland (City) applied for a Water Use Permit to divert and reuse 280 acre-feet of its historically discharged return flows from the City's Far Northwest Wastewater Treatment Facility permitted under TPDES Permit 10194-008 to discharge up to 2.0 MGD (2,241 acre-feet per year). The City estimated that a maximum of 60% of the return flows originate from surface water.

The City requests authorization to use the bed and banks of an unnamed tributary of Clear Creek and Clear Creek, to convey the return flows approximately 3 miles downstream where the return flows will be diverted for irrigation, or stored in multiple off-channel reservoirs for subsequent diversion for irrigation use.

Resource Protection staff recommends the following Special Conditions be included in the permit, if granted:

1. Permittee shall not divert the return flows under this permit unless streamflow exceeds the following environmental flow values at USGS Gage No. 08076997 - Clear Creek at Mykawa Street, TX, subject to the requirements of Special Conditions 2-4 below.

Season	Subsistence
Winter	0.91 cfs
Spring	0.95 cfs
Summer	0.89 cfs
Fall	0.89 cfs

cfs = cubic feet per second

2. Seasons are defined as follows: Winter (December through February), Spring (March through May), Summer (June through August), and Fall (September through November).
3. Permittee shall not divert return flows authorized by this permit if streamflow at USGS Gage No. 08076997 is equal to or below the applicable subsistence flow for a season.
4. In order to minimize entrainment and impingement of aquatic organisms, the Permittee shall install screens on any new diversion structure(s) with a mesh size no greater than 0.25 inches and a maximum flow-through velocity of 0.5 feet per second.

This instream use assessment was conducted using current TCEQ operation procedures and policies and available data and information. Authorizations granted to the Permittee by the water rights permit shall comply with all rules of the TCEQ and other applicable State and Federal authorizations.

LITERATURE CITED

"CLEAR CREEK (FORT BEND COUNTY)," *Handbook of Texas Online* (<http://www.tshaonline.org/handbook/online/articles/rbcex>), accessed May 28, 2014. Uploaded on June 12, 2010. Published by the Texas State Historical Association.

Griffith, G.E., Bryce, S.A., Omernik, J.M., Comstock, J.A., Rogers, A.C., Harrison, B., Hatch, S.L., and Bezanson, D. 2004. Ecoregions of Texas (color poster with map, descriptive text, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:2,500,000).

HCFCD. 2014. (http://www.hcfcd.org/L_clearcreek.html), accessed May 30, 2014.

Hendrickson, Dean A. and Adam E. Cohen. 2012. Fishes of Texas Project and Online Database (www.fishesoftexas.org). Published by Texas Natural History Collection, a division of Texas Natural Science Center, University of Texas at Austin. Accessed May 30, 2014.

TCEQ. 2010. Procedures to Implement the Texas Surface Water Quality Standards. RG-194. Texas Commission on Environmental Quality. Austin, Texas.

TCEQ. 2012. Texas Integrated Report of Surface Water Quality. Texas Commission on Environmental Quality. Austin, Texas.

TCEQ. 2014. Texas Surface Water Quality Standards §§307.1-307.10. Texas Commission on Environmental Quality. Austin, Texas.

TPWD. 1974. An Analysis of Texas Waterways. Texas Parks and Wildlife Department.

TPWD - Wildlife Division, Diversity and Habitat Assessment Programs. 2015. TPWD County Lists of Protected Species and Species of Greatest Conservation Need. Brazoria County. March 23, 2015. (<http://www.tpwd.texas.gov/gis/rtest/>). Accessed June 19, 2015.

USFWS. 2015. IPaC -- Information, Planning, and Conservation System. Brazoria County. Last updated June 19, 2015. (<http://ecos.fws.gov/ipac/>). Accessed June 19, 2015.

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: Melissa Carugati, Project Manager
Water Rights Permits Team
Water Rights Permitting and Availability Section

Date: June 19, 2015

Thru: *CK* Chris Loft, Team Leader
Resource Protection Team
Water Rights Permitting and Availability Section

KW
6/19/15 Kristin Wang, Senior Water Conservation Specialist
Resource Protection Team
Water Rights Permitting and Availability Section

From: *ga*
6/19/15 Jennifer Allis, Senior Water Conservation Specialist
Resource Protection Team
Water Rights Permitting and Availability Section

Subject: City of Pearland
WRPERM 13071
CN600595052
Application No. 13071 for a Water Use Permit
Water Conservation Review

The City of Pearland (Applicant) seeks a Water Use Permit to divert and reuse 280 acre-feet of its historically discharged return flows the City's Far Northwest Wastewater Treatment Facility. Applicant also requests authorization to use the bed and banks of an unnamed tributary of Clear Creek and Clear Creek, San Jacinto-Brazos Coastal Basin in Brazoria County to convey 280 acre-feet of the return flows, and to divert the return flows for storage in multiple off-channel reservoirs for subsequent agricultural purposes to irrigate 280 acres of land in Brazoria County. In addition, the Applicant requests adding recreational use to the reservoirs.

An application to divert return flows from a stream results in a new source of water for the applicant. Therefore, for the purposes of a conservation review under 30 Texas Administrative Code (TAC) §295.9, it is determined that as an application to appropriate water, a technical review by Water Conservation staff is required. This does not mean that TCEQ would or would not consider this application to be an "appropriation" of water in other contexts.

The applicant is required to provide evidence that the amount of water appropriated will be beneficially used, i.e., effectively managed and not wasted pursuant to Texas Water Code (TWC), §11.134(b)(3)(A). Also, the applicant must provide evidence that reasonable diligence will be used to avoid waste and achieve water conservation pursuant to TWC §11.134(b)(4). To provide that evidence, the applicant must submit a water conservation plan in accordance with 30 TAC Chapter 288. In applications where a new appropriation of water is requested, the review includes an analysis of whether the requested appropriation is reasonable and necessary for the proposed uses in accordance with TWC §11.134 and 30 TAC §297.50.

The purpose of this review is to:

- (1) determine whether reasonable water conservation goals have been set;
- (2) determine whether the proposed strategies can achieve the stated goals;
- (3) determine whether there is a substantiated need for the water and whether the amount to be appropriated is reasonable for the proposed use; and
- (4) determine whether the water conservation plan addresses a water supply need in a manner that is consistent with the state water plan and the relevant approved regional water plan.

If these criteria are met, then staff considers this sufficient evidence to conclude that the applicant will avoid waste and achieve water conservation. This review forms a basis for permit conditions and limitations as provided by TWC §11.134.

The City of Pearland submitted a water conservation plan, which was reviewed by TCEQ staff and found to be administratively complete per 30 TAC Chapter 288.

The City of Pearland intends to contract this water for indirect reuse by the Country Place Master Community Association (CPMCA) for golf course and common area irrigation. On March 25, 2013, the City of Pearland and the CPMCA effectuated a Transferred Water Agreement.

As part of the application, the CPMCA submitted a water conservation plan for irrigation use. The water conservation plan for irrigation use was reviewed by TCEQ staff and found to be administratively complete per 30 TAC §288.4.

The water conservation plan indicates that the CPMCA will use a totalizing meter with an accuracy of within five percent. Irrigation will be conducted at night to reduce evaporative losses. Furthermore, they will adjust the water needs daily based on weather conditions, and will cycle irrigation sessions to ensure good infiltration and to minimize runoff.

An analysis was performed because this request is considered a new appropriation of water. The irrigation requirement for Bermuda grass, St. Augustine grass, and Tif Dwarf grass on 280 acres of land was performed in accordance with the Agrilife Extension's Texas Evapotranspiration web site: <http://texaset.tamu.edu>. The requested 280 acre-feet of water is determined to be reasonable for the irrigation use listed in the application.

The 2011 Region H Water Plan includes the use of wastewater reuse for municipal irrigation of golf courses and maintenance of green spaces as a water management strategy. This strategy consists of using reclaimed wastewater to supplement existing and future water supplies that currently serve non-potable municipal demands within Region H. As such, the application is consistent with the approved 2011 Region H Water Plan and 2012 State Water Plan because there is nothing in the water plans that conflicts with issuing this permit.

The following water conservation language should be included in the permit:

Permittee shall implement water conservation plans that provide for the utilization of those practices, techniques, and technologies that reduce or maintain the consumption of water, prevent or reduce the loss or waste of water, maintain or improve the efficiency in the use of water, increase the recycling and reuse of water, or prevent the pollution of water, so that a water supply is made available for future or alternative uses. Such plans shall include a requirement that in every water supply contract entered into, on or after the effective date of this permit, including any contract extension or renewal, that each successive wholesale customer develop and implement conservation measures. If the customer intends to resell the water, then the contract for resale of the water shall have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures.