

**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY  
INTEROFFICE MEMORANDUM**

Date: June 21, 2022

To: Office of the Chief Clerk  
Attn. Melissa Schmidt/ Mehgan Taack

From: Ruth Takeda  
Staff Attorney, Environmental Law Division

Subject: Transmittal of documents to SOAH for Administrative Record

**Applicant – City of Wichita Falls**  
**Permit application – 13404**  
**Program area – Water Rights Permitting and Availability Section**  
**SOAH Docket No. 582-22-2634**  
**TCEQ Docket No. 2022-0125-WR**

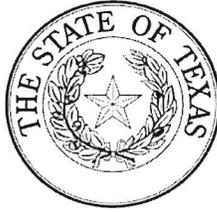
In a permit hearing, the record in a contested case includes copies of the public notices relating to the permit application, as well as affidavits of public notices that are filed by the applicant directly with the TCEQ’s Office of the Chief Clerk (OCC). In addition, the record includes the following documents that are provided to the OCC by the staff of the TCEQ Executive Director (ED), 30 Tex. Admin. Code § 80.118. Documents included with this transmittal are indicated below:

- The ED’s final draft permit, which may include any special provisions or conditions.
- The ED’s technical memorandum/ memoranda regarding the application.
- The compliance history of the applicant.
- Copies of the public notices relating to the permit application, as well as affidavits regarding public notices.
- Any agency document determined by the ED to be necessary to reflect the administrative and technical review of the application. Specifically, the ED’s memorandum declaring the application administratively complete.

The application is not included with this transmittal because it is the applicant’s document and the applicant is the party who should offer it into evidence. **This is not a permit governed by HB 801 or SB 709.**

This transmittal serves to also request that the OCC transmit the attached items, together with (a) the public notice documents (including the notice of hearing) and (b) where available for direct referrals only, the ED’s Response to Comments to the State Office of Administrative Hearings.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



WATER USE PERMIT

PERMIT NO. 13404

TYPE: §§ 11.121, 11.042

Permittee: City of Wichita Falls

Address: 1300 7<sup>th</sup> Street  
Wichita Falls, Texas  
76307-7531

Filed: August 10, 2017

Granted:

Purposes: Municipal, Industrial,  
Mining, Agricultural

Counties: Archer, Clay, Wichita

Watercourse: Little Wichita River

Watershed: Red River Basin

WHEREAS, the City of Wichita Falls (Applicant/Permittee) seeks a Water Use Permit to construct and maintain a 275,000 acre-foot capacity reservoir (Lake Ringgold) on the Little Wichita River, tributary of the Red River, Red River Basin with the centerline of the dam being at Latitude 33.8962900°N, Longitude 97.9929801°W in Clay County; and

WHEREAS, Applicant also seeks to divert and use not to exceed 65,000 acre-feet of water per year from anywhere along the perimeter of Lake Ringgold, at a maximum diversion rate of 139.79 cfs (62,770 gpm), for municipal, industrial, mining and agricultural purposes within the Applicant's service area in Archer, Clay and Wichita counties; and

WHEREAS, Lake Arrowhead is authorized under Applicant's Certificate of Adjudication No. 02-5150, as amended; and

WHEREAS, Applicant also seeks to authorize the use of the bed and banks of the Little Wichita River (Lake Arrowhead), Red River Basin to convey the 65,000 acre-feet of water per year for subsequent diversion and use for municipal, industrial, mining, and agricultural purposes; and

WHEREAS, Applicant is authorized to divert surface water-based return flows authorized by TPDES Permit No. WQ0010509001 under Certificate of Adjudication No. 02-5150C; and

WHEREAS, Applicant further seeks authorization to use the bed and banks of the Little Wichita River (Lake Arrowhead) to convey the return flows generated from the diversion and use of water originating from Lake Ringgold for subsequent diversion and use pursuant to the authorization to reuse return flows included in Certificate of Adjudication No. 02-5150C; and

WHEREAS, Applicant indicates water diverted from Lake Ringgold may be delivered via pipeline and discharged, at a maximum discharge rate of 139.79 cfs (62,770 gpm), anywhere along the perimeter of Lake Arrowhead in Archer and Clay counties; and

WHEREAS, Applicant indicates the water diverted from Lake Ringgold and discharged into Lake Arrowhead will be subsequently diverted, at a maximum diversion rate of 139.79 cfs (62,770 gpm), from anywhere along the perimeter of Lake Arrowhead in Archer and Clay counties and from an existing point on Lake Arrowhead, at a maximum diversion rate of 93 cfs (41,850 gpm), being at Latitude 33.763707°N, Longitude 98.370091°W in Clay County; and

WHEREAS, Applicant indicates that diversions from Lake Ringgold may overdraft the firm yield of the reservoir as part of a system operation with Applicant's existing water supplies; and

WHEREAS, this application is subject to the obligations of the State of Texas pursuant to the terms of the Red River Compact; and

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

WHEREAS, the Applicant has provided, and the Executive Director has approved, the *City of Wichita Falls Accounting Plan*; and

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

NOW, THEREFORE, Water Use Permit No. 13404 is issued to the City of Wichita Falls subject to the following terms and conditions:

1. IMPOUNDMENT
  - A. Permittee is authorized to construct and maintain a reservoir (Lake Ringgold) impounding 275,000 acre-feet on the Little Wichita River, Red River Basin with the centerline of the dam being at Latitude 33.8962900°N, Longitude 97.9929801°W in Clay County.
2. USE
  - A. Permittee is authorized to divert and use not to exceed 65,000 acre-feet of water per year for municipal, industrial, mining and agricultural purposes within its service area in Archer, Clay and Wichita counties.
  - B. Permittee is also authorized to use the bed and banks of the Little Wichita River (Lake Arrowhead) to convey return flows generated from the diversion and use of water, from Lake Ringgold, subject to the limitations in Paragraph 7.G, and in accordance with the authorization to reuse return flows included in Certificate of Adjudication No. 02-5150C.
  - C. Permittee is further authorized to use the bed and banks of the Little Wichita River (Lake Arrowhead), Red River Basin to convey the 65,000 acre-feet of water per year diverted from Lake Ringgold for subsequent diversion and use for municipal, industrial, mining, and agricultural purposes.

3. DISCHARGE

- A. Permittee may discharge up to 65,000 acre-feet of water, delivered via pipeline from Lake Ringgold, at a maximum discharge rate of 139.79 cfs (62,770 gpm), anywhere along the perimeter of Lake Arrowhead in Archer and Clay counties.
- B. Permittee may discharge the return flows generated from the diversion and use of water from Lake Ringgold at discharge points authorized under Certificate of Adjudication No. 02-5150C.

4. DIVERSION

Permittee is authorized to divert:

- A. The 65,000 acre-feet of water per year anywhere along the perimeter of Lake Ringgold, at a maximum diversion rate of 139.79 cfs (62,770 gpm).
- B. Water diverted from Lake Ringgold and discharged into Lake Arrowhead anywhere along the perimeter of Lake Arrowhead, at a maximum diversion rate of 139.79 cfs (62,770 gpm).
- C. At an existing point on Lake Arrowhead being at Latitude 33.763707°N, Longitude 98.370091°W, at a maximum diversion rate of 93 cfs (41,850 gpm).
- D. Return flows originating from water diverted from Lake Ringgold at diversion points and rates authorized under Certificate of Adjudication No. 02-5150C.

5. TIME PRIORITY

The time priority for this right is August 10, 2017.

6. 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.

7. SPECIAL CONDITIONS

- A. All mitigation plans and monitoring required herein shall comply with conditions set forth in 33 United States Code § 1341, commonly known as the federal Clean Water Act (CWA), § 401 and Title 30 Texas Administrative Code § 279. Mitigation and monitoring plans shall also comply with the requirements in § 404 of the CWA as implemented through the U.S. Army Corps of Engineers permit for Lake Ringgold.

- B. Impoundment of water and diversion from Lake Ringgold under this permit is contingent upon implementation of the approved *Conceptual Mitigation Plan for Proposed Lake Ringgold*. Permittee's continued authorization for impoundment and diversion of water under this permit is contingent on timely completion of implementation in accordance with the terms of that plan. Modifications or changes to the plan must be approved by the Executive Director. Only modifications that would result in a change to a permit term must be in the form of an amendment to the permit.
- C. In order to minimize entrainment and impingement of aquatic organisms, Permittee shall design intake structures on any new diversion structure(s) in a manner that would reduce or eliminate adverse impact.
- D. Permittee shall perform instream monitoring within Assessment Unit 0204\_03, or future segment designation, downstream of the Red River confluence with the Little Wichita River at U.S. Highway 81 and one site farther downstream, twice per year in the first, third, fifth, and tenth years after commencing deliberate impoundment. Monitoring shall include assessment of fish and macroinvertebrate communities and assessment of physical habitat. At least one of the twice per year monitoring events shall take place during the summer. Aquatic biological monitoring and habitat characterization shall follow TCEQ protocols set forth in the most recently approved *Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Community and Habitat Data*.
- E. Permittee shall submit a report to the Executive Director summarizing the twice per year monitoring activities required by Paragraph 7.D. within six months after the second monitoring event, for the respective year, is complete. The report shall detail all monitoring efforts and shall include an assessment of the fish and macroinvertebrate communities and the biological metric scoring criteria used to assess aquatic life uses. Should aquatic life use not meet the water quality standards for Segment 0204, or future segment designation, within Assessment Unit 0204\_03, the report should identify potential changes in the watershed that may be contributing to the measured changes in the aquatic life designation. If the change in aquatic life designation is determined to be in whole or part associated with the construction of Lake Ringgold, Permittee shall develop and implement remedial management strategies, subject to Executive Director approval, to improve aquatic life conditions. Permittee shall also submit summary reports after the end of the fifth- and tenth-year monitoring events that compare all monitoring data to baseline conditions.
- F. Permittee shall only impound and divert water authorized by this permit in accordance with the most recently approved *City of Wichita Falls Accounting Plan*. Permittee shall maintain said plan in electronic format and make the data available to the Executive Director upon request. Any modifications to the *City of Wichita Falls Accounting Plan* shall be approved by the Executive Director. Any modification that changes the permit terms must be in the form of an amendment to the permit. Should Permittee fail to maintain the accounting plan or notify the Executive Director of any modifications to the plan, Permittee shall immediately cease impoundments and diversions authorized in Paragraph 1. IMPOUNDMENT and Paragraph 2. USE, and either apply to amend the permit, or voluntarily forfeit the permit. Permittee shall immediately notify the Executive Director of any modifications of the accounting plan and provide the appropriate documents effectuating such changes.

- G. Prior to the reuse of the return flows attributable to diversion of water authorized under this permit, resulting from the diversion and use of water from Lake Ringgold, Permittee shall apply for and be granted an amendment to identify all specific points of discharge and diversion and secure the appropriate authorizations to convey such return flows through state watercourses pursuant to Texas Water Code § 11.042, except to the extent such points of discharge, diversion, and conveyance may be authorized by any existing or future separate grant of authority from the Commission.
- H. Permittee shall install and maintain a measuring device which accounts for, within 5% accuracy, the quantity of water diverted from any new points authorized above in Paragraph 4. DIVERSION and maintain measurement records.
- I. Permittee shall allow representatives of the Texas Commission on Environmental Quality reasonable access to the property to inspect the measuring device and records.
- J. Environmental flow conditions in any new water right issued after September 1, 2007 are subject to adjustment if the Commission determines, through an expedited public review process, that such adjustment is appropriate to achieve compliance with any applicable environmental flow standards adopted pursuant to Texas Water Code § 11.1471. Any adjustment shall be in accordance with the provisions of Texas Water Code § 11.147(e-1) and 30 Texas Administrative Code § 298.25.

8. TIME LIMITATIONS

- A. Construction of the new dam must be in accordance with the plans and specifications approved by the Executive Director. Construction of the facility without final approval of the plans and specifications is a violation of this authorization.
- B. Construction shall begin within two years of issuance of this permit and be completed within seven years of issuance of the permit, unless Permittee applies for and is subsequently granted an extension of time before the expiration of these time limitations.

This permit is issued subject to all superior and senior water rights in the Red River Basin.

This permit is issued subject to the obligations of the State of Texas pursuant to the terms of the Red River Compact.

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 of continuing supervision of State water resources exercised by the Commission.

ISSUED:

DRAFT

# TCEQ Interoffice Memorandum

CID 108444

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

THRU: *CH* Chris Kozlowski, Team Leader  
Water Rights Permitting Team

FROM: Sarah Henderson, Project Manager  
Water Rights Permitting Team

DATE: August 10, 2017

SUBJECT: City of Wichita Falls  
WRPERM 13404  
CN600129316, RN109830679  
Application No. 13404 for a Water Use Permit  
Texas Water Code §§ 11.121, 11.042, Requiring Mailed and Published  
Notice  
Little Wichita River, Red River Basin  
Clay County

2017 AUG 10 PM 3:54  
CHIEF CLERKS OFFICE  
TEXAS COMMISSION  
ON ENVIRONMENTAL  
QUALITY

The application and partial fees were received on June 27, 2017. Additional information and fees were received July 7, July 10, and August 7, 2017. The application was declared administratively complete and accepted for filing with the Office of the Chief Clerk on August 10, 2017. Notice is required to be published and mailed to the water right holders of record in the Red River River Basin pursuant to Title 30 Texas Administrative Code § 295.151.

The City of Wichita Falls seeks a water use permit to authorize the construction and maintenance of a 275,000 acre-foot dam and reservoir, Lake Ringgold, on the Little Wichita River, Red River Basin in Clay County. The City also seeks to divert and use not to exceed 65,000 acre-feet of water per year from the perimeter of Lake Ringgold for municipal, industrial, agricultural and mining purposes and to reuse 100 percent of the return flows generated from that diversion. The City further seeks to authorize the use of the bed and banks of Lake Arrowhead, on the Little Wichita River, to convey water diverted from Lake Ringgold.

Fees have been paid and the application is sufficient for filing.

  
Sarah Henderson, Project Manager  
Water Rights Permitting Team  
Water Rights Permitting and Availability Section

OCC Mailed Notice Required  YES  NO

# Texas Commission on Environmental Quality

## INTEROFFICE MEMORANDUM

**To:** Sarah Henderson  
Water Rights Permitting Team

**Date:** September 3, 2019

**Thru:**

**From:** Warren D. Samuelson, P. E., Manager  
Dam Safety Section MC-177

**Subject:** City of Wichita Falls, Application for a permit to construct a dam and reservoir, Little Wichita River, Red River Basin, Clay County

The applicant seeks authorization to construct and maintain a new dam (Lake Ringgold Dam). Lake Ringgold Dam will have a capacity of 275,000 acre-feet and is considered a high hazard dam. The proposed dam has been evaluated by the applicant's engineer, Freese and Nichols, Inc. The structure will be adequate to meet dam safety rules.

It is recommended that the permit include the following language:

### TIME LIMITATIONS

- A. Construction of the new dam must be in accordance with the plans and specifications approved by the Executive Director. Construction of the facility without final approval of the plans and specifications is a violation of this authorization.
- B. Construction shall begin within two years of issuance of this permit and be completed within seven years of issuance of the permit, unless Permittee applies for and is subsequently granted an extension of time before the expiration of these time limitations.



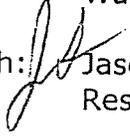
Warren D. Samuelson, P. E., Manager  
Dam Safety Section

# Texas Commission on Environmental Quality

## INTEROFFICE MEMORANDUM

To: Sarah Henderson, Project Manager  
Water Rights Permitting Team

Date: August 8, 2019

Through:  Jason Godeaux, Team Leader  
Resource Protection Team

From:  Kenneth Coonrod, Aquatic Scientist  
Resource Protection Team

Subject: City of Wichita Falls  
WRPERM 13404  
CN600129316  
Little Wichita River, Red River Basin  
Clay County

Environmental reviews of water right applications are conducted in accordance with applicable provisions of the Texas Water Code (TWC) and the administrative rules of the Texas Commission on Environmental Quality (TCEQ). The provisions applicable to environmental reviews can vary according to the type and the location of the authorization requested.

### APPLICATION SUMMARY

City of Wichita Falls (City) requests authorization to construct and maintain a reservoir (Lake Ringgold) impounding 275,000 acre-feet of water on the Little Wichita River, Red River Basin, for subsequent diversion of 65,000 acre-feet of water per year from the perimeter of the reservoir at a maximum diversion rate of 139.79 cfs (62,770 gpm) for municipal, industrial, agricultural, and mining purposes in Clay County.

The City also requests to reuse any return flows generated from the diversion and use of water from Lake Ringgold.

Additionally, the City requests the use of the bed and banks of the Little Wichita River (Lake Arrowhead) to convey the requested 65,000 acre-feet of water per year for subsequent diversion.

### ENVIRONMENTAL ANALYSIS

**Aquatic and Riparian Habitats:** The City's proposed reservoir will be located on the Little Wichita River and the East Fork Little Wichita River, described respectively

as perennial and intermittent streams, in Clay County (Freese and Nichols, Inc. 2017a). The entire 16,174-acre footprint of the reservoir is situated in the Broken Red Plains ecoregion (Griffith et al. 2007). The extent of the watershed for the proposed reservoir includes the North Fork Little Wichita River, which arises in Baylor County, and its contributing tributaries, and the Middle Fork and South Fork Little Wichita Rivers, which both arise in Archer County. Additionally, major intervening tributaries of the Little Wichita River within the footprint of the proposed Lake Ringgold include Turkey Creek, Long Creek, the East Fork Little Wichita River, and the Dry Fork Little Wichita River, which are all intermittent and arise in Clay County. Also included in the watershed for Lake Ringgold are two large municipal water supply reservoirs, Lake Kickapoo and Lake Arrowhead, which both provide water for the City.

The City provided a *Report Supporting an Application for a Texas Water Right for Lake Ringgold* (Report), prepared by Freese and Nichols, Inc., as supplemental supporting documentation for their application. As part of the Report, a stream study was conducted with participation from TCEQ staff. The City and TCEQ staff coordinated throughout the process with respect to the study's methodology and results. The stream study indicates that 651,741 linear feet of streams and 100 acres of open water, including ponds and stock tanks, are found within the footprint of the proposed reservoir (Freese and Nichols, Inc. 2017b). Of the 651,741 linear feet, 166,777 are classified as perennial, 180,656 are classified as intermittent, and 304,308 are classified as ephemeral (Freese and Nichols, Inc. 2017b).

Based on the Report, dominant riparian species present in the area include cedar elm, pecan, hawthorn, post oak, green ash, sugarberry, box elder, and western soapberry trees as well as some shrubs – honey locust, coralberry, and gum bumelia; grasses – Virginia wildrye, woodoats, and switchgrass; sedges – raven's foot sedge and Cherokee sedge; and forbes – dewberry, wild passion vine, sumpweed, and wood sorrel (Freese and Nichols, Inc. 2017b). Uplands within the watershed are characterized by dominant shrublands and herbaceous grasses, and agriculture is the predominant use (Freese and Nichols, Inc. 2017b). Red and tan clay and sand are the predominant soil type found in the Broken Red Plains, and the Wichita Formation found in this ecoregion is constituted by an irregular sandstone surface composed of ridges and depressions (Griffith et al. 2007).

The checklist for the Red River Basin identified 28 species of ichthyofauna occurring within Clay County, and 59 total species of ichthyofauna within the Farmers-Mud hydrologic unit (United States Geologic Service [USGS] hydrologic code 11130201) which is inclusive of the Red River downstream of the confluence with the Little Wichita River to a point just upstream of Lake Texoma along the border of Texas in Montague and Cooke counties (Hendrickson and Cohen 2015). The interior least tern (*Sterna antillarum athalassos*), a federally-listed, aquatic-dependent species, and the shovelnose sturgeon (*Scaphirhynchus platyrhynchus*), the American eel, (*Anguilla rostrata*), the goldeye (*Hiodon alosoides*), the Red River shiner (*Notropis bairdi*), the chub shiner (*Notropis potteri*), the silverband shiner (*Notropis shumardi*), the silver chub (*Macrhybopsis storeriana*), the peppered chub

(*Macrhybopsis tetranema*), the prairie chub (*Macrhybopsis australis*), and the Red River pupfish (*Cyprinodon rubrofluviatilis*), high-interest aquatic species, have all been determined to occur in Clay County (TPWD 2015). The Texas kangaroo rat (*Dipodomys elator*) and the Texas horned lizard (*Phrynosoma cornutum*) are both state-listed threatened terrestrial species, and based on the City's Report, have moderate potential to be negatively impacted by Lake Ringgold, because those species are likely present within the footprint of the proposed lake site (Freese and Nichols, Inc. 2017b). No studies were conducted that would determine presence or absence of these species or their habitats, but the Report states that upon initiation of filling the reservoir, any present terrestrial vertebrates would presumably relocate (Freese and Nichols, Inc. 2017b). This permit, if granted, is not expected to have an effect on any federally-listed or high-interest aquatic-dependent species, because the species found in the area should be able to relocate or adapt to changing conditions. The City is already authorized by Certificate of Adjudication No. 02-5150 to reuse discharges from its wastewater treatment plant. Adding an additional source of surface water and using the bed and banks of the Little Wichita River (Lake Ringgold) are not expected to adversely impact federally-listed or high-interest aquatic-dependent species.

The City did not conduct fish sampling; however, the Report cites a Red River Authority study (1998) that described sampling conducted on the Little Wichita River at State Highway 79 near Archer City, which is located between Lake Kickapoo and Lake Arrowhead. The study identified six species of fishes in total including one, the central stoneroller (*Campostoma anomalum*), that is not included in the Fishes of Texas checklist for Clay County (Hendrickson and Cohen 2015, Red River Authority 1998). Freese and Nichols, Inc. (2017b) suggests that all of the species found in the Red River Authority report are adaptable to lentic conditions with the exception of the stoneroller. The central stoneroller is a minnow that is a known fluvial specialist (Stanley et al. 2012), preferring gravel or rubble bottoms with current, and spawning takes place in nests built in riffles or gravel-bottomed pools of streams (NatureServe 2013). While the stoneroller is not noted as a species that actively adapts to lentic conditions, it is considered a migratory species that will seek out suitable habitat by swimming up smaller streams (Smith 1935). The Red River Authority study (1998) was conducted for the Texas Clean Rivers Program to assess water quality by means of a biological integrity score using Rapid Bioassessment Protocols, and the results found at that time assigned the Little Wichita River site an intermediate score.

The City has agreed to design any new diversion structures to minimize entrainment and impingement of aquatic organisms.

"Streamflow, which is strongly correlated with many critical physicochemical characteristics of rivers such as water temperature, channel geomorphology and habitat diversity, can be considered the 'master variable' that limits the distribution and abundance of riverine species and regulates the ecological integrity of flowing water systems" (Resh et al. 1988; Power et al. 1995; Poff et al. 1997). Maintaining the natural flow regime, or streamflow variability, plays a critical role in sustaining

native biodiversity and ecosystem integrity in rivers (Poff et al. 1997). The TCEQ desktop methodology for determining environmental flow restrictions, excluding basins with adopted environmental flow standards, is the Lyons Method. The Lyons Method establishes minimum flows of 40% of the median monthly flows for October through February and 60% of the median monthly flows for March through September in order to protect aquatic habitat (Bounds et al. 1979). This methodology produces flow numbers for each month of the year to mimic natural flow patterns (Bounds et al. 1979).

The City provided a review, analysis, and modeling results to support the statement in the Report that no instream flow releases should be required (Freese and Nichols, Inc. 2017b). Impacts to both the Little Wichita River and the Red River were evaluated, and a comparison of modeled flows was made at USGS Gage No. 07315500 Red River near Terral, Oklahoma, downstream of the confluence of the Little Wichita River and the Red River, with and without the project. Resource Protection staff do not recommend a streamflow restriction based on the Report's evaluation, and there are no river or stream segments of unique ecological value in the affected area of the Red River Basin (Biggs & Mathews, Inc. et al. 2015) nor species of concern (TPWD 2015, USFWS 2019) identified immediately downstream of the project. The City's request to construct and maintain a reservoir is not expected to adversely impact aquatic or riparian habitats in the area, because the City is committed to in-kind mitigation of any habitat loss incurred by the construction of the proposed reservoir. The City's additional requests to use the bed and banks of the Little Wichita River (Lake Ringgold) to convey authorized return flows are not expected to have any additional impacts to aquatic or riparian habitats in the area.

**Recreational Uses:** The Little Wichita River (Segment 0211) and Red River Above Lake Texoma (Segment 0204) have a designated primary contact recreation 1 use, and the East Fork Little Wichita River has a presumed primary contact recreation 1 use (TCEQ 2018). The City's request should not adversely impact recreational uses.

**Water Quality:** The Little Wichita River (Segment 0211) has a designated high aquatic life use and public water supply use, and the Red River Above Lake Texoma (Segment 0204) has a designated high aquatic life use (TCEQ 2018). The Little Wichita River from the confluence with the Red River upstream to the Lake Arrowhead Dam, Assessment Units (AU) 0211\_01, and 0211\_02, is identified in the *Texas Integrated Report* as non-supporting for total dissolved solids, chloride, and sulfate (TCEQ 2014). The Little Wichita River from the confluence with the East Fork Little Wichita River upstream to the Lake Arrowhead Dam, AU 0211\_02, was also identified as non-supporting for depressed dissolved oxygen for both the 24-hour average and the 24-hour minimum as well as having a use concern for bacteria (TCEQ 2014). Additionally, The Little Wichita River from the confluence with the Red River upstream to the confluence with the East Fork Little Wichita River, AU 0211\_01, and the Red River from the confluence with Farmers Creek upstream to the confluence with the Little Wichita River, AU 0204\_03, are listed as having a concern for screening levels for chlorophyll-*a* (TCEQ 2014).

Large reservoirs are known to trap suspended sediments, organic carbon, and other important nutrients such as nitrogen and phosphorus, which can have serious ecological and biogeochemical implications to wetlands and riparian habitats downstream (Kunz et al. 2011). In support of the application, the Report included a water quality review and analysis for Segment 0211 which concluded that no net negative effects are expected (Freese and Nichols, Inc. 2017b). No discussion of the project's effects on water quality within Segment 0204 were included; however, the Report describes the service spillway of the dam as a 350-foot wide ogee configuration built at the normal pool elevation, which would pass any flood flows that exceed 844 feet msl, and a low-flow outlet as a means to pass state water (Freese and Nichols, Inc. 2017b). Structural design of a dam is known to determine flow regime and water quality downstream, and an open and flowing spillway should improve those conditions in the event that overtopping flows exist (Wera et al. 2019).

The City's Report does discuss the project's effects on instream uses in Segment 0204, suggesting that the Little Wichita River's contribution of 17% of Texas' portion of Red River flows at USGS Gage No. 07315500 should cause minimal impacts (Freese and Nichols, Inc. 2017b); however, the extent of any possible impacts is not identified in the Report. Large reservoirs have been shown to have potential negative effects on water quality downstream (Poff et al. 1997; Kunz et al. 2011; Wera et al. 2019) due to a lack of contributing flow. Thus, monitoring is warranted, and potential effects of construction of a large reservoir on downstream water quality should be monitored over time.

The use of return flows via the bed and banks of the Little Wichita River (Lake Ringgold) should not adversely impact water quality; however, Resource Protection staff recommend special conditions to ensure that the effects of impoundment of water in the reservoir on downstream water quality are monitored.

**Freshwater Inflows:** Freshwater inflows are critical for maintaining the historical productivity of bays and estuaries along the Gulf Coast. The proposed project site is located near the Texas and Oklahoma border and is significantly more than 200 river miles from the Gulf Coast. The project should not impact Texas bays and estuaries because the stream does not flow to a bay or estuary in Texas.

**Proposed Mitigation:** Under 30 Texas Administrative Code (TAC) §297.53, the TCEQ requires applicants requesting a new authorization to store, take, or divert water in excess of 5,000 acre-feet per year to take reasonable actions to mitigate adverse impacts, if any, on fish and wildlife habitat. The City has proposed a mitigation plan, *Conceptual Mitigation Plan for Proposed Lake Ringgold (Plan)*, dated April 2017 and submitted as Appendix K of their Report. Potential impacts to wetlands and terrestrial habitats were assessed according to the United States Fish and Wildlife Service's (USFWS) Habitat Evaluation Procedures (HEP). The TCEQ considers HEP an acceptable evaluation protocol for habitat mitigation. The Plan was submitted to the United States Army Corps of Engineers (USACE) in accordance with Section 404 of the Clean Water Act, and its purpose is to mitigate

for uplands, wetlands, open waters, and streams along the Little Wichita River based on a watershed approach (Freese and Nichols, Inc. 2017b).

According to the Plan, all compensatory mitigation will be provided through in-kind mitigation that will occur through on-site or near-site mitigation strategies. Habitat cover types identified and included in the Plan for mitigation are forested wetland, emergent/herbaceous wetland, shrub wetland, grassland/old field, riparian woodland/bottomland hardwood, upland deciduous forest, shrubland, tree savanna, and shrub savanna. On-site mitigation will be provided at the proposed reservoir site in the form of emergent/herbaceous and shrub wetland efforts as well as compensation for impacts to open waters inundated by the lake, and near-site mitigation will be provided near Lake Kickapoo or any additional adjacent property purchased by the City in the future (Freese and Nichols, Inc. 2017b). As proposed in the Plan, the mitigation plan would provide:

- Wetlands expected to offset impacts to 35 habitat units (HUs) of emergent wetlands and 16 HUs of shrub wetlands through on-site mitigation;
- More than 15,000 acres of open water to offset 100 acres of ponds and stock tanks through on-site mitigation;
- Stream preservation, rehabilitation, or enhancement including invasive species management, establishment of riparian buffers, removal of livestock, restoration of stream sinuosity, reconnecting streams to floodplains, and establishment of proper stream slope for up to 10,800 linear feet of streams located on-site (adjacent to proposed Lake Ringgold site) and approximately 87,400 linear feet of streams located near-site (adjacent to Lake Kickapoo) for protection, enhancement, or restoration to offset impacts to 651,741 linear feet of perennial, intermittent, and ephemeral streams;
- Forested wetland, bottomland hardwood, and upland deciduous cover types to offset impacts to 1,687 HUs, tree and shrub savanna and shrubland cover types to offset 2,109 HUs, and grassland/old field cover types to offset 2,684 HUs by planting native tree, shrub, grass, and forb species to attain the highest possible Habitat Suitability Index scores;
- Approximately 1,500 feet of channel downstream of the dam that would be modified and/or improved to prevent erosion.

Resource Protection staff has reviewed the conceptual mitigation plan and will continue to monitor the mitigation process as the City continues the USACE §404 permitting process. In addition to special conditions below, adherence to USACE §404 requirements is adequate to compensate for aquatic and terrestrial impacts by the proposed project.

## RECOMMENDATIONS

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

1. All mitigation plans and monitoring required herein shall comply with conditions set forth in 33 United States Code §1341, commonly known as the federal Clean Water Act (CWA), §401 and Title 30 TAC §279. Mitigation and monitoring plans shall also comply with the requirements in §404 of the CWA as implemented through the U.S. Army Corps of Engineers permit for Lake Ringgold.
2. Impoundment of water and diversion from Lake Ringgold under this permit is contingent upon implementation of the approved *Conceptual Mitigation Plan for Proposed Lake Ringgold*. Permittee's continued authorization of impoundment and diversion of water under this permit is contingent on timely completion of implementation in accordance with the terms of that plan. Modifications or changes to the plan must be approved by the Executive Director. Only modifications that would result in a change to a permit term must be in the form of an amendment to the permit.
3. In order to minimize entrainment and impingement of aquatic organisms, Permittee shall design intake structures on any new diversion structure(s) in a manner that would reduce or eliminate adverse impact.
4. Permittee shall perform biological and physical habitat monitoring within Assessment Unit 0204\_03, or future segment designation, after commencing deliberate impoundment in the reservoir. All aquatic biological monitoring and physical habitat assessments shall take place twice per year with at least one of the monitoring events taking place during the summer months. Aquatic biological monitoring and habitat characterization shall follow TCEQ protocols set forth in the most recently approved *Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data*.
5. Permittee shall submit a report to the Executive Director summarizing the twice-per-year monitoring activities required by Special Condition 4 within six months after the second monitoring event in any year is completed. The report shall detail all monitoring efforts and shall include an assessment of the fish and macroinvertebrate communities and the biological metric scoring criteria used to assess aquatic life uses. Should aquatic life use not meet the water quality standards for Segment 0204, or future segment designation, Permittee shall develop and implement remedial management strategies, subject to Executive Director approval, to meet the designated aquatic life use. Permittee shall also submit summary reports to the Executive Director no later than six months after the end of the fifth- and tenth-year monitoring

events, and any subsequent year's monitoring events, that compare all monitoring data to baseline conditions.

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# Texas Commission on Environmental Quality

## INTEROFFICE MEMORANDUM

To: Sarah Henderson, Project Manager  
Water Rights Permitting Team

Date: November 27, 2019

Through:  Jason Godeaux, Team Leader  
Resource Protection Team

From:  Kenneth Coonrod, Aquatic Scientist  
Resource Protection Team

Subject: City of Wichita Falls  
WRPERM 13404  
CN600129316  
Little Wichita River, Red River Basin  
Clay County

### ENVIRONMENTAL ANALYSIS ADDENDUM

Resource Protection staff prepared an Environmental Review for the application on August 8, 2019. On October 30, 2019, City of Wichita Falls (City) provided comments on the draft permit. The City requested several non-substantive changes to the draft permit, which are consistent with Resource Protection staff's previous recommendations and do not require further review. The City also requested changes to Paragraphs 7.D. and 7.E. to clarify the monitoring requirements. Resource Protection staff reviewed the proposed changes and found them acceptable with modifications. In lieu of its previous recommendations, Resource Protection staff recommends that Paragraphs 7D. and 7.E. be revised as follows:

- D. Permittee shall perform instream monitoring within Assessment Unit 0204\_03, or future segment designation, downstream of the Red River confluence with the Little Wichita River at U.S. Highway 81 and one site farther downstream, twice per year in the first, third, fifth, and tenth years after commencing deliberate impoundment. Monitoring shall include assessment of fish and macroinvertebrate communities and assessment of physical habitat. At least one of the twice per year monitoring events shall take place during the summer. Aquatic biological monitoring and habitat characterization shall follow TCEQ protocols set forth in the most recently approved *Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Community and Habitat Data*.

- E. Permittee shall submit a report to the Executive Director summarizing the twice per year monitoring activities required by Paragraph 7.D. within six months after the second monitoring event, for the respective year, is complete. The report shall detail all monitoring efforts and shall include an assessment of the fish and macroinvertebrate communities and the biological metric scoring criteria used to assess aquatic life uses. Should aquatic life use not meet the water quality standards for Segment 0204, or future segment designation, within Assessment Unit 0204\_03, the report should identify potential changes in the watershed that may be contributing to the measured changes in the aquatic life designation. If the change in aquatic life designation is determined to be in whole or part associated with the construction of Lake Ringgold, Permittee shall develop and implement remedial management strategies, subject to Executive Director approval, to improve aquatic life conditions. Permittee shall also submit summary reports after the end of the fifth- and tenth-year monitoring events that compare all monitoring data to baseline conditions.

In addition to the revisions above, Resource Protection staff notes that the City has not submitted its *Conceptual Mitigation Plan for Proposed Lake Ringgold* (Plan) to the United States Army Corps of Engineers (USACE) in accordance with Section 404 of the Clean Water Act. The City intends to submit the Plan to USACE as it continues the permitting process.

**Texas Commission on Environmental Quality**

**INTEROFFICE MEMORANDUM**

To: Sarah Henderson, Project Manager  
Water Rights Permitting Team

Date: August 8, 2019

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

 Christine Peters, Team Leader  
Surface Water Availability Team

From: Alisa Patterson, P.E., Hydrologist  
Surface Water Availability Team

Subject: City of Wichita Falls (Lake Ringgold)  
WRPERM 13404  
CN 600129316  
Little Wichita River, Red River Basin  
Clay County

**Water Availability Analysis**

**Application Summary**

City of Wichita Falls (City) requests authorization to construct and maintain a reservoir (Lake Ringgold) impounding 275,000 acre-feet of water on the Little Wichita River, Red River Basin, for subsequent diversion of 65,000 acre-feet of water per year from the perimeter of the reservoir at a maximum diversion rate of 139.79 cfs (62,770 gpm) for municipal, industrial, agricultural, and mining purposes in Clay County.

The City also requests to reuse any return flows generated from the diversion and use of water from Lake Ringgold.

Additionally, the City requests the use of the bed and banks of the Little Wichita River (Lake Arrowhead) to convey the requested 65,000 acre-feet of water per year for subsequent diversion.

The City submitted an accounting plan on June 27, 2017, which was subsequently revised on October 13, 2017, November 16, 2018, and June 4, 2019. The application was declared administratively complete on August 10, 2017.

## Water Availability Analysis

Resource Protection Staff did not recommend instream flow requirements for this application, see memo dated August 8, 2019.

The Water Rights Analysis 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 allocations. 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, channel losses, 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.

An evaluation of a proposed appropriation of state water must consider effects of the proposed permit on groundwater or groundwater recharge. The naturalized flows that are the basis for the TCEQ WAM take into account both contribution to river flow caused by groundwater coming to the surface in the river (springs) and decreases in river flow caused by the river flowing over recharge features and losing surface water to groundwater recharge. Therefore, any effects on groundwater or groundwater recharge are incorporated into the modeling for this application. By considering any gains and losses due to groundwater/surface water interaction in its water availability analysis, the commission is protecting groundwater resources.

The City submitted suggested modifications to the naturalized flows in the Red River WAM as part of the application and submitted additional supporting documentation on October 13, 2017 and April 5, 2019. The existing TCEQ naturalized flows for the Lake Ringgold site are based on a drainage area ratio to the incremental flow between gages located on the main stem of the Red River. The City's modified flows are based on the naturalized flows from two upstream primary control points at the Little Wichita River above Henrietta (control point S10000) and East Fork Little Wichita River near Henrietta (control point T10000). The City submitted information supporting their modified flows in Appendix F of the original application, in subsequent memorandums submitted as supplemental information on October 13, 2017, and a supporting spreadsheet submitted on April 5, 2019. Staff reviewed the suggested modifications to the naturalized flow and the supporting information and concluded that although the naturalized flows in the TCEQ WAM are adequate to determine water availability in the Red River Basin, the City's suggested modifications would better reflect water availability more specific to the Little Wichita River watershed. Therefore, staff updated the TCEQ WAM naturalized flows based on the hydrology review of the City's suggested modifications.

The City also provided evaporation records for Lake Ringgold with the initial submittal on June 27, 2017 and provided revised evaporation data on October 13,

2017 and a memorandum detailing the basis for the evaporation calculations. Staff reviewed the memorandum and evaporation information and determined that the evaporation records submitted were consistent with TCEQ's procedures for determining evaporation and are adequate to represent the evaporation at Lake Ringgold.

Of the 65,000 acre-feet diversion request, the City indicates that some of the water will be available on a firm basis, while the remaining water will be available on a less than firm basis. Staff modeled this application using the Full Authorization simulation of the Red River Basin WAM, adjusted as described above to include modifications to the naturalized flows for the Little Wichita River watershed. In the Full Authorization simulation, all water rights use their maximum authorized amounts and return flows are not included. The period of record for the Red River Basin WAM is 1948-1998. The priority date of this application is August 10, 2017.

Staff first used the WAM Full Authorization Simulation to evaluate the firm yield request. The simulation results indicate that 27,060 acre-feet of water is available 100 percent of the time. Staff then used the same simulation for the full requested diversion of 65,000 acre-feet of less than firm water. The simulation results indicate that if the City diverts 65,000 acre-feet per year when that water is available, 100 percent of the total annual demand of 65,000 acre-feet would be met in 62.7 percent of the years, and 75 percent of the monthly demand would be met in 81.2 percent of the months.

Pursuant to 30 TAC §297.42 (d), staff may, on a case by case basis, recommend granting a municipal water right that is less than firm. In this case, the City will use diversions under this permit in combination with its other major water supply sources (including Lakes Kickapoo, Arrowhead, and Kemp/Diversion, and reuse of return flows). The City indicates that Lake Ringgold would be operated in consideration of demand levels and supplies from the City's other sources to provide good quality water at the lowest cost. The City also indicated that the 65,000 acre-feet requested in the application would allow the City to optimize its sources of supply by essentially operating its water rights as a system based on basin conditions. Based on the City's evidence of multiple sources of supply that can be used to meet their total system demands, staff believes that the availability of less than firm water is viable for the intended purposes.

The City provided a memorandum dated September 26, 2017 addressing two existing water rights that are located within the proposed footprint of Lake Ringgold and outlined actions and strategies to mitigate impacts to these water rights. Staff reviewed the memorandum and determined that the City's proposed actions and strategies are reasonable.

Regarding the City's request to reuse return flows attributable to the diversion and use of water from the proposed reservoir, this request will not impact existing water rights. The City is currently authorized to discharge and divert its surface water-based return flows under Certificate of Adjudication No. 02-5150C. Adding a source of surface water under this authorization does not change the terms and

conditions of that authorization including the amounts of discharge and diversion. Prior to reusing these return flows in the future, if the return flows are not being reused under the authority of Certificate of Adjudication 02-5150C, the City would need to apply for and be granted the appropriate authorizations under TWC §11.042.

Regarding the City's request to use the bed and banks of Lake Arrowhead to convey water diverted from Lake Ringgold and discharged into Lake Arrowhead, the application included the information required in 30 TAC §295.113. The City estimates losses associated with the conveyance of Lake Ringgold water to be negligible because of the short residence time of the diverted water in Lake Arrowhead. In addition, the *City of Wichita Falls Accounting Plan* applies losses when the volume of stored water from Lake Ringgold exceeds 100 acre-feet based on the daily percentage of Lake Ringgold water stored in Lake Arrowhead. Staff reviewed the method used to calculate losses associated with the use of the bed and banks of Lake Arrowhead and found it acceptable.

The City provided an accounting plan, *City of Wichita Falls Accounting Plan*, on June 27, 2017, which was subsequently revised on October 13, 2017, November 16, 2018, and June 4, 2019 that tracks diversion and storage from the reservoir. Staff reviewed the accounting plan and found it adequately documents compliance with the terms and conditions of the permit.

## Conclusion

Staff can support granting the application, provided the permit contains the following special conditions:

1. Permittee shall only impound and divert water authorized by this permit in accordance with the most recently approved *City of Wichita Falls Accounting Plan*. Permittee shall maintain said plan in electronic format and make the data available to the Executive Director upon request. Any modifications to the *City of Wichita Falls Accounting Plan* shall be approved by the Executive Director. Any modification that changes the permit terms must be in the form of an amendment to the permit. Should Permittee fail to maintain the accounting plan or notify the Executive Director of any modifications to the plan, Permittee shall immediately cease impoundments and diversions authorized in Paragraph 1. IMPOUNDMENT and Paragraph 2. USE, and either apply to amend the permit, or voluntarily forfeit the permit. Permittee shall immediately notify the Executive Director of any modifications of the accounting plan and provide the appropriate documents effectuating such changes.
2. Prior to the reuse of the return flows attributable to diversion of water authorized under this permit, resulting from the diversion and use of water from Lake Ringgold, Permittee shall apply for and be granted an amendment to identify all specific points of discharge and diversion and secure the appropriate authorizations to convey such return flows through state

watercourses pursuant to TWC §11.042, except to the extent such points of discharge, diversion, and conveyance may be authorized by any existing or future separate grant of authority from the Commission.

Note that any permit issued is subject to the obligations of the State of Texas pursuant to the Red River Compact.



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Alisa Patterson, P.E., Hydrologist

# Texas Commission on Environmental Quality

## INTEROFFICE MEMORANDUM

**To:** Sarah Henderson, Project Manager  
Water Rights Permitting Team

**Date:** August 8, 2019

**Through:**  Jason Godeaux, Team Leader  
Resource Protection Team

 Kristin Wang, Senior Water Conservation Specialist  
Resource Protection Team

**From:**  Jennifer Allis, Senior Water Conservation Specialist  
Resource Protection Team

**Subject:** City of Wichita Falls  
WRPERM 13404  
CN600129316  
Little Wichita River, Red River Basin  
Clay County

### APPLICATION SUMMARY

City of Wichita Falls (City) requests authorization to construct and maintain a reservoir (Lake Ringgold) impounding 275,000 acre-feet of water on the Little Wichita River, Red River Basin, for subsequent diversion of 65,000 acre-feet of water per year from the perimeter of the reservoir at a maximum diversion rate of 139.79 cfs (62,770 gpm) for municipal, industrial, agricultural, and mining purposes in Clay County.

The City also requests to reuse any return flows generated from the diversion and use of water from Lake Ringgold.

Additionally, the City requests the use of the bed and banks of the Little Wichita River (Lake Arrowhead) to convey the requested 65,000 acre-feet of water per year for subsequent diversion.

### WATER CONSERVATION REVIEW

Pursuant to Title 30 Texas Administrative Code (TAC) §295.9, an application requesting a new appropriation of water requires the submittal of water conservation and drought contingency plans.

Additionally, 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 Resource Protection 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 initially submitted a 2015 water conservation plan and drought contingency plan with the application. On September 27, 2018, the City submitted updated water conservation and drought contingency plans.

Resource Protection staff reviewed the water conservation and drought contingency plans and found that the plans meet the requirements in 30 TAC Chapter 288.

### **Water Conservation Goals and Strategies**

As a retail and wholesale water supplier, the City submitted a water conservation plan and a drought contingency plan for municipal use. Additionally, the City submitted a water conservation plan for industrial and mining uses. These plans were reviewed by Resource Protection staff and found to be administratively complete per 30 TAC Chapter 288.

The City's 2018 Water Conservation Plan establishes goals for total per capita usage and residential per capita usage.

- The 5-year goal for total per capita consumption is 160 gallons per capita per day (gpcd) by 2024, and the 10-year goal is 155 gpcd by 2029.
- The 5-year goal for residential per capita consumption is 69 gpcd by 2024, and the 10-year goal is 66 gpcd by 2029.
- These goals represent a 3.5 percent reduction in total per capita water use and a 4.35 percent reduction in residential per capita water use by 2029

The water conservation plan also discusses several programs that the City has established to help achieve the stated goals:

- Public Awareness and Education Programs, including specific subject matter related to water resources incorporated into school education;
- Adoption of a conservation-type structure of water rates for residential customers;
- Universal metering and meter repair and replacement program, in addition to upgrading the City's meter system with an AMI system;
- Plumbing codes for water conservation devices incorporated into the City's Code of Ordinances, specifying that water conserving plumbing facilities and devices shall be used for construction and remodeling'
- Implementation of permanent conservation measures for irrigation, car washing, restaurants, and lodging establishments' and
- Upgraded water accounting software system to allow for sector-based identification and tracking of water consumption.

Resource Protection staff determined that the overall water conservation strategies provided in the City's water conservation plan are reasonable and can help achieve and maintain the stated goals.

### **Water Need**

The City is both a retail and wholesale public water supplier. With a population of more than 100,000 people, the City has almost 40,000 retail connections and also supplies treated drinking water to 11 municipalities.

According to the 2017 State Water Plan, the City is the largest water demand center in Region B. The population in Region B is expected to increase by 11 percent from 2020 to 2070, and the City's population is expected to grow by 12 percent.

The City is a regional provider for much of the water in Wichita, Archer, and Clay Counties. The City also provides water to customers as far away as the City of Olney in Young County. Considering current customer contracts and City demands, the City has an immediate need of nearly 12,000 acre-feet of water per year, which increases to over 15,000 acre-feet of water per year by 2070. When applying the safe supply requirements of 20 percent above the firm demands for the City and customers without a specified contract amount (City of Holliday and Wichita County Manufacturing), the safe supply need for Wichita Falls increases to over 15,700 acre-feet per year in 2020. Furthermore, total shortages for all water user groups in Region B are projected to be approximately 34,821 acre-feet per year in 2020, increasing to 38,493 acre-feet per year in 2040 and approximately 49,256 acre-feet per year by the year 2070.

According to the City's Water Conservation Plan, the TWDB Region B Planning Group conducted an engineering study on the adequacy of the supply of water for Wichita Falls in 2015. The study was conducted to determine the feasibility and

necessity for new water supply sources for Region B. The study concluded that Wichita Falls will have a supply shortage (safe supply) of 9,977 acre-feet by the year 2060. As a result, three alternatives for new water sources were proposed. These alternatives are: reuse of wastewater effluent, constructing a reverse osmosis treatment plant to treat Lake Kemp water, and construction of Lake Ringgold. In addition, water conservation was recommended to delay the need for the construction of Lake Ringgold.

### **Consistency with State and Regional Water Plans**

The construction of Lake Ringgold is included as a water management strategy for the City in the 2016 Region B Water Plan. This strategy will increase surface water supplies available for cities, industry, and agriculture in Region B with an additional 18,600 acre-feet per year of supply, in 2040 when Lake Ringgold is completed.

As such, the application is consistent with the 2016 Region B Water Plan and the 2017 State Water Plan.

### **RECOMMENDATIONS**

Based on the analysis, Resource Protection staff has evaluated the application and determined that it meets the review requirements.

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

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.