

**APPENDIX F: WATER RIGHTS PERMIT  
(WATER USE PERMIT)  
FROM TEXAS COMMISSION ON ENVIRONMENTAL  
QUALITY FOR  
BOIS D'ARC CREEK RESERVOIR**

**F-1: SIGNED TEXAS COMMISSION ON ENVIRONMENTAL QUALITY WATER  
USE PERMIT FOR LOWER BOIS D'ARC CREEK RESERVOIR**

**F-2: TEXAS COMMISSION ON ENVIRONMENTAL QUALITY MEMORANDUM,  
WATER AVAILABILITY ANALYSIS**

**F-3: TEXAS COMMISSION ON ENVIRONMENTAL QUALITY MEMORANDUM,  
REVISED WATER AVAILABILITY ANALYSIS**

# TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



## WATER USE PERMIT

THE STATE OF TEXAS  
COUNTY OF TRAVIS  
I HEREBY CERTIFY THAT THIS IS A TRUE AND CORRECT COPY  
OF A TEXAS COMMISSION ON ENVIRONMENTAL QUALITY  
DOCUMENT, WHICH IS FILED IN THE PERMANENT RECORDS

JUN 29 2015

OF THE COMMISSION, GIVEN UNDER MY HAND AND THE  
SEAL OF OFFICE ON

*Bridget C. Bohan*

BRIDGET C. BOHAN, CHIEF CLERK

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

PERMIT NO. 12151

TYPE §§ 11.121, 11.085, 11.046

Permittee: North Texas Municipal Water  
District

Address: P.O. Box 2408  
Wylie, TX 75098

Filed: June 26, 2007

Granted: June 26, 2015

Purposes: Municipal, Industrial,  
Agricultural, and Recreation

Counties: Collin, Dallas, Denton,  
Fannin, Hopkins, Hunt,  
Kaufman, Rains and  
Rockwall Counties

Watercourse: Lower Bois d'Arc Creek,  
tributary of the Red River

Watershed: Red, Trinity, and  
Sulphur River Basins

WHEREAS, North Texas Municipal Water District (NTMWD, Applicant or Permittee) seeks a Water Use Permit to construct and maintain a dam and reservoir (Lower Bois d'Arc Creek Reservoir) with a maximum normal operating capacity of 367,609 acre-feet of water and a surface area of 16,526 acres on Bois d'Arc Creek, tributary of the Red River, Red River Basin in Fannin County for recreation purposes; and

WHEREAS, Applicant also seeks authorization to divert and use not to exceed 175,000 acre-feet of water per year from any point on the perimeter of the proposed reservoir at a maximum combined diversion rate of 365.15 cfs (163,889 gpm) for municipal, industrial and agricultural purposes; and

WHEREAS, Applicant seeks authorization to reuse the return flows generated from the diversion and use of water from the proposed reservoir and until facilities are developed to reuse diverted water, such water will be returned to the Red, Sulphur, and Trinity River Basins; and

WHEREAS, Applicant also seeks an interbasin transfer authorization to use the water within the Trinity River Basin, and within that portion of Fannin County located in the Sulphur River Basin. NTMWD's service area is currently located within Collin, Dallas, Denton, Fannin, Hopkins, Hunt, Kaufman, Rains and Rockwall Counties; and

WHEREAS, Applicant indicates the proposed Lower Bois d'Arc Creek Reservoir will be located 15.2 miles in a northeast direction from City of Bonham and 9.7 miles in a north-northwest direction from the Town of Honey Grove. Station 42+33 on the centerline of the proposed dam will be S 23.2677° E, 514 feet from the southeast corner of O.H.P. Wood Survey, Abstract No. 1177, in Fannin County, Texas, also being at 33.7180° N Latitude, 95.9822° W

Longitude. The proposed dam will be located in the George W. King Original Survey, Abstract No. 604; the James Kerr Original Survey, Abstract No. 614; and the John Reynolds Original Survey, Abstract 931 in Fannin County, Texas. The proposed dam and reservoir will be located on the land of the Applicant, which will be acquired prior to construction; and

WHEREAS, Applicant indicates that diversions may overdraft the firm yield of the reservoir as part of a system operation with existing NTMWD supplies to achieve maximum conservation of limited water resources; 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 (TCEQ) finds that jurisdiction over the application is established; and

WHEREAS, Applicant submitted the *Proposed Lower Bois d'Arc Creek Reservoir Mitigation Plan*, which was accepted and approved by the Executive Director; and

WHEREAS, Applicant submitted the *North Texas Municipal Water District Reservoir Accounting Plan*, which was accepted and approved by the Executive Director; and

WHEREAS, Applicant submitted the *North Texas Municipal Water District Monitoring Plan for Proposed Lower Bois d'Arc Creek Reservoir*, which was accepted and approved by the Executive Director; and

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

WHEREAS, multiple requests for a contested case hearing on the application were granted; and

WHEREAS, as a result of negotiations with all parties, all hearing requests were withdrawn; 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. 12151 is issued to North Texas Municipal Water District subject to the following terms and conditions:

1. IMPOUNDMENT

Permittee is authorized to construct and maintain a dam and reservoir (Lower Bois d'Arc Creek Reservoir) with a maximum normal operating capacity of 367,609 acre-feet of water on Bois d'Arc Creek, tributary of the Red River, Red River Basin in Fannin County located 15.2 miles in a northeast direction from City of Bonham and 9.7 miles in a north-northwest direction from the Town of Honey Grove. Station 42+33 on the centerline of the proposed dam will be S 23.2677° E, 514 feet from the southeast corner of O.H.P. Wood Survey, Abstract No. 1177, in Fannin County, Texas, also being at 33.7180° N Latitude, 95.9822° W Longitude. The proposed dam will be located in the George W. King Original Survey, Abstract No. 604 the James Kerr Original Survey, Abstract No. 614; and the John Reynolds Original Survey, Abstract 931 in Fannin County, Texas.

2. USE

- A. Permittee is authorized to use the impounded water for recreation purposes.
- B. Permittee is authorized to divert and use not to exceed 175,000 acre-feet of water per year for municipal, industrial and agricultural purposes within its service area in Collin, Dallas, Denton, Fannin, Hopkins, Hunt, Kaufman, Rains and Rockwall Counties.
- C. Permittee is authorized an interbasin transfer to use the water appropriated hereunder within the Trinity River Basin, and within that portion of Fannin County located in the Sulphur River Basin.
- D. Permittee is authorized to divert and reuse the return flows resulting from the diversion and use of water from the Lower Bois d'Arc Creek Reservoir as authorized under this permit, subject to the Permittee's compliance with Special Condition 6.Y.

3. DIVERSION

- A. Permittee is authorized to divert the water authorized herein from any point on the perimeter of Lower Bois d'Arc Creek Reservoir.
- B. Permittee is authorized to divert the water authorized herein at a maximum combined diversion rate of 365.15 cfs (163,889 gpm).

4. TIME PRIORITY

The time priority for this right is June 26, 2007.

5. CONSERVATION

Permittee shall fully implement water conservation plans, developed in accordance with this provision, that provide for the utilization of those reasonably available practices, techniques, and technologies that reduce the consumption of water for municipal use on a gallons per-capita per day basis within NTMWD's service area and that, for each category of use authorized by this permit not including recreation use, prevent the waste of water, prevent or reduce the loss of water, improve the efficiency in the use of water, increase the recycling and reuse of water, and prevent the pollution of water, so that a water supply is made available for future or alternative uses. Permittee shall develop, submit and implement water conservation plans as required by law. Each water conservation plan submitted to the Executive Director shall be designed to comply with relevant state conservation standards then in effect, and, at the time of submission, shall be designed to achieve, for each category of authorized uses, the highest practicable levels of water conservation and efficiency achievable within the jurisdiction of the Permittee. Permittee shall report annually to the Executive Director on the implementation of its water conservation plans and shall make both its most current water conservation plan and the annual reports on the implementation of its conservation plans easily accessible to the public through electronic and other means.

Such plans shall ensure that every water supply contract entered into, on or after the effective date of this permit, including any contract extension or renewal, requires that each successive wholesale customer shall develop and implement conservation measures

that will result in the highest practicable levels of water conservation and efficiency in order to comply with TWC § 11.085 (1)(2), and that each wholesale customer will report, no less frequently than once every year, to Permittee on the implementation of those conservation measures. If Permittee enters into a water supply contract on or after the effective date of this permit that authorizes the resale of water, such contract shall require that each successive customer in the resale of the authorized water implement water conservation measures at least as stringent as those included in Permittee's approved water conservation plan.

6. SPECIAL CONDITIONS

- A. Permittee shall only impound and divert water authorized by this permit in accordance with the most recently approved *North Texas Municipal Water District Reservoir 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 *North Texas Municipal Water District Reservoir Accounting Plan* shall 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. Should Permittee fail to maintain the accounting plan or timely 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 provide prior notice to the Executive Director of any proposed modifications to the accounting plan and provide copies of the appropriate documents effectuating such changes.
- B. All mitigation plans and monitoring required herein shall comply with requirements set forth in 33 United States Code §1341, commonly known as the federal Clean Water Act (CWA), §401 and 30 TAC Chapter 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 the Lower Bois d'Arc Creek Reservoir.
- C. Impoundment of water and diversion under this permit is contingent upon the initiation of implementation of the approved *Mitigation Plan for the Proposed Lower Bois d'Arc Creek Reservoir*. 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.
- D. Permittee shall document compliance with the terms and conditions of this permit relating to environmental flow requirements, as set out in Special Conditions 6.E. through 6.R., in the most recently approved *North Texas Municipal Water District Reservoir Accounting Plan*.
- E. Permittee shall determine compliance with pulse flow conditions and subsistence period freshet conditions using measured flows at USGS Gage 07332622, Bois d'Arc Creek at FM 409 near Honey Grove, TX or, in the case of deliberate releases to pass qualifying pulse flow events or qualifying subsistence period freshets, measurements of the releases from the reservoir as documented in the most

recently approved *North Texas Municipal Water District Reservoir Accounting Plan*.

- F. If calculated reservoir inflows, as determined in the most recently approved *North Texas Municipal Water District Reservoir Accounting Plan*, constitute a qualifying pulse flow event as defined in Special Condition 6.L., the pulse flow requirement for the season has not been met, and the flows at USGS gage 07332622 for the same time period do not exceed the pulse flow trigger requirement, the pulse shall be passed through the reservoir in a manner as close as practicable to the applicable seasonal release pattern identified in the most recently approved *North Texas Municipal Water District Reservoir Accounting Plan*. Permittee may release water to augment naturally occurring high flow events so that flows at the USGS Gage 07332622 meet or exceed the pulse flow trigger requirement, subject to the requirements of Special Condition 6.J.
- G. Consistent with Special Condition 6.F., when calculated reservoir inflows, as determined in the most recently approved *North Texas Municipal Water District Reservoir Accounting Plan*, equal or exceed the pulse flow trigger requirements of Special Condition 6.R. and the pulse flow requirement for the season has not been met, inflows to the reservoir in excess of applicable base flow requirements may be temporarily impounded. Consistent with Special Condition 6.F, if the calculated volume or duration criterion for an applicable qualifying pulse flow event, as specified in Special Condition 6.L., is met, Permittee shall promptly release the temporarily impounded water in a manner as close as practicable to the applicable seasonal release pattern identified in the most recently approved *North Texas Municipal Water District Reservoir Accounting Plan*.
- H. Permittee is not required to release stored water, except temporarily impounded water as described in Special Condition 6.G. or a qualifying subsistence period freshet required to be released pursuant to Special Condition 6.Q., to meet the environmental flow requirements in this permit. All requirements for pass-throughs of inflows or releases of temporarily impounded water pursuant to Special Conditions 6.E. through 6.R. are limited to the volume of calculated inflows to the reservoir.
- I. Subject to compliance with the subsistence and base flow requirements of Special Conditions 6.Q and 6.R, inflows may be stored if either: (i) the pulse flow requirement for a season has been met; or (ii) inflows to the reservoir are below the applicable pulse flow trigger; or (iii) inflows equal or exceed the applicable pulse flow trigger but the calculated volume and duration criteria for a qualifying pulse flow event are both not met. If Permittee has stored water, other than temporarily stored water pursuant to Special Condition 6.G. that is part of a qualifying pulse flow event or water that is part of a qualifying subsistence period freshet required to be passed pursuant to Special Condition 6.Q., then in accordance with the terms and conditions of this permit, including any applicable environmental flow requirements in effect at the time the water was stored, Permittee may divert and use that stored water, even if the applicable environmental flow requirement is not met at the time of the subsequent diversion and use of that stored water.
- J. If a naturally occurring qualifying pulse flow event is recorded at USGS gage 07332622, such pulse flow event shall satisfy a pulse flow requirement for that event within the respective season. In addition, a pulse flow requirement for an event within a season may be satisfied by a naturally occurring high flow event

which has been augmented by reservoir releases as authorized in Special Condition 6.F., but only if the applicable trigger, duration and volume criteria are all met as measured at that gage.

- K. Each season is independent of the preceding and subsequent seasons with respect to the pulse flow requirements of Special Condition 6.R.
- L. Except as otherwise provided in Special Condition 6.J., a pulse flow is considered to be a qualifying pulse flow event if the pulse flow trigger requirement is met and either the pulse flow volume or duration requirement is met, as specified in Special Condition 6.R.
- M. Permittee shall determine compliance with the requirement to pass reservoir inflows up to the applicable subsistence or base flow values of Special Condition 6.R. based on measured flows at the outlet works of the dam.
- N. Seasons are defined as Fall-Winter (November - February), Spring (March - June), and Summer (July - October).
- O. Reservoir storage is the trigger for determining the applicable instream flow requirements in Special Conditions 6.E. through 6.R. Subsistence flow requirements apply when storage is less than 40% of the authorized conservation storage. Base flow and pulse flow requirements apply when conservation storage is equal to or greater than 40%.
- P. Pulse flow requirements are not applicable under subsistence flow conditions.
- Q. When subsistence flow requirements are in effect, as provided in Special Condition 6.O., inflows into the reservoir up to 1 cfs shall be passed downstream and a subsistence period freshet pass-through requirement shall be in effect.

A qualifying subsistence period freshet is characterized by a trigger flow of at least 20 cfs and either a volume of at least 69 acre-feet or a duration of at least three days. Volume will be determined based on cumulative flows occurring over a three-day period, beginning with the day during which the trigger flow occurs. Duration will be determined based on the number of days of inflow greater than 1 cfs, beginning with the day on which the trigger flow occurs. During the time that subsistence flow requirements are in effect pursuant to Special Condition 6.O., Permittee shall track flows at USGS gage 07332622, Bois d'Arc Creek at FM 409, and inflows to the reservoir, to determine if a qualifying subsistence period freshet has occurred at either location.

If, while subsistence flow requirements are in effect pursuant to Special Condition 6.O., a 60-day period occurs without a qualifying subsistence period freshet at USGS gage 07332622, Bois d'Arc Creek at FM 409, but, during which, a qualifying subsistence period freshet has occurred as reservoir inflow, the subsistence period freshet shall be promptly passed through the dam. If a qualifying subsistence period freshet has not occurred as reservoir inflow during such 60-day period, flows will continue to be monitored to determine when a qualifying subsistence period freshet occurs at the FM 409 gage or a qualifying subsistence period freshet has occurred as inflow to the reservoir. During that period of continued monitoring, a qualifying subsistence period freshet will be passed as soon as such an event occurs as inflow into the reservoir unless a qualifying subsistence period

freshet has occurred at the FM 409 gage.

As closely as practicable, the subsistence period freshet pass-through shall average 20 cfs the first day, 10 cfs the second day, and 5 cfs the third day. As long as subsistence flow requirements are in effect, once a qualifying subsistence period freshet has occurred at USGS gage 07332622, Bois d'Arc Creek at FM 409, or such flow has been passed through the dam, a new 60-day period will be started for the purpose of determining when a qualifying subsistence flow event must be passed through the dam. In passing an individual subsistence period freshet through the dam, Permittee shall never be required to pass a volume of more than 69 acre-feet.

- R. Impoundment or diversion of reservoir inflows when flows are at or below the following values, at the applicable measurement points described in Special Conditions 6.E. and 6.M., is authorized only in compliance with Special Conditions 6.A. and 6.D. through 6.Q., above:

Season	Subsistence	Base	Pulse
Fall-Winter	1 cfs*	3 cfs	2 per season Trigger: 150 cfs Volume: 1,000 af Duration: 7 days
Spring	1 cfs*	10 cfs	2 per season Trigger: 500 cfs Volume: 3,540 af Duration: 10 days
Summer	1 cfs*	3 cfs	1 per season Trigger: 100 cfs Volume: 500 af Duration: 5 days

cfs = cubic feet per second

af = acre-feet

\*A subsistence period freshet requirement with a trigger level of 20 cfs, a volume of 69 af, and a duration of 3 days, as further defined in Special Condition 6.Q., also applies.

This special condition is subject to adjustment by the commission if the commission determines, through an expedited public review process, that such adjustment is appropriate to achieve compliance with applicable environmental flow standards adopted pursuant to Texas Water Code § 11.1471. Any adjustment shall be made in accordance with the provisions of Texas Water Code § 11.147(e-1).

- S. Permittee shall implement measures to minimize impacts to aquatic resources due to entrainment or impingement including, but not limited to, the installation of screens at the diversion facilities. Such measures shall include intake diversion facilities designed and operated to result in a velocity of water into the diversion facility of no greater than 1 foot-per-second. At all times that diversions are occurring, the intake diversion facilities shall be equipped with screens resulting in individual openings no larger than 1 square inch in size.



- T. After commencing deliberate impoundment in the reservoir, Permittee shall conduct hydrologic and water quality monitoring in accordance with the approved North Texas Municipal Water District Monitoring Plan. Permittee shall submit a summary of hydrologic and water quality monitoring data to the Executive Director on an annual basis. Permittee shall submit to the Executive Director a summary report of hydrologic and water quality data in the fifth and tenth years following deliberate impoundment in the reservoir and every five years thereafter for as long as monitoring under Special Condition 6.U. continues. Hydrologic and water quality monitoring for all sites and parameters, other than daily flows at USGS Gage 07332622, Bois d'Arc Creek at FM 409 near Honey Grove, TX, and water quality monitoring associated with reservoir releases undertaken pursuant to Special Condition 6.W., may cease after ten years, or when instream monitoring specified in Special Condition 6.U. ceases, whichever is later.
- U. Permittee shall conduct instream monitoring of Bois d'Arc Creek at the FM 409 Site and, at a minimum, one additional site within the non-channelized portion of the Creek farther downstream, in the first, third, fifth and tenth years following deliberate impoundment of water in the reservoir. In addition, if diversions from the reservoir, as calculated on an annualized basis, have not reached 100,000 acre-feet prior to the fifth year following deliberate impoundment, instream monitoring shall continue every fifth year thereafter until instream monitoring has been undertaken during two years following the year that diversions reach 100,000 acre-feet per year. Instream monitoring during any year in which it is required shall include a twice per year assessment of fish and macroinvertebrate communities and physical habitat assessment at each site, plus a twice per year analysis of water quality data collected at the USGS Gage 07332622, Bois d'Arc Creek at FM 409 near Honey Grove, TX. All aquatic biological monitoring and physical habitat assessments shall take place in the index period (March 15 – October 15) with at least one of the twice per year monitoring events taking place in the critical period (July 1 – September 15). 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*.
- V. Permittee shall submit a report to the Executive Director summarizing the twice per year monitoring activities in Special Condition 6.U. 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 0202A 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.
- W. Permittee shall construct and operate a multilevel outlet tower and regulate releases to ensure that water released from the reservoir maintains DO and temperature levels that meet the surface water quality standards for Segment 0202A or future segment designation. Permittee shall monitor water quality near the outlet tower in accordance with the approved Monitoring Plan during the life of the permit.

- X. Permittee shall install and maintain measuring devices which account for, within 5% accuracy, the quantity of water diverted from the points authorized above in Paragraph 3. DIVERSION. Permittee shall allow representatives of the TCEQ reasonable access to the property to inspect the measuring device.
- Y. Prior to the diversion and reuse of the return flows authorized pursuant to Paragraph 2.D. USE, resulting from the diversion and use of water from the Lower Bois d'Arc Creek Reservoir as authorized under this permit, Permittee shall apply for and be granted an amendment to identify all specific points of discharge and diversion, and secure the appropriate authorizations to transfer such return flows through state watercourses pursuant to TWC §11.042, except to the extent such points of discharge, diversion, and transfer may be authorized by separate grant of authority from the Commission.

7. TIME LIMITATIONS

- A. Construction of the dam for Lower Bois d'Arc Creek Reservoir must be in accordance with plans approved by the Executive Director. Construction of the dam without final approval of the construction plans 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 the issuance of this permit, unless Permittee applies for and is subsequently granted an extension of time before the expiration of these time limitations.

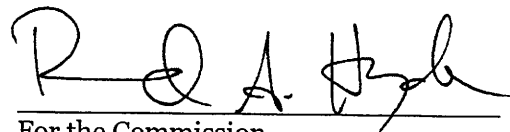
This water use permit is issued subject to all superior and senior water rights in the Red River Basin.

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 water use permit are denied.

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

  
For the Commission

ISSUED: **June 26, 2015**