Appendix M

Programmatic Agreement

PROGRAMMATIC AGREEMENT

AMONG
THE UNITED STATES ARMY, CORPS OF ENGINEERS, FORT WORTH DISTRICT, THE TEXAS STATE HISTORIC PRESERVATION OFFICER, THE UPPER TRINITY REGIONAL WATER DISTRICT, REGARDING COMPLIANCE WITH SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT OF 1966 (AS AMENDED) FOR THE PROPOSED LAKE RALPH HALL TO BE LOCATED NORTH OF THE CITY OF LADONIA, FANNIN COUNTY, TEXAS AND REQUIRING AN INDIVIDUAL PERMIT ISSUED UNDER SECTION 404 UNDER THE CLEAN WATER ACT

Permit Number: SWF-2003-00336

WHEREAS, the United States Army Corps of Engineers, Fort Worth District (USACE), the lead Federal agency, is reviewing a permit application under Section 404 of the Clean Water Act to authorize dredge and fill activities for construction of the Lake Ralph Hall by the Upper Trinity Regional Water District (UTRWD); and

WHEREAS, the UTRWD has proposed to construct the Lake Ralph Hall Project (Project), which will be located on the North Sulphur River north of Ladonia, Fannin County, Texas (see attached map); and

WHEREAS, construction of the Project will require a permit in order to comply with Section 404 of the Clean Water Act; and

WHEREAS, issuing a permit pursuant to Section 404 of the Clean Water Act requires review of the undertaking under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended); and

WHEREAS, the USACE, in consultation with the Texas State Historic Preservation Officer (SHPO), considered the potential effects of the Project as provided in 36 CFR 800 and 33 CFR 325 and established an Area of Potential Effects (APE) for direct effects that encompasses the entire area covered by the terms of the Environmental Impact Statement (EIS), which includes the 11,915-acre area comprising the conservation pool (elevation 551 feet msl, 7,568 acres) and the 100-year storm event (elevation of 556 feet msl, 8,963 acres), and all associated ancillary facilities such as pump stations, the raw water pipeline and associated workspace and facilities for the raw water pipeline, all areas designated as mitigation lands to offset the Project's impacts to waters of the U.S., all public roads to be impacted, new roads to be built as a result of the Project, and public roads that require expansion or upgrades as a result of the Project; and

WHEREAS, the APE for indirect effects shall include the viewshed, as determined through field evaluations and/or topographic modeling, of: 1) the Project, up to a maximum distance of one-mile from the 100-year storm event (556' contour), and 2) the associated ancillary facilities such as pump stations, pipelines and associated workspace and facilities for pipelines, areas designated as mitigation lands to offset the Project's impacts to waters of the U.S., public roads to be impacted, new roads to be built as a result of the Project, and public roads that require expansion or upgrades as a result of the Project; and

WHEREAS, the USACE has determined that the proposed Project has the potential to adversely affect historic properties that are eligible for listing in the National Register of Historic Places (NRHP), and has consulted with the SHPO, pursuant to the Advisory Council on Historic Preservation (ACHP) regulations, *Protection of Historic Properties* (36 CFR 800), implementing Section 106 of the National Historic Preservation Act (54 USC 300101); 33 CFR 325 (Appendix C) *Procedures for the Protection of Historic Properties*; and USACE Revised Interim Guidance for Implementing Appendix C of 33 CFR 325 with the ACHP regulations at 36 CFR 800 (Apr. 25, 2005); and

WHEREAS, UTRWD is a political subdivision of the State of Texas, and as such, is subject to the Antiquities Code of Texas (Title 9, Chapter 191 of the Texas Natural Resources Code); and

WHEREAS, the Texas Historical Commission (THC) is the agency that administers the Antiquities Code of Texas (Title 9, Chapter 191 of the Texas Natural Resources Code) and issues state Antiquities permits for archeological studies in accordance with that statute, and also has responsibilities under the Chapter 711 of the Texas Health and Safety Code regarding the discovery and removal of abandoned or unknown cemeteries; and

WHEREAS, the Executive Director of the THC serves as the SHPO for Texas and has the authority to enter into Section 106 agreements; and

WHEREAS, the USACE and the SHPO agreed to accomplish compliance with Section 106 through the development and execution of this Programmatic Agreement (PA or the Agreement), and to streamline compliance with the regulations by developing procedures to satisfactorily take into account the effects of this Project on historic properties, and to increase flexibility in applying the regulations and reduce redundant documentation in a manner that will allow the UTRWD to proceed with construction in an expeditious manner; and

WHEREAS, the USACE has consulted with the Caddo Nation of Oklahoma, Choctaw Nation of Oklahoma, Comanche Nation of Oklahoma, Tonkawa Tribe of Oklahoma, and Wichita and Affiliated Tribes, and invited them to sign this agreement by letter dated May 2, 2017; and

WHEREAS, the USACE received response to the invitation to sign this agreement from the following Tribes: the Caddo Nation of Oklahoma, the Choctaw Nation of Oklahoma, and the Comanche Nation have requested consulting party status by phone, and the USACE invited the Caddo Nation of Oklahoma, the Choctaw Nation of Oklahoma, and the Comanche Nation to be Consulting Parties to this PA; and

WHEREAS, the UTRWD and other consulting parties have been notified and provided an opportunity to comment on and participate in consultation on this Project; and

WHEREAS, the USACE has invited the ACHP to participate in consultation for this Project, and the ACHP has chosen not to participate in development of this PA; and

NOW, THEREFORE; the USACE, the SHPO, and UTRWD agree that the Project shall be implemented in accordance with the following stipulations in order to take into account the effect of the Project on historic properties to satisfy the USACE's Section 106 responsibilities for this Project.

STIPULATIONS

The USACE will ensure that the following stipulations are carried out by UTRWD to identify historic properties and address adverse effects to such properties that will result from construction of Lake Ralph Hall.

I. FRAMEWORK

A. All work conducted under the PA will be performed in a manner that is consistent with the Secretary of Interior's (SOI's) "Standards and Guidelines for Archeology and Historic Preservation" (48 FR 44716-44740; September 23, 1983) as amended, or the SOI's "Standards for the Treatment of Historic Properties" (36 CFR 68) as appropriate.

B. Critical steps in the historic property identification process include a literature review, tribal consultation (as appropriate), historical and archival research, consultation with other knowledgeable parties, and field investigations.

II. LITERATURE REVIEW AND RESEARCH DESIGN

A. UTRWD prepared a report summarizing and synthesizing all previous archeological and architectural studies conducted at the proposed reservoir. UTRWD conducted a 15 percent sample survey to assist in planning for the survey of the remainder of the Project and a report of results was prepared in 2005. The background research and sample survey results are needed to plan the research design (RD) that will guide the survey strategy for the remainder of the Project and will assist in the preparation of the scope-of-work required for the Antiquities permit. The RD will guide the survey strategy for the direct and indirect APE. The RD shall contain:

1. Full references to all previous investigations.
2. Complete list of sites identified in prior work, including NRHP and State Antiquities Landmark status.
3. Separate tabular listings for archeological sites and above-ground architecture.
4. Summary of any identified Traditional Cultural Properties (TCPs) or Traditional Cultural Landscapes.
5. Maps of areas where historic properties have been identified.
6. Maps of areas where historic properties have not been fully inventoried.
7. Maps of the proposed reservoir, any proposed recreation areas, mitigation areas, roads to be impacted or constructed, associated ancillary facilities, and pipelines associated with the Project.

B. UTRWD shall prepare a draft RD that shall be submitted to the SHPO, Tribes, consulting parties and USACE. The entities will have 30 days to make comments on the RD; the RD may be revised in response to comments.. The USACE shall be responsible for final comments and acceptance before implementation of the final RD. A copy of the final RD shall be made available to all signatories and concurring parties.

C. The RD will identify research questions of importance to the region that can be reasonably addressed by resources that are likely to be encountered within the Project and will set forth procedures for the identification and evaluation of these resources. These will include methods for finding and documenting archeological sites and architectural resources, analysis of data, and the curation of artifacts.

III. IDENTIFICATION OF HISTORIC PROPERTIES

Identification efforts should follow the ACHP's Section 106 Archaeology Guidance, the SOI's Standards and Guidelines for Archeology and Historic Preservation, the SOI's Standards and Guidelines for Federal Agency Historic Preservation Programs Pursuant to the National Historic Preservation Act. This includes standards defined by the Council of Texas Archeologists. For all archaeological activities and architectural assessments resulting in a written report, the SHPO, Tribes, and consulting parties will be afforded 30 days after receipt of any document to submit comments. Documents may then be revised considering the comments received. The USACE shall be responsible for final comments.

A. Phase I (Survey)

1. For the proposed reservoir, recreation facilities, associated ancillary facilities, areas used for mitigation, roads to be impacted or constructed, or pipelines defined in the final RD, UTRWD will complete

a pedestrian survey, including shovel-testing, augering, and backhoe trenches (as necessary) to identify archeological sites.

a. All archeological sites and above ground architecture recorded will be assessed, if possible, for eligibility to the NRHP. This will consist of the categorization of all sites as NRHP eligible, listed, not eligible, or undetermined. Archival research will be necessary to assess standing architecture and historic sites. Sites that cannot definitively be determined ineligible for the NRHP will be assessed by more detailed work in Phase II.

b. A draft report shall follow reporting standards developed by the Council of Texas Archeologists, as per Texas Administrative Code, Title 13, Part 2, Chapter 26.16.

c. The draft report shall be distributed to all signatories for a 30-day period of review and comment. The USACE shall ensure that comments are addressed in a final report and distributed to all signatories.

B. Phase II (Testing)

1. A testing plan that complies with Texas Administrative Code, Title 13, Part 2, Chapter 26, shall be developed in consultation with the Tribes and consulting parties for sites with undetermined NRHP status after Phase I survey. Work may include remote sensing, additional shovel tests, hand-excavated test units, and mechanical excavation as necessary. The plan must include, at a minimum:

   a. Criteria for assessing eligibility to the NRHP under 36 CFR 60.4 and State Antiquities Landmarks (SALs) under Texas Administrative Code, Title 13, Part 2, Chapter 26, that can be applied to every site tested.

   b. Specific research themes and data requirements that the site must contribute to for it to be considered eligible for the NRHP or SAL. Individual work plans for each site must be specified that will directly lead to testing whether these data requirements are available each site.

   c. A draft report shall follow reporting standards developed by the Council of Texas Archeologists as per Texas Administrative Code, Title 13, Part 2, Chapter 26.16. This report shall consist of the categorization of all sites as NRHP eligible, or not eligible. For all sites determined eligible, the report should also

document the effect of the Project on the resource, noting whether it will be adverse or not.

d. The draft report shall be distributed to all signatories for a 30 day period of review and comment. The USACE shall ensure that comments are incorporated into a final report and distributed to all signatories.

The USACE will determine the NRHP eligibility of all archeological and historical resources identified within the APE of the Project in consultation with the SHPO and the Tribes. If the USACE and the SHPO concur on eligibility, the USACE will proceed to a determination of effect. If the USACE and the SHPO disagree on NRHP eligibility, the matter will be referred to the Keeper of the Register in the Department of the Interior, as per 36 CFR 63. The resource will be treated as if it is eligible for inclusion in the NRHP until a decision is rendered by the Keeper. If the Keeper determines that the resource is eligible, the USACE will proceed to an assessment of adverse effect. If the USACE cannot evaluate the NRHP eligibility of a resource within the APE for direct effects of the Project due to lack of access, the resource will be treated as eligible for listing in the NRHP.

IV. ASSESSMENT OF ADVERSE EFFECT

A. For all resources determined eligible for inclusion in the NRHP, the USACE will apply the Criteria of Adverse Effect (36 CFR 800.5(a)) to assess whether or not adverse effects will occur to historic properties as a result of the Project. In consultation with the SHPO, Tribes, and other consulting parties, the USACE shall make a determination of effect.

B. *Finding of No Adverse Effect (NAE).* USACE, in consultation with, the SHPO, and consulting parties, shall apply the criteria of adverse effect to historic properties within the APE in accordance with 36 CFR 800.5. Historic properties for which a NAE determination is made by the USACE shall be avoided and or protected from all potential current and future impacts by the UTRWD. Historic properties with NAE designation that may be adversely affected by use or design changes in the Project will require re-assessment of effects.

C. *Finding of Adverse Effect.* The signatories to the Agreement concur that all eligible historic properties identified within the APE that do not have a final determination of NAE are presumed to be adversely affected by the Project. UTRWD, in consultation with the USACE, the SHPO, the Tribes, and other consulting parties, shall apply the criteria within the APE on a case-by-case basis in accordance with 36 CFR 800.5. For all historic properties that will be adversely affected, a mitigation plan will be developed in consultation with all consulting parties in accordance with Stipulation V. The draft mitigation plan shall be distributed to the SHPO, the UTRWD, the Tribes, and the other consulting parties for a 30 day period of review and comment in accordance with 36 CFR 800.5 and

under review of the Texas Administrative Code, Title 13, Part 2, Chapter 26. The USACE shall ensure that comments are incorporated into a final data recovery plan and distributed to all signatories.

D. *Public Involvement.* Two public notices for the Project were sent in 2008 each providing 30-day comment periods. Public meetings were held in both 2010 and 2011 for discussion of potential adverse effects on historic properties within the Project. Additional opportunities involving the public will be available including commenting on the EIS and invitations sent to consulting parties to participate in this PA.

V. RESOLUTION OF ADVERSE EFFECT

A. UTRWD and the USACE shall consult with the SHPO, the Tribe(s) and other consulting parties to resolve adverse effects in accordance with 36 CFR 800.6. For archeological sites, the mitigation plan will specify the problems set forth in the RD that can be addressed by data from the site being excavated, the areas to be excavated, the excavation methods to be used, special samples to be collected, the specialists who will conduct specialized analyses, and include reporting methods and curation of artifacts and records. For architectural resources, adaptive reuse shall be considered whenever possible. For buildings and structures that will be destroyed by the Project, the mitigation plan will specify the level of HABS-HAER drawings, or other agreed upon forms of documentation as determined through consultation, and photographs that will be necessary to document the resources.

B. All work conducted to treat adverse effects will be described in a draft report that shall follow reporting standards developed by the Council of Texas Archeologists as per Texas Administrative Code, Title 13, Part 2, Chapter 26.16 .

C. The draft report shall be distributed to all signatories for a 30-day period of review and comment.

D. If the USACE, SHPO, UTRWD, the Tribes, and consulting parties fail to agree on how adverse effects will be resolved, the USACE shall request that the ACHP join the consultation and provide the ACHP and all consulting parties with documentation pursuant to 36 CFR 800.11 (g).

VI. CURATION AND DISPOSITION OF RECOVERED MATERIALS, RECORDS AND REPORTS

A. *Curation.* UTRWD materials and associated records are considered Held-in-Trust Collections by the State of Texas (Texas Administrative Code, Title 13, Part 2, Chapter 29, Rules of Management and Care of Artifacts and Collections). A disposal plan may be drafted in accordance with Texas Administrative Code, Title 13, Part 2, Chapter 26.17f. Therefore, UTRWD shall ensure that all such

materials and records that result from identification, evaluation, and treatment efforts conducted under this PA, except for those disposed of under an approved disposal plan, are accessioned into a curatorial facility that has been certified, or granted provisional status, by the THC in accordance with Chapter 29.6, except as specified for human remains in Stipulation VII.

B. *Reports.* UTRWD shall provide copies of final technical reports of investigations to the signatories and consulting parties. The signatories and consulting parties shall withhold from the public all site location information and other data that may be of a confidential or sensitive nature pursuant to 36 CFR 800.11(c).

VII. TREATMENT OF HUMAN REMAINS

A. TREATMENT PLAN. UTRWD shall develop a treatment plan for discovery of human remains in consultation with the USACE, SHPO, the Tribes, and other consulting parties. The plan will comport with the ACHP Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects as well as any requirements under Chapter 711 of the Texas Health and Safety Code. USACE shall ensure that Tribes and other consulting parties are afforded a reasonable opportunity to identify concerns, advise on identification and evaluation, and assist in determination of the ultimate disposition of human remains and associated funerary artifacts.

B. INADVERTENT DISCOVERY. Immediately upon the inadvertent discovery of human remains during historic properties investigations or construction activities conducted pursuant to this PA, UTRWD shall ensure that all ground-disturbing activities immediately cease in the vicinity of the human remains and any associated grave goods, and that the site is secured from further disturbance or vandalism. UTRWD will be responsible for immediately notifying local law enforcement officials and a medical examiner or coroner, and if the archeologist is reasonably certain that the human remains are archeological in nature, he will discuss the matter with the medical examiner or coroner and be on site when they or their designees (e.g., police officers) examine the remains to prevent disturbance to the remains resulting from unscientific excavation methods. Within 48 hours of the inadvertent discovery, UTRWD shall be responsible for initiating consultation with the USACE, the SHPO, the Tribes, and consulting parties to develop a plan for resolving the adverse effects. The course of action shall comport with Title 13, Part II, Chapter 22, Cemeteries, which are the rules regarding abandoned cemeteries and the disinterment of graves, as well as any other requirements under Chapter 711 of the Texas Health and Safety Code.

VIII. INADVERTENT DISCOVERIES OF HISTORIC PROPERTIES

The UTRWD recognizes the possibility that inadvertent effects may occur to a recorded or previously unidentified historic property or undetermined historic property. Upon such a discovery, the UTRWD will use the following procedures:

A. The USACE, the SHPO, the Tribes, and other consulting parties will be notified by the UTRWD immediately upon discovery that a protected, undetermined, or previously unidentified historic property has been, or could be, inadvertently affected by the Project.

B. If the Project has not been completed at the time the effect is discovered, all activities in the vicinity (minimum of 50 meters) of the discovery shall immediately cease, and reasonable efforts shall be taken to avoid or minimize harm to the historic property.

C. The Principal Investigator will evaluate the discovery, assess the effects, develop possible treatment recommendations and implement additional protection measures as necessary to prevent further harm to the historic property.

D. Within seven (7) days of this evaluation, the UTRWD will initiate consultation with the USACE, the SHPO, the Tribes and other consulting parties to determine if the resource is a historic property and, if so, to develop a treatment plan to mitigate any adverse effects.

E. If the Project has already been concluded when an effect to a historic property has been discovered, the UTRWD shall provide the SHPO, the Tribes and other consulting parties with a report describing the Project, the circumstances surrounding the effects, and the results of treatment plan implementation.

F. Within six months (or an alternate agreed upon schedule), of the discovery of the inadvertent effect, the UTRWD shall provide the SHPO, USACE, Tribes and other consulting parties with a report describing the Project, the circumstances surrounding the effects, and the results of treatment plan implementation.

G. For discoveries on non-Indian, non-Federal lands or State lands, applicable laws and regulation of the State of Texas statutes shall be followed, including the Antiquities Code of Texas (Title 9, Chapter 191 of the Texas Natural Resources Code). In the event an unknown or abandoned cemetery is discovered, a Notice of Existence should be filed. The Texas Health and Safety Code 711 and the Texas Administrative Code 22.5 should be referenced for requirements on documenting unknown or abandoned cemeteries on projects permitted under the Antiquities Code of Texas.

IX. PROFESSIONAL QUALIFICATIONS

All historic preservation-related investigations specified in this Agreement shall be carried out by Principal Investigators meeting the pertinent professional qualifications of the SOI's *Professional Qualification Standards (*36 CFR Part 61) in a discipline appropriate for the task and the nature of the historic properties. Since this Project will be conducted on land controlled by the UTRWD, principal investigators must also meet

the professional qualification standards found in Title 13, Part II, Chapter 26, Rules of Practice and Procedure, and must be eligible to receive an Antiquities Permit.

X. DISPUTE RESOLUTION

Should any signatory or concurring party to this Agreement object at any time to any actions proposed or the manner in which the terms of this Agreement are implemented, the objector is encouraged to consult the other signatories in resolving the objection. If the objector determines that such objection cannot be resolved, USACE shall perform the following tasks.

A. CONSULT ACHP. Forward all documentation relevant to the dispute, including the USACE's proposed resolution, to the ACHP. The ACHP shall provide the USACE with its advice on the resolution of the objection within 30 days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the USACE shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and shall provide them with a copy of this written response. The USACE will then proceed according to its final decision.

B. FINAL DECISION. If the ACHP does not provide its advice regarding the dispute within the 30-day time period, the USACE may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the USACE shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the Agreement, and shall provide the signatories, concurring parties, and the ACHP with a copy of such written response.

C. The parties shall carry out all other actions subject to the terms of this Agreement that are not the subject of the dispute.

XI. DURATION, AMENDMENT, AND TERMINATION:

A. DURATION. Unless terminated or amended as outlined below, this Agreement shall remain in effect for a period of 10 years from the date the Agreement goes into effect and may be extended for a second 10-year term with the written consent of all the signatories.

B. AMENDMENT. This Agreement may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

C. TERMINATION. If any signatory to this Agreement determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment. If within 30 calendar days (or another time period agreed to by all signatories) an amendment cannot be

reached, any signatory may terminate the Agreement upon written notification to the other signatories.

Once the Agreement is terminated, and prior to work continuing on any historic property work defined by the EIS, the USACE must either (a) execute a Memorandum of Agreement pursuant to 36 CFR 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR 800.7. The USACE shall notify the signatories as to the course of action it will pursue.

XII. REPORTING AND MONITORING:

Each year following the execution of the PA until it expires or it is terminated, UTRWD shall provide all parties to this PA a summary report detailing work undertaken pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in the UTRWD's efforts to carry out the terms of the PA.

XIII. EXECUTION:

Signature of this Programmatic Agreement by the USACE, the SHPO, UTRWD, and implementation of its terms evidence that the USACE has taken into account the effects of this Project on historic properties and afforded the ACHP an opportunity to comment. Pursuant to 36 CFR 800.6(b)(1)(iv) this Agreement will go into effect when a fully executed version is received by the ACHP.

PROGRAMMATIC AGREEMENT

AMONG
THE UNITED STATES ARMY, CORPS OF ENGINEERS, FORT WORTH DISTRICT,
THE TEXAS STATE HISTORIC PRESERVATION OFFICER,
THE UPPER TRINITY REGIONAL WATER DISTRICT,
REGARDING COMPLIANCE WITH SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT OF 1966 (AS AMENDED)
FOR THE PROPOSED LAKE RALPH HALL
TO BE LOCATED NORTH OF THE CITY OF LADONIA, FANNIN COUNTY, TEXAS
AND REQUIRING AN INDIVIDUAL PERMIT ISSUED UNDER SECTION 404 UNDER THE CLEAN WATER ACT

Permit Number: SWF-2003-00336

SIGNATORY:

United States Army, Corps of Engineers, Fort Worth District

Stephen Brooks

Stephen L Brooks, Chief, Regulatory Division

Date 9/13/19

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Permit Number: SWF-2003-00336

SIGNATORY:

Texas State Historic Preservation Officer

Mark Wolfe

Mark Wolfe, State Historic Preservation Officer

Date 5/14/19

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Permit Number: SWF-2003-00336

SIGNATORY:

Upper Trinity Regional Water District

Larry N. Patterson

Larry N. Patterson, Executive Director

Date 5/6/19

PROGRAMMATIC AGREEMENT

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THE UNITED STATES ARMY, CORPS OF ENGINEERS, FORT WORTH DISTRICT,
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Permit Number: SWF-2003-00336

CONSULTING PARTY CONCURRING IN MOA:

Choctaw Nation of Oklahoma

_____ Date _____
Gary Batton, Chief

PROGRAMMATIC AGREEMENT

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THE UNITED STATES ARMY, CORPS OF ENGINEERS, FORT WORTH DISTRICT,
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Permit Number: SWF-2003-00336

CONSULTING PARTY CONCURRING IN MOA:

Caddo Nation of Oklahoma

_____ Date _____
Tamara Francis, Chairman

PROGRAMMATIC AGREEMENT

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Permit Number: SWF-2003-00336

CONSULTING PARTY CONCURRING IN MOA:

Comanche Nation

_____ Date _____
William Nelson Sr., Chairman

Appendix N

Water Use Permit No. 5821

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

WATER USE PERMIT

Permit No. 5821 Type §§ 11.121, 11.085

Permittee:	Upper Trinity Regional Water District	Address:	P.O. Drawer 305 Lewisville, Texas 75067
Filed:	August 13, 2004	Granted:	DEC 1 1 2013
Purposes:	Municipal, Industrial, Agricultural, and Recreation	Counties:	Fannin, Collin, Cooke, Dallas, Denton, Grayson, and Wise
Watercourse:	North Sulphur River, Tributary of the Sulphur River	Watershed:	Sulphur and Trinity River Basins

WHEREAS, Upper Trinity Regional Water District (UTRWD, Applicant or Permittee) applied for a water use permit to construct and maintain a dam and reservoir (Lake Ralph Hall) with a maximum capacity of 180,000 acre-feet of water and a surface area of approximately 8,500 acres, on the North Sulphur River, tributary of the Sulphur River, Sulphur River Basin in Fannin County for recreation purposes; and

WHEREAS, Applicant seeks to divert and use not to exceed 45,000 acre-feet of water per year from the perimeter of Lake Ralph Hall for municipal, industrial, and agricultural purposes at a maximum combined diversion rate of 205 cfs (92,000 gpm); and

WHEREAS, Applicant indicates that diversions from the reservoir may be "overdrafted" as a part of the system operation with existing UTRWD supplies from other basins to achieve maximum conservation of limited water resources; and

WHEREAS, Applicant indicates that of the 45,000 acre-feet of water per year requested, 34,082 acre-feet of water per year is available on a firm basis; and

WHEREAS, Applicant seeks to use the water within its service area in all or parts of Collin, Cooke, Dallas, Denton, Fannin, Grayson, and Wise Counties and also seeks authorization for the interbasin transfer of water to those counties in the Trinity River Basin pursuant to Texas Water Code (TWC) ' 11.085; and

WHEREAS, the proposed Lake Ralph Hall is located 22.5 miles in a southeast direction from City of Bonham and 4.8 miles in a northeast direction from City of Ladonia. Station 70+00 on the centerline of the proposed dam is S 32E W, 1,600 feet from the northeast corner of H. McMillian Survey, Abstract No. 713, in Fannin County, Texas also being at 33.463E N Latitude, 95.901E W Longitude; and

WHEREAS, to the extent that return flows exist, they will be returned to various streams in the Trinity River Basin and the Sulphur River Basin; and

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

WHEREAS, Applicant submitted the *Conceptual Design and Analysis of the Proposed North Sulphur River Riparian Habitat Mitigation Area for Lake Ralph Hall*, which was accepted and approved by the Executive Director; and

WHEREAS, Applicant submitted the *Lake Ralph Hall Accounting Plan*, which was accepted and approved by the Executive Director; and

WHEREAS, the Executive Director performed a water availability analysis and determined that 34,082 acre-feet of water per year is available on a firm basis from the proposed reservoir; and

WHEREAS, the Executive Director recommends that special conditions be included in the permit to protect instream uses, water quality conditions, and senior and superior water rights; and

WHEREAS, notice of the application was mailed and published, and public meetings were held on March 27, 2006 and March 28, 2006; and

WHEREAS, numerous requests for a contested case hearing were received for this application; and

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

NOW, THEREFORE, this Water Use Permit No. 5821 is issued to Upper Trinity Regional Water District subject to the following terms and conditions:

1. IMPOUNDMENT

Permittee is authorized to construct and maintain a dam and reservoir (Lake Ralph Hall) with a maximum capacity of 180,000 acre-feet of water on the North Sulphur River, tributary of the Sulphur River, Sulphur River Basin in Fannin County. Station 70+00 on the centerline of the dam will be located S 32E W, 1,600 feet from the northeast corner of H. McMillian Survey, Abstract No. 713 in

Fannin County, at 33.463E N Latitude, 95.901E W Longitude, 22.5 miles in a southeast direction from City of Bonham, and 4.8 miles in a northeast direction from City of Ladonia 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 45,000 acre-feet of water per year, of which 34,082 acre-feet of water per year is available on a firm basis, for municipal, industrial, and agricultural purposes.

C. Permittee is authorized an interbasin transfer to use the authorized water within its service area in all or parts of Fannin, Collin, Cooke, Dallas, Denton, Grayson, and Wise Counties within the Sulphur and Trinity River Basins.

3. DIVERSION

A. Permittee is authorized to divert the authorized water from any point on the perimeter of Lake Ralph Hall.

B. Permittee is authorized to divert the authorized water at a maximum combined diversion rate of 205 cfs (92,000 gpm).

4. TIME PRIORITY

The time priority for this right is August 13, 2004.

5. CONSERVATION

Permittee shall implement water conservation plans that provide for the utilization of those practices, techniques, and technologies that will 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, 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 comply with relevant state conservation standards and shall be designed to result in the highest practicable levels of water conservation and efficiency achievable within the jurisdiction of the Permittee at the time of submission. Such plans shall include a requirement that in every wholesale water contract entered into, on or after the effective date of this permit, including any contract extension or renewal, each successive wholesale customer will 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 (l)(2). If Permittee authorizes the resale of water by a customer, then the contract for resale must have water conservation requirements so that each successive wholesale customer in the resale of the water will be required to implement water conservation measures.

6. SPECIAL CONDITIONS

A. Permittee shall only impound and divert water authorized by this permit in accordance with the most recently approved *Lake Ralph Hall 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 *Lake Ralph Hall Accounting Plan* shall be approved by the Executive Director. Only such 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. If Permittee fails to amend the accounting plan or forfeit the permit, the Commission shall be notified immediately by Permittee upon modification of the accounting plan and provided with the appropriate documents effectuating such changes.

B. 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 § 404 of the CWA.

C. Following deliberate impoundment of water in Lake Ralph Hall to elevation 510 feet mean sea level (MSL), Permittee shall complete and maintain the restored channel mitigation area with stored water released from Lake Ralph Hall as described in the *Conceptual Design and Analysis of the Proposed North Sulphur River Riparian Habitat Mitigation Area for Lake Ralph Hall (revised March 18, 2010)* and documented in the *Lake Ralph Hall Accounting Plan*. Prior to operation of the recirculation pump system in the restored channel mitigation area, Permittee shall obtain the appropriate authorizations under § 11.042 of the Texas Water Code.

D. As identified in the *Conceptual Design and Analysis of the Proposed North Sulphur River Riparian Habitat Mitigation Area for Lake Ralph Hall*, Permittee shall construct approximately 14,500 linear feet of riparian habitat along a segment of the abandoned channel of the original North Sulphur River (the restored channel mitigation area) located on the south bank of the existing river channel immediately downstream of the proposed dam for Lake Ralph Hall.

E. Impoundment of water and diversions under this permit are contingent upon commencement of construction of the approved *Conceptual Design and Analysis of the Proposed North Sulphur River Riparian Habitat Mitigation Area for Lake Ralph Hall.* Modifications or changes to this design must be approved by the Executive Director. Only such modification that changes the permit terms must be in the form of an amendment to the permit.

F. Permittee shall install flow measurement devices to measure flow associated with the recirculation pump system identified in the *Conceptual Design and Analysis of the Proposed North Sulphur River Riparian Habitat Mitigation Area for Lake Ralph Hall.* Those measurement devices shall be connected to the SCADA system as required by Special Condition G.

G. Permittee shall install multiple water quality and water level logger instrumentation in the deeper pool habitats, as identified in the *Conceptual Design and Analysis of the Proposed North Sulphur River Riparian Habitat Mitigation Area for Lake Ralph Hall,* in the restored channel mitigation area to continuously monitor dissolved oxygen, temperature, and water level within the pools. Permittee shall connect the monitoring instruments to a supervisory control and data acquisition (SCADA) system to detect a measurement below the *Texas Surface Water Quality Standards* (Title 30 Texas Administrative Code (TAC) § 307) for Segment 0305 for a period of greater than 24 hours or detect if the water surface in the pools drops more than one foot below its normal level. The instrumentation and SCADA system shall be maintained in good working order throughout the term of the permit. Permittee shall maintain records of the SCADA system data for a period of not less than five years after its collection and shall make it available to the Executive Director upon request.

H. In the event that the above mentioned water level and/or water quality parameters within the restored channel mitigation area drop below the Water Quality Standards for Segment 0305 for a period greater than 24 hours, Permittee shall release water from Lake Ralph Hall, and/or utilize the recirculation pump system to provide flow through the mitigation area in order to restore the water level or help ensure compliance with the Water Quality Standards.

I. Upon completion of the construction and enhancement of the restored channel mitigation area, Permittee shall establish and maintain an appropriate fish community representative of the aquatic life use designation for Segment 0305 of the *Texas Surface Water Quality Standards* (Title 30 TAC § 307). If available, the initial fish stocking shall be composed of, at a minimum, fish species listed in the *Conceptual Design and Analysis of the Proposed North Sulphur River Riparian*

Habitat Mitigation Area for Lake Ralph Hall. Permittee shall obtain the fish to be stocked in the restored channel from local sources if available.

J. Permittee shall visit the restored channel mitigation area at a minimum of once per month for a period of five years following deliberate impoundment of water in Lake Ralph Hall and completion of the mitigation area to inspect and observe the condition of the mitigation area and take any appropriate action, such as initiate reservoir releases or engage the recirculation pump system, so as to ensure compliance with the *Conceptual Design and Analysis of the Proposed North Sulphur River Riparian Habitat Mitigation Area for Lake Ralph Hall.*

K. In consultation with the Executive Director, Permittee shall conduct monitoring of the restored channel mitigation area twice a year for a period of five years following deliberate impoundment of water in Lake Ralph Hall and completion of the mitigation area. Monitoring shall include discharge measurements, assessment of fish and macroinvertebrate communities, physical habitat assessment, and documenting survival success of the planted vegetation within the restored channel riparian area. 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 a 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 *Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Community and Habitat Data.* (TCEQ 2005).

L. Permittee shall submit a report to the Executive Director every two years summarizing the twice a year monitoring activities in Special Condition K. Permittee shall also submit a final report at the end of the five-year monitoring period summarizing the monitoring efforts. The report shall include an assessment of the fish and macroinvertebrate communities and the biological metric scoring criteria used to assess aquatic life uses. In the event that aquatic life is not meeting the water quality standards for Segment 0305, the report shall identify and outline remedial management strategies to be implemented to meet the designated aquatic life use.

M. Permittee shall establish and maintain a riparian buffer zone of permanent vegetation around the perimeter of the reservoir averaging at least 50 feet in width with the exception of reasonable access areas and the area of the dam and spillway. Permittee shall also establish and maintain riparian buffer zones 25 to 50 feet wide at or below elevation 560 feet MSL along Bear Creek, Brushy Creek, Pickle Creek, Davis Creek, Leggets Branch, Bralley Pool Creek, Merrill Creek, the North Sulphur River, and along unnamed tributaries within the area of the reservoir project. The buffer zone shall be planted with native vegetation as necessary to ensure

complete coverage at maturity.

N. 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.

O. 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 and maintain measurement records. Permittee shall allow representatives of the TCEQ reasonable access to the property to inspect the measuring device and records.

7. TIME LIMITATIONS

A. Construction of the dam and reservoir shall 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 ten 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 Sulphur River Basin.

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

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

Bryan W. Shaw
For the Commission

ISSUED: DEC 11 2013

Doc 5884 Bk OR Vol 1715 Pg 525

Filed for Record in:
Fannin County
Honorable Tammy Biggar
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On: Dec 20,2013 at 08:55A

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Receipt Number - 239604
By
Angela Frazier, Deputy

ANY PROVISION HEREIN WHICH RESTRICTS THE SALE, RENTAL, OR USE OF THE DESCRIBED REAL PROPERTY BECAUSE OF COLOR OR RACE IS INVALID AND UNENFORCEABLE UNDER FEDERAL LAW.

STATE OF TEXAS COUNTY OF FANNIN

I hereby certify that this instrument was filed on the date and time stamped hereon by me and was duly recorded in the volume and page of the named records of: Fannin County as stamped hereon by me.

Dec 20,2013

By, A. Frazier Deputy

Tammy Biggar, Fannin County Clerk
Fannin County

Appendix O

Air Quality Studies

MEMORANDUM

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TO: UTRWD

CC: Steve Watters

FROM: Simone Kiel, P.E.

SUBJECT: Lake Ralph Hall Emissions

DATE: April 4, 2019

PROJECT: UTR19231

Lake Ralph Hall is a proposed reservoir in Fannin County for the Upper Trinity Regional Water District (UTRWD). The lake would store 160,235 acre-feet of water and inundate 7,568 acres at the normal pool elevation of 551 ft msl. A water right for the storage and diversion of state water has been granted. UTRWD is currently seeking the necessary permits to construct this project, including a federal Section 404 permit.

This memorandum is in response to a request for information regarding the Section 404 permit and comments on the draft Environmental Impact Statement (DEIS). Specifically, the request is to provide information on air emissions associated with the construction and operation of the project.

The proposed main project components include the construction of:

- Lake Ralph Hall dam and spillways,
- A 48-inch, 32-mile transmission pipeline,
- New balancing reservoir (approximately 4.5 acres),
- A 6,000 HP lake intake pump station,
- Clearing of approximately 2,000 acres of wooded vegetation,
- Restoration of approximately 250,000 linear feet of streams, and
- Construction of 2.5 miles of new roadway and bridge for SH 34.

The primary sources of air emissions during construction are diesel or gas-powered heavy equipment that is used for excavating, moving and compacting dirt, placement of concrete, and clearing wooded areas. In addition, there would be air emissions associated with the possible burning of cleared materials. During operation of the project, the emissions would be associated with the electricity use for the lake intake and pump station.

The types of emissions emitted by the diesel or gas-powered equipment include hydrocarbons, carbon monoxide, nitrogen dioxide, and particulate matter. Electricity is typically associated with carbon dioxide, methane, and nitrous oxides. Often these emissions are reported as carbon dioxide equivalents (CO_2 eq) or "greenhouse gases". For this analysis, each of these emissions, including CO_2 equivalents, will be calculated and reported in this memorandum. The greenhouse gases included in this analysis are carbon dioxide, methane,

and nitrous oxide. Global Warming Potentials were used to convert CH_4 and N_2O emissions to CO_2 equivalents (IPCC, 2007). The conversion factors are shown in Table 1. Data on the construction and electricity emissions were obtained from the United States Environmental Protection Agency (EPA).

Table 1. Carbon Dioxide Equivalents of Greenhouse Gases

Type of Greenhouse Gas	CO_2eq
Carbon Dioxide (CO_2)	1
Methane (CH_4)	25
Nitrous Oxide (N_2O)	298

1. Assumptions

This analysis was conducted to estimate the reasonably expected levels of emissions during the construction and operation of the project. During the construction phase, only the emissions from the major infrastructure components as defined above were considered. It was assumed that other emissions associated with smaller project components (such as emissions from delivery trucks, workers' commutes or incidental driving at the project site) would be a small fraction of the total project emissions. To account for these incidental emissions, a twenty percent contingency was added to the initial construction emissions calculations.

Construction is assumed to occur over a three-year period. Total emissions for each project component were calculated. For simplicity, it was assumed that these emissions would occur equally over the three-year construction period. Emissions associated with operations are calculated on an annual basis.

2. Methods and Calculations

Construction Emissions

Construction emissions for each project component were calculated by determining the type of construction equipment used, the amount of time each piece of equipment is expected to be used, and the horsepower for each type of equipment. These numbers were obtained from experienced professionals familiar with the construction specific to each type of the projects considered. Once these values were determined, Emission Factors from the Environmental Protection Agency(United States Environmental Protection Agency, 2004) were used to calculated greenhouse gas emissions in pounds per hour. See Equation 1 below.

$$Emissions\left(\frac{lbs}{hour}\right) = EF * HP * \frac{1}{453.592} \qquad (1)$$

Where,

EF = emission factor obtained from EPA in $\frac{g}{hp-hr}$
HP = assumed horsepower based on the type of equipment being used
Constants = conversion factors

The result of Equation 1 was then multiplied by the corresponding number of equipment units and the hours per unit. This yielded the total emissions during the entire construction period. The EPA emission factor document contains exhaust emission factors for several pollutants. The EPA document also considers federal emission standards and includes a four-tier system to account for changes in emission standards. For our purposes, it was assumed that tier four emission standards would apply for all equipment used during the construction. Tier four is the regulation tier for all model years 2008 and newer. A summary of the emissions associated with construction equipment is shown in Table 2. An estimate of greenhouse gas emissions (carbon dioxide equivalents) is also presented, which considers carbon dioxide and nitrous oxides emitted. Carbon dioxide is based on the quantity of fuel burned and is calculated from the following equation:

$$Carbon\ dioxide\ \left(\frac{lbs}{HP-hour}\right) = (BSFC - HC) * 0.87 * (\frac{44}{12}) \qquad (2)$$

Where,

BSFC = in-use adjusted fuel consumption obtained from EPA in $\frac{lb}{hp-hr}$

HC = hydrocarbon emissions (unburned fuel)

HP = assumed horsepower based on the type of equipment being used

0.87 = carbon mass fraction for diesel

(44/12) = ratio of CO_2 mass to carbon mass

Table 2. Construction Emissions for the Lake Ralph Hall Project

Type of Construction Equipment	Total Emissions				
	HC	CO	NOx	PM	CO2Eq
	Pounds (lbs)				Million Lbs.
Dam and Spillways					
Earthwork					
Scrapers	8,649	5,560	18,190	618	40.349
Dozers	1,178	755	2,460	80	5.470
Rollers	515	343	1,087	34	2.412
Graders	303	172	635	23	1.414
Slurry Trench					
Backhoe	3	5	6	0	0.013
Dozer	4	3	9	0	0.019
Soil Cement and RCC					
Dump Trucks	1,071	689	2,253	77	4.997
Dozer	175	112	366	12	0.813
Roller	77	51	162	5	0.358
Concrete Work					
Mix Trucks	15	10	32	1	0.071
Subtotal – Dam/Spillway	**11,990**	**7,699**	**25,197**	**850**	**55.92**

HC- hydrocarbon; CO – carbon monoxide; NOx- nitrous oxides; PM – particulate matter; CO2 eq – carbon dioxide equivalents

Table 2 (Continued)

Type of Construction Equipment	Total Emissions				
	HC	CO	Nox	PM	CO_2Eq
	Pounds (lbs)				Million Lbs.
Pipeline Construction					
Excavator (522 HP)	725	466	1,526	53	3.386
Excavator (404 HP)	562	360	1,181	38	2.268
Excavator (380 HP)	528	336	1,109	38	2.134
Track Loader	264	149	552	19	1.061
Track Dozer	197	130	408	14	0.786
Compactor	165	111	349	12	0.674
Wheel Loader (211 HP))	293	168	614	19	1.185
Wheel Loader (196 HP)	164	92	343	12	0.660
Articulated Truck	611	392	1,279	40	2.459
Backhoe Loader	120	221	259	10	0.494
Crane	315	180	664	23	1.276
Subtotal - Pipeline	**3,943**	**2,604**	**8,285**	**278**	**16.384**
Pump Station					
Excavator (380 HP)	22	14	46	2	0.103
Wheel Loader (211 HP)	12	7	24	1	0.054
Backhoe loader	10	19	22	1	0.049
Compactor	3	5	6	0	0.012
Track loader	9	5	18	1	0.041
Boom lift	1	1	27	0	0.013
Crane	29	16	61	2	0.135
Subtotal - Pump Station	**85**	**67**	**204**	**6**	**0.41**
Balancing Reservoir					
Scraper	71	45	148	5	0.329
Dozer	58	37	120	4	0.268
Roller	25	17	53	2	0.118
Grader	30	17	62	2	0.138
Subtotal - Balancing Reservoir	**183**	**116**	**384**	**13**	**0.85**
Reservoir Clearing					
Dozers	53	34	110	4	0.244
Subtotal – Clearing	**53**	**34**	**110**	**4**	**0.24**

HC- hydrocarbon; CO – carbon monoxide; NOx- nitrous oxides; PM – particulate matter; CO2 eq – carbon dioxide equivalents

Table 2 (Continued)

Type of Construction Equipment	Total Emissions				
	HC	CO	Nox	PM	CO_2Eq
	Pounds (lbs)				Million Lbs.
Stream Restoration					
Scrapers	762	490	1,603	54	3.556
Dozers	374	240	780	25	1.736
Roller	54	36	115	4	0.255
Grader	64	36	134	5	0.299
Subtotal - Stream Restoration	**1,255**	**802**	**2,633**	**88**	**5.85**
SH 34 Bridge and Roadway					
Drill Rigs	4,106	2,623	8,668	285	3.139
Cranes	1,728	1,104	3,648	120	1.321
Concrete Trucks	51	33	107	4	0.236
Scrapers	307	198	647	22	1.434
Dozers	63	40	131	4	0.292
Rollers	27	18	58	2	0.129
Graders	32	18	68	2	0.151
Subtotal -Bridge Construction	**6,314**	**4,034**	**13,326**	**439**	**6.702**
Subtotal	**24,211**	**15,605**	**50,959**	**1,706**	**86.4**
20% Contingency	**4,842**	**3,121**	**10,192**	**341**	**17.3**
Total	**29,054**	**18,726**	**61,151**	**2,047**	**103.6**

HC- hydrocarbon; CO – carbon monoxide; NOx- nitrous oxides; PM – particulate matter; CO2 eq – carbon dioxide equivalents

Burning of Cleared Materials Emissions

The Lake Ralph Hall project will include clearing of some trees and wooded areas. The vegetative cover for the lake shows approximately 1,900 acres of forested and young forested cover types within the project area. There are another 500 acres that are partially wooded (assume about 20% is wooded vegetation). Much of these wooded areas would likely be cleared for construction and boating safety. It is assumed that the larger timber would be sold. Some cleared materials may be used as fish habitat in the lake and/or chipped into mulch, and some may be burned. As a conservative estimate, it is assumed that 40% of the cleared timber would be burned on site.

Burning of the biomass would produce air emissions, which is included in this analysis. Equation 2.27 from IPCC Vol 4 Ch2 (2006) is used to estimate greenhouse gas emissions from fire (Equation 3).

$$GHG_{fire} = A * M_B * C_f * G_{ef} * 10^{-3} \qquad (3)$$

Where,

GHG_{fire} is the amount of greenhouse gas emissions (e.g., CO_2, CH_4, N_2O) from fire (metric tons).
A is area burnt in hectares.
M_B is the mass of fuel available for combustion (metric tons/ha).
C_f is a dimensionless combustion factor.
G_{ef} is the emission factor (g/kg) of dry matter burnt.

The values for the factors: M_B, C_f, and G_{ef} were obtained from the IPCC (2006) Guidance document. It was assumed that the wooded materials burned would be the smaller diameter trees and brush and include only above ground materials. The factors used for the analysis are shown in Table 3. The results of applying Equation 2 to the greenhouse gases (CO_2, CH_4, and N_2O) are also shown in Table 3. The total GHGs released from combustion of cleared material is 34 million pounds of CO_2 equivalents.

Table 3. Greenhouse Gas Emissions from Burning of Cleared Material in Lake Ralph Hall

Greenhouse Gas	A Area Burnt (ha)	M_B Biomass (metric tons/ha)	(C_f) Combustion Factor	(G_{ef}) Emission Factor (g/kg)	GHG Emissions (metric tons)	GHG Emissions (lbs)	Million lbs of CO_2eq
CO_2	324	60	0.47	1569	14,336	31,604,637	32
CH_4	324	60	0.47	4.7	43	94,673	0
N_2O	324	60	0.47	0.26	2	5,237	2
Total							**34**

Source for factors: M_B, C_f, and G_{ef} is IPCC (2006)

Power Generation Emissions

Power generation emissions were obtained from the EPA's Emission and Generation Resource Integrated Database (eGRID) (USEPA, 2018). The eGRID is a collection of data on the environmental characteristics of almost all electric power generation in the United States. State emission rates of N_2O, CO_2, and CH_4 were determined for the ERCOT subregion, which includes North Texas, using the most recent data available (year 2016 data, eGRID2018). The megawatt hours per year were obtained from estimates of energy used by the intake and pump station and were multiplied by the 2016 electricity emission rates to determine the amount of GHG emissions. The 2016 electricity emissions rates are shown in Table 4. Table 5 shows the power generation emissions for Lake Ralph Hall at full yield operation. It includes the power to move the water to the balancing reservoir and then through the shared Chapman pipeline to the UTRWD service area.

MEMORANDUM

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TO: Simone Kiel

CC: Steve Watters

FROM: Ian Jewell

SUBJECT: Calculation of Emissions of Ozone and Lead from Lake Ralph Hall Project Activities in Collin County, TX

DATE: May 28, 2019

PROJECT: UTR19231

Introduction

The purpose of this memorandum is to document the steps and calculations taken to estimate emissions of several pollutants associated with construction activities of the proposed Lake Ralph Hall (LRH) reservoir project. This analysis was limited to the activities that will be conducted in the Collin County portion of the project as Collin County is currently listed by the US Environmental Protection Agency (EPA) as a non-attainment area for ozone (as indicated by the precursors Oxides of Nitrogen(NOx) and Volatile Organic Compounds (VOC)) and a maintenance area for lead. For this reason, a comparison of projected emissions against the *de minimis* emissions levels for these pollutants (as indicated in Code of Federal Regulations (CFR) §95.153) is required to determine whether the project is exempt from further requirements under the General Conformity Regulations.

Proposed activities associated with the LRH that will have potential for direct and indirect emissions in Collin County include:

- Construction of a 2.5-mile pipeline
- Construction of a balancing reservoir

Methods

The calculation of emission inventory for targeted pollutants was completed using a combination of the EPA Motor Vehicle Emissions Simulator (MOVES) 2014b model and assumptions of vehicle activity for the Collin County portion of the project, which includes equipment type and horsepower, and hours of operation required for construction of the pipeline and balancing reservoir. While MOVES 2014b is able to incorporate vehicle population and activity information to calculate an emissions inventory for a specific project, the EPA guidance for the model recommends that, in a NonRoads (e.g. construction activity) run, a County-based inventory should be conducted and emissions rates should be extracted through the use of emission factor scripts from the post-processing menu (EPA, 2018). The EPA recommends that these emissions rates should then be used to calculate emissions inventories base on local data of vehicle activity to calculate an emissions inventory for the project. Based on this guidance, a MOVES2014b Runscript was created with the following inputs:

- Model: NonRoad (appropriate for construction activities)
- Domain/Scale: National (default for NonRoad)
- Time Span: Year 2020, all Months, Weekday only (Note: Construction estimated to take 36 months, but a single year was selected, per EPA modeling guidance to keep file size manageable)
- Geographic Bounds: Collin County, TX
- Vehicles/Equipment: All NonRoad Construction Vehicles using NonRoad Diesel
- Pollutants and Processes: NOx (all emissions sources selected)
  VOC (all emissions sources selected)

A Post-processing emissions-factor script was then run to extract emission rates (in g/hp-hr) for all NonRoad equipment types, with a query for EPA horsepower bin, process and pollutant type as outputs. The emissions were calculated for each month within a calendar year. After reviewing the output, it was apparent that there were no differences in the emissions rates of a pollutant within each combination of equipment type, horsepower bin, and process from month to month, and therefore the results were averaged to provide a single emission rate for each equipment type-horsepower combination for use in the inventory calculations. A summary of this information for the vehicles that are anticipated to be used in activities associated with LRH (Collin County portion) is included in Table 1.

Table 1. Summary of MOVES2014b-Calculated Emission Rates for anticipated equipment used on Collin County portion of LRH project.

Vehicle Type	EPA Horsepower Bin	NOx Emission Rate (g/hp-hr)	VOC Emission Rate (g/hp-hr)
Excavator (522 HP)	300-600	0.86	0.05
Excavator (404 HP)	300-600	0.86	0.05
Excavator (380 HP)	300-600	0.86	0.05
Track loader	175-300	2.36	0.35
Track dozer	100-175	2.68	0.41
Compactor[1]	175-300	1.03	0.06
Wheeled loader (211 HP))[2]	175-300	0.81	0.06
Wheeled loader (196 HP)[2]	175-300	0.81	0.06
Articulated truck	300-600	0.50	0.03
Backhoe loader	75-100	3.32	0.57
Crane	175-300	0.87	0.06
Scraper	300 to 600	1.16	0.07
Grader	175-300	0.81	0.06

[1]Used "Roller" code from MOVES2014b
[2]Used "Rubber Tire Loader" code from MOVES2014b

Estimates of Motor Vehicle Activity for LRH in Collin County

The emissions-producing activities associated with the Collin County portion of LRH will involve construction of the balancing reservoir and construction of an approximately 2.5-mile pipeline. For the pipeline, the proposed design was used to estimate motor vehicle activity during construction of this

facility, which is estimated to take approximately 36 months. For the balancing reservoir, no design has been completed, so assumptions were made as to the approximate dimensions and earthwork volume needed to construct the reservoir and estimates of vehicle population and activity were derived from these assumed dimensions. The motor vehicle activity estimates are based on the following:

- the total quantity of earthwork and other activities required to construct the reservoir facilities
- assumed type and number of equipment (e.g., excavators, loaders, compactors, etc.) needed for the earthwork, based on input from experienced engineers and contractors having completed similar projects
- number of hours needed for each type of vehicle to complete the construction

The emissions rates (in grams/hp-hr) calculated from MOVES2014b were then used with the construction activity estimates to calculate total emissions from the Collin County portion of the project.

Tables showing the assumptions, inputs and results of the emissions calculations are provided in a separate Excel spreadsheet and Attachment A.

Results and Discussion

The results for projected ozone precursors (VOC and NOx) and lead emissions for the Collin County portion of the LRH project are shown in **Table 2**. Also shown are the emissions levels above which a conformity determination is required in ozone non-attainment areas and lead maintenance areas, as indicated in CFR §95.153(a) (or below which a *de minimis* determination is made).

Table 2. Total emissions for Ozone precursors and Lead for Collin County portion of Lake Ralph Hall

Criteria Pollutant or Precursor	Emissions from Lake Ralph Hall Activities in Collin County (tons/yr)	*de minimis* Emissions Levels in Ozone Non-Attainment and Lead Maintenance Areas (tons/yr)
NOx	0.8	50
VOC	0.07	50
Lead	0	25

As shown by the results, both ozone and lead emissions levels are well below the *de minimis* threshold for these pollutants in the Collin County non-attainment and lead maintenance area. Also as indicated, no lead-based fuels are anticipated to be used in the any of the vehicles or activities of construction of the pipeline or balancing reservoir; therefore, no lead emissions are projected.

Conclusions

The LRH project will cause a *de minimis* increase in direct and indirect emissions in Collin County and therefore no conformity determination for LRH will be required.

References

US Environmental Protection Agency (EPA). 2018. *MOVES2014, MOVES2014a, and MOVES2014b Technical Guidance: Using MOVES to Prepare Emission Inventories for State Implementation Plans and Transportation Conformity*. EPA-420-B-18-039. August 2018.

Attachment A- Emission Analysis for Lake Ralph Hall Activities in Collin County

	Construction Details							Emission Factors (g/hp-hr)*		Emissions (lbs/hr)		Emissions (total lbs during construction)	
Type of Construction Equipment	**Amt to move (cy)**	**Capacity of Equipment (cy)**	**Number of Units**	**round trip (min)**	**Hrs/mile**	**Hrs/unit**	**hp (assumed)**	**NOx**	**VOC**	**NOx**	**VOC**	**NOx**	**VOC**
Pipeline Construction (2.5 Miles)													
Excavator (522 HP)					150		522	0.86	0.05	0.99	0.06	371.25	21.75
Excavator (404 HP)					150		404	0.86	0.05	0.77	0.05	287.25	16.88
Excavator (380 HP)					150		380	0.86	0.05	0.72	0.04	270.38	15.75
Track loader					150		189	2.36	0.35	0.99	0.14	369.38	54.00
Track dozer					150		140	2.68	0.41	0.83	0.13	310.13	47.63
Compactor**					120		150	1.03	0.06	0.34	0.02	102.30	6.30
Wheel loader (211 HP))***					150		211	0.81	0.06	0.38	0.03	141.38	9.75
Wheel loader (196 HP)					90		196	0.81	0.06	0.35	0.02	78.75	5.40
Articulated truck					180		365	0.50	0.03	0.41	0.02	182.70	10.80
Backhoe loader					150		88	3.32	0.57	0.64	0.11	241.13	41.63
Crane					120		284	0.87	0.06	0.54	0.04	163.20	11.10
Subtotal - Pipeline Construction										**6.95**	**0.66**	**2,517.83**	**240.98**
Balancing Reservoir Construction													
5 acres (3 sides- 300' x 600')													
Assume 15' high; 5'top; 3:1 side slopes													
Results in 20 MG storage (approx)													
Dirtwork													
Scraper	33,333	20	1	20		560	435	1.16	0.07	1.12	0.07	624.96	36.40
Dozers			1			560	354	1.11	0.06	0.86	0.05	483.28	28.00
Rollers			1			560	156	1.03	0.06	0.35	0.02	198.24	12.32
Grader			1			560	183	0.81	0.06	0.33	0.02	183.68	12.88
Subtotal - Balancing Reservoir										**2.66**	**0.16**	**1490.16**	**89.60**
Subtotal- Pipeline and Balancing Reservoir										**9.61**		**4007.99**	**330.58**
20% for Miscellaneous Construction equipment										**1.92**		**801.60**	**66.12**
Total										**11.53**		**4809.58**	**396.69**

*Emission Factors calculated from MOVES2014b

**Used "Roller" Code from MOVES2014b

***Used "Rubber Tire Loader" Code from MOVES2014b

NOx tons/year	VOC tons/year
0.80	**0.07**

Table 4. 2016 Electricity Emission Rates (in Pounds per Megawatt Hour)[1]

Carbon Dioxide	Methane	Nitrous Oxide
1,402.8	0.108	0.015

Table 5. Power Generation Emissions for Lake Ralph Hall (Pumping 34,050 ac-ft/yr)

Unit	MWh/yr	Amount of GHG Emissions (Mil lbs/yr)			CO_2eq (Mil lbs/yr)
		Carbon Dioxide	Methane	Nitrous Oxide	
Intake Pump Station	10,266	14.4	0.001109	0.00015	14.47

3. Results

The total emissions associated with construction are expected to be about 137.6 million pounds of carbon dioxide equivalents over a three-year period. The greatest amount of emissions during construction is associated with the construction of the dam and burning of cleared materials at approximately 30 million pound of carbon dioxide equivalents per year over the three-year construction period. The other project components would emit a total of 17.6 million pounds of carbon dioxide equivalents per year over the same three-year period. Also, since the plans for clearing have not been designed, the amount of greenhouse gas emissions from burning could be considerably less or none. Operations of the project would produce about 14.5 million pound of carbon dioxide equivalents per year at full operation. It is expected that the project would be at full operation three years following impoundment. However, this is contingent upon when the reservoir fills and the demands for the water.

Table 6 shows the expected greenhouse gas emissions over the construction, impoundment, and first three years of operation.

[1]USEPA, 2018. *The Emissions and Generation Resource Integrated Database Technical Support Document for eGrid with Year 2016 Data*. Retrieved March 28, 2019, from https://www.epa.gov/energy/emissions-generation-resource-integrated-database-egrid

Table 6. Carbon Equivalent Emissions from Construction through Initial Operations

Total Carbon Dioxide Equivalents (Million lbs/Year)								
	Construction			Impoundment		Operation		
Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
Construction	34	34	34	0	0	0	0	0
Burning	11.3	11.3	11.3	0	0	0	0	0
Operations	0	0	0	0	0	7.3	9.8	14.5
Total	**45.3**	**45.3**	**45.3**	**0**	**0**	**7.3**	**9.8**	**14.5**

References

Intergovernmental Panel on Climate Change (IPCC) (2006). "2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 4: Agriculture, Forestry and Other Land Use." Edited by S. Eggleston, L. Buendia, K. Miwa, T. Ngara, and K. Tanabe. Published by the Institute for Global Environmental Strategies (IGES), Hayama, Japan.

Intergovernmental Panel on Climate Change (IPCC) (2007). "Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change." Edited by S. Soloman, D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor, and H. L. Miller. Published by the Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

U.S. Energy Information Administration. (2010, July 19). *Net Generation by Energy Source: Total (All Sectors)*. Retrieved July 23, 2010, from http://www.eia.doe.gov/cneaf/electricity/epm/table1_1.html

United States Environmental Protection Agency. (2004, April). *Exhaust and Crankcase Emission Factors for Nonraod Engine Modeling--Compression-Ignition.* Retrieved May 13, 2010, from http://www.epa.gov/oms/models/nonrdmdl/nonrdmdl2004/420p04009.pdf

U.S. Environmental Protection Agency Office of Atmospheric Programs Celan Air Markets Division. (2018, February 15). *The Emissions and Generation Resource Integrated Database Technical Support Document for eGrid with Year 2016 Data*. Retrieved March 28, 2019, from https://www.epa.gov/energy/emissions-generation-resource-integrated-database-egrid

Appendix P

DEIS Comments and Responses

Comment #	Agency	Comment	Topic	Disposition
1	ANRA	The ANRA fully supports the Upper Trinity Regional Water District, its mission and its commitment to provide safe, reliable water supply to its member cities. In addition, ANRA supports the proposed permit action and its corresponding mitigation plan. Therefore, ANRA respectfully requests the U.S. Army Corps of Engineers, Fort Worth District to issue the Section 404 permit.	Support	Comment noted
2	Cotter	Build UTRWD's Balancing Reservoir on the eastern boundary of Mark Cotter's property and build the reservoir side by side to Irving's Balancing Reservoir. (Map & survey information included.)	Balancing Reservoir	The purpose of the balancing reservoir is to provide a hydraulic break (a free water surface) between the Lake Ralph Hall Raw Water System and Irving's Chapman Pipeline System thus allowing the two systems to operate hydraulically independent of each other. This hydraulic independence is necessary to provide a control system that will predictably and reliably meter the flow from the Lake Ralph Hall into the Irving Chapman Pipeline. The hydraulic independence also prevents potentially damaging hydraulic transients from being transmitted between the two systems thus providing positive control of such transients, preventing the possibility of pipeline damage or failure. The hydraulic break must meet the following three criteria; (1) it must be located at the highest elevation along the proposed pipeline route, (2) it must provide a free water surface and (3) it must offer a water surface elevation that is higher than the water surface of the existing Irving Balancing reservoir. The Mark Cotter property site is unique in that it is the only site along the proposed pipeline route that meets these three criteria.
3	Cotter	Allow the Cotter roads to go around the UTRWD's Balancing Reservoir as seen in the attachment to allow cattle, large trucks, equipment, tractors, and vehicles to travel from the west side of the Cotter property to the east side. (Map & survey information included.)	Balancing Reservoir	UTRWD will work with owners of property adjacent to the proposed balancing reservoir site to coordinate the design such that they will continue to have access to their property that is equivalent to (or better) their current access.
4	Cotter	Allow the pipeline from the UTRWD's Balancing Reservoir to be placed behind all existing houses and structures as seen in the attachment. This would avoid destroying existing utilities, waterlines, and roads; and it would minimally disturb them as it crossed under them. The pipeline from the UTRWD's Balancing Reservoir would join the Irving pipeline before reaching County Road 702 if this suggestion is followed. (Map & survey information included.)	Pipeline	The detailed design of the proposed pipeline design will consider alternatives that will avoid or minimize impacts to existing utilities, waterlines and roads.
5	Cotter	Allow the UTRWD's road to be built on the south side of Irving's existing road and pipeline as seen in the attachment. There are no homes on the Peurifoy or Gooch properties so that your goal of building on undeveloped land as much as possible would be achieved. Also, this would be your private road which could be fenced off and locked. (Map & survey information included.)	Roads	UTRWD anticipates accessing the proposed balancing reservoir thru the existing Irving Balancing Reservoir site. Access to the Irving Balancing Reservoir Site will be via Irving's existing access road that connects to County Road 702. UTRWD's current access plans do not appear to impact either the Peurifoy or Gooch property.
6	Denton County Judge	Denton County supports Upper Trinity and its Lake Ralph Hall project -- and we strongly urge approval of this project by the U.S. Army Corps of Engineers.	Support	Comment noted
7	DOI	Officially submits comments 8-10 from FWS	NA	Comment noted

8	FWS	Section 3.12 Threatened and Endangered Species – This section includes a table (3-23) of both state and federally-listed threatened and endangered species. Please update the table regarding federally-listed species that may occur within the vicinity. We recommend the table be corrected using the FWS's data generated from Information for Planning and Consultation website (https://ecos.fws.gov/ipac/). Information from the website can be organized by county, which matches the current format of the table.	T/E	Table updated to current T/E list.
9	FWS	Section 4.11.1.2 – On page 4-47, the discussion of potential impact to migratory birds includes related policy that the project proponent proposes to follow. This includes UTRWD compliance with the Migratory Bird Treaty Act (16 U.S.C. § 703 et seq.). Because Federal agencies have additional responsibilities regarding migratory bird conservation and the proposed project requires a Federal action (issuance of section 404 permit), we recommend a section be included to address the Corps' responsibilities under Executive Order 13186 Responsibilities of Federal Agencies to Protect Migratory Birds.	MBTA	The applicant is responsible for ensuring their action complies with the Migratory Bird Treaty Act. The applicant is responsible for contacting appropriate local office of the U.S. Fish and Wildlife Service to determine applicable measures to reduce impacts to migratory birds, including whether ''incidental take'' permits are necessary and available under the Migratory Bird Treaty Act for the project.
10	FWS	Section 5.0 Mitigation – The proposed reservoir is anticipated to result in the loss of approximately 95 miles of stream and associated riparian corridor. Your proposed mitigation includes replacing stream losses through restoration and creation, as well as the development of 900 acres of bottomland hardwood ecosystem. The FWS is currently working with the Corps and other Federal and state agencies to address unresolved issues with the proposed mitigation plan included in Appendix L of the draft EIS. These issues largely involve the mechanism of replacing existing aquatic functions through restoration and creation.	Mitigation-streams/riparian	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
11	Cotter	Voicemail: Regarding her property, it has been treated (fertilized and spread) with sanitized human waste. She is referring to a property that is north of the existing Irving reservoir. She also states that the [illegible] property south of the reservoir has also been treated with sanitized human waste, but the properties to the east and west have not.	Hazmat	Comment noted
12	DWU	DWU supports UTRWD's efforts in securing additional water supplies to meet the needs of its customers. DWU has provided responses to the U.S. Army Corp of Engineers (USACE) request for information in the development of the comprehensive Draft Environmental Impacts Statement. Lake Ralph Hall Regional Water Supply Reservoir Project. By supporting UTRWD's efforts to secure additional water DWU in turn supports the Section 404 Clean Water Act permit application to construct and operate the new water supply reservoir in southeast Fannin County and encourages the USACE to issue the Draft Environmental Impact Statement, Lake Ralph Hall Regional Water Supply Reservoir Project.	Support	Comment noted

13	ECO-SCI	In Table ES-2, UTRWD lists 32 resource/impact Issues. Of these 32 resource/impact Issues, proposed mitigation has been listed as “no mitigation is required for this resource” for 13. We are confident that each one of these areas will suffer negative impact due to this project and its size and scope. We respectfully raise the following issues: 1. Land Use: The proposed project states that more than 7,000 acres will be inundated, of which 1,600 acres is agricultural lands. We raise concern with the statement that the lands remaining that surround the reservoir could change due to residential or commercial development. Looking at historical situations just as this, such as with Cottage Homes’ plan to develop the location where Lake Michigan and the Kalamazoo River intersect in Saugatuck Township, Michigan, residential and commercial development sites will further damage the environment in this area. A proposed mitigation to stave off these possible developments would be to set aside protected areas outside of the proposed project area to ensure habitat stability and promote environmental protection. With the possibility of already losing approximately 7,000 acres due to this project, a greater loss of land due to further development would assuredly fracture the ecosystems of any flora and fauna that remained.	Mitigation- land use	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
14	ECO-SCI	In Table ES-2, UTRWD lists 32 resource/impact Issues. Of these 32 resource/impact Issues, proposed mitigation has been listed as “no mitigation is required for this resource” for 13. We are confident that each one of these areas will suffer negative impact due to this project and its size and scope. We respectfully raise the following issues: 4. Topography: This category is noted as “no mitigation,” yet it has been noted that the topography of more than 8,000 acres will be altered due to erosion if this project is approved. This erosion will have effects on outlying waterways that will connect with this project, with the possibility of negative environmental impacts. We feel that there must be a mitigation plan in place to address this possibility. To recognize erosion will have a moderate effect on the area’s topography and choosing a no action response is concerning and perfunctory.	Mitigation-topography	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
15	ECO-SCI	In Table ES-2, UTRWD lists 32 resource/impact Issues. Of these 32 resource/impact Issues, proposed mitigation has been listed as “no mitigation is required for this resource” for 13. We are confident that each one of these areas will suffer negative impact due to this project and its size and scope. We respectfully raise the following issues: 7. Mineral Resources: Any further development of the area in question should be halted by the setting aside of lands to ensure habitat stability and promote environmental protection. Drilling for oil and gas should not be allowed if this project were to be approved, as these activities would only exacerbate any damage done by the proposed project. To allow such activities in an area where a project this size has already taken place would again be irresponsible.	Mitigation-mineral resources	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.

16	ECO-SCI	In Table ES-2, UTRWD lists 32 resource/impact Issues. Of these 32 resource/impact Issues, proposed mitigation has been listed as “no mitigation is required for this resource” for 13. We are confident that each one of these areas will suffer negative impact due to this project and its size and scope. We respectfully raise the following issues: 8. Groundwater: We find the claim that groundwater quality will see no impacts, as stated in the EIS, during a project of this size and scope as questionable. A mitigation plan for “what-if” incidents should be put into the EIS in this category to cover unforeseen impacts to groundwater quality and quantity. Section 303(d) of the Clean Water Act states that if the water of an immediate adjacent source is impaired, then continued development is inappropriate. With the sheer number of waterways being affected with this project’s approval, the opportunity for adjacent groundwater impairment is a real possibility and therefore should be addressed with a mitigation plan.	Mitigation-groundwater	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
17	ECO-SCI	In Table ES-2, UTRWD lists 32 resource/impact Issues. Of these 32 resource/impact Issues, proposed mitigation has been listed as “no mitigation is required for this resource” for 13. We are confident that each one of these areas will suffer negative impact due to this project and its size and scope. We respectfully raise the following issues: 10. Visual Resources: It is acceptable that the viewshed of this project would be altered while construction activities are taking place. Yet, once these activities had concluded, UTRWD must ensure that the form, line, color, and texture of the surrounding environment is restored to its pre-construction state, to the furthest extent possible. Doing so would aid in the protection of the area’s fauna, that would surely recognize any changes to the habitats that they depend on for survival. Extreme environmental changes that were left uncorrected would only threaten those species that reside in the area.	Mitigation-visual resources	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
18	ECO-SCI	In Table ES-2, UTRWD lists 32 resource/impact Issues. Of these 32 resource/impact Issues, proposed mitigation has been listed as “no mitigation is required for this resource” for 13. We are confident that each one of these areas will suffer negative impact due to this project and its size and scope. We respectfully raise the following issues: 11. Biological Resources - Invasive Species: Invasive species threaten to alter the landscape of any areas in which they inhabit. Many times, native species will be negatively affected by these invasive species as the possibility of their being overtaken exists. As Table ES-2 states that “invasive terrestrial plant species may invade,” this possibility should be further investigated. Additionally, a mitigation plan to halt this possible invasion must be attached to the EIS.	Mitigation-invasive species	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.

19	ECO-SCI	In Table ES-2, UTRWD lists 32 resource/impact Issues. Of these 32 resource/impact Issues, proposed mitigation has been listed as “no mitigation is required for this resource” for 13. We are confident that each one of these areas will suffer negative impact due to this project and its size and scope. We respectfully raise the following issues: 13. Climate Change: Climate change is one of the most important present-day crises facing humankind. Even with impacts listed in Table ES-2 as minor to negligible, we insist that there must be a mitigation plan to address any addition to this ever-growing problem. Failure of UTRWD to do everything within its power to mitigate any climate change and greenhouse gas effect is unacceptable. There are a number of options available that would fit properly into a mitigation plan for this category such as: no idling of vehicles and battery power in lieu of gasoline or diesel whenever feasible. We respectfully request a more detailed and considerate climate change mitigation plan, even if the institution does not see any immediate concerns.	Mitigation-climate change	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
20	ECO-SCI	In Table ES-2, UTRWD lists 32 resource/impact Issues. Of these 32 resource/impact Issues, proposed mitigation has been listed as “no mitigation is required for this resource” for 13. We are confident that each one of these areas will suffer negative impact due to this project and its size and scope. We respectfully raise the following issues: 14. Other: In addition to the aforementioned categories, there are two specific categories that were listed with mitigation plans that we feel must be further addressed. Those two categories are Endangered Species and Aquatic Resource Mitigation Monitoring. 14a. Endangered Species: Chapter 4 “Environmental Consequences” states that there are here are 24 federal and/or state listed species within Fannin, Hunt, and Collin counties. While the analysis makes its position clear that the construction of the pipeline is unlikely to affect the majority of these species, it also states that the southern hickorynut, Texas heelsplitter, and the Texas pigtoe mollusks may occur within the creek that the alignment crosses. Furthermore, the state listed timber rattler is located at the proposed site. This statement is “based on observations during the on-site investigations and evaluations of preferred habitat.” The Environmental Impact Statement is quite clear with its assessment that the “state listed timber rattlesnake, as well as the four state listed mollusks, have the potential to be impacted by the construction of Lake Ralph Hall and the Raw Water Pipeline Alignment.” Despite this clear observation that five state listed species could be affected by the pipeline, no mitigation efforts are offered by the Applicant. We recommend that this project not go forward until such time as a full report of the impact on the aforementioned state listed species is conducted.	Mitigation- T/E	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.

21	ECO-SCI	In Table ES-2, UTRWD lists 32 resource/impact Issues. Of these 32 resource/impact Issues, proposed mitigation has been listed as “no mitigation is required for this resource” for 13. We are confident that each one of these areas will suffer negative impact due to this project and its size and scope. We respectfully raise the following issues: 14. Other: In addition to the aforementioned categories, there are two specific categories that were listed with mitigation plans that we feel must be further addressed. Those two categories are Endangered Species and Aquatic Resource Mitigation Monitoring. 14b. Aquatic Resource Mitigation Monitoring: According to Section 8 (Performance Standards) of the Mitigation Plan for Impacts to Aquatic Resources and Natural Habitats, the Applicant proposes to demonstrate the implementation and long-term stability of its aquatic resource mitigation by “monitoring of the establishment of forested riparian corridors for number and diversity of woody stems per acre...based on systematic sampling of established monitoring plots” (p. 45). The plan is to designate one plot per every ten acres for monitoring within the designated riparian corridor restoration areas to include bank stabilization vegetation. The GPS coordinates of the center point of each plot would be recorded and utilized to relocate the plots for successive monitoring efforts. In order to ensure that this plan accurately presents the progress of aquatic resources mitigation, we propose that the location of all plots be marked on a map prior to establishment with the center point of each plot identified. This will assist to avoid bias in the location of the plots. Furthermore, we recommend that the selection of sample plots for monitoring occur by systematic sampling, with the number and locations of these monitoring plots as well as the methodology for selection submitted to the USACE for approval prior to vegetation assessment. This systematic sampling of plots should occur immediately before the first planned assessment.	Mitigation-monitoring	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
22	EPA 404	Status of EPA 404 Comments on the ADEIS: Several of EPA’s comments from the ADEIS review and comment period have been addressed at some level of detail in the DEIS. For example, EPA recommended that in Section 3.6.4 Wetland and Waters of the U.S. background ecological information be provided for streams, which comprise the majority of project impacts, for a better understanding of the project impacts on associated resource functions. While specifics related to biological resources have been provided, the vast array of other associated functions for streams have not been discussed, such as sediment transport, conveyance of flow, water quality (temperature and oxygen regulation, processing of organic matter and nutrients), etc. The result is an incomplete description of the functions to be impacted and/or lost due to the proposed reservoir.	Stream function	Additional ecological information added to Section 3.6.4.
23	EPA 404	Table 4-35: Summary of Impacts from the No Action Alternative and Proposed Action Alternative now has all categories assessed for severity level of impact, and impacts to Waters of the U.S. (WOUS) have been adjusted from “negligible to minor” to “major.” EPA’s related comments have been addressed.	Confirmation that previous comment was addressed	Comment noted

24	EPA 404	EPA commented on the possibility of the project dam causing a disruption of the downstream transportation of morphologically significant sediment veneer during high flow events, and requested further explanation of why the sand and gravel sized bedload sediments are not morphologically significant to the channel is recommended for clarity. This has been partially addressed, since the conclusion that a reduction in morphologically-significant sediment loads expected to be as much as 25% is not anticipated to result in channel morphology. No additional technical justification or analysis was provided.	Sedimentation	Additional information provided regarding sediment transport.
25	EPA 404	EPA commented that the ongoing rates of erosion of the exposed shale are controlled by wetting and drying cycles, and it is unclear how much of the North Sulphur River has exposed shale given that the alluvium on banks and sediment in channel bed also influence erosive processes during flow events. While this has been addressed in response to comments, and the dam is not anticipated to affect erosion of bedrock, supporting details are still unclear. For example, is the analysis of stage-discharge rating curves for the Copper gage and comparative bridge profiles, which led the DEIS to conclude the dam would not affect bedrock erosion rates, included in the document? If so, it would be beneficial to specify the location in Section 4.4.1.2 Proposed Action Geology for reference.	Geology	Additional information provided regarding bedrock erosion.
26	EPA 404	The majority of EPA's comments on the ADEIS were specific to the Appendix L Mitigation Plan, which does not appear to have changed in a significant way.	Mitigation Plan	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
27	EPA 404	Several of EPA's comments from the ADIES review and comment period remain unchanged. The use of horizontal directional drilling is proposed for "significant stream crossings," although what constitutes a significant stream crossing has not been clearly defined. Additionally, EPA continues to recommend utilizing this technique for all stream crossings possible since it appears to have the least impact on the aquatic environment; thus, it would be considered the favorable method under the CW A 404(b)(1) Guidelines for avoidance of impacts to aquatic resources.	Stream impacts	For the purpose of deciding whether to use horizontal directional drilling (HDD) or open trench construction methods for raw water pipeline installation, directional drilling will be used at stream crossings with standing water below the OHWM at the time of construction in order to avoid and minimize impacts. If a stream does not have standing water below the OHWM, then the applicant will construct the pipeline crossing using open trench construction methods. Upon completion, temporary fill for cofferdams or other construction materials will be removed from the stream, the bed and bank contours below the ordinary high water mark will be restored, and the stream will be stabilized using appropriate post-construction best management practices in accordance with U.S. Army Corps of Engineers section 404 permit and Texas Commission on Environmental Quality section 401 Water Quality Certification and Stormwater Construction General Permit conditions. Any impacts associated with open trench crossings will be temporary in nature. Once construction activities are complete for each crossing, the area will be returned to grade. Appropriate erosion control best management practices will be implemented and monitored in accordance with a Storm Water Pollution Prevention Plan and the TCEQ Section 401 Water Quality Certification conditions issued for the USACE 404 permit.
28	EPA 404	Several of EPA's comments from the ADIES review and comment period remain unchanged. The majority of impacts to pools greater than 75% full in the North Sulphur River would occur between the Lake Ralph Hall dam site and Baker Creek with the difference post-construction representing a significant change of 48.3% reduction in percent of times pools are greater than 75% full. Details regarding mitigation activities still appear unclear as to what exactly is being proposed or how it would ameliorate the negative impacts to the aquatic environment and biota due to the reduction in hydrology in this stream reach.	Mitigation-aquatic biota	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.

29	EPA 404	Several of EPA's comments from the ADIES review and comment period remain unchanged. Aquatic organisms occupy pools within the North Sulphur River channel downstream from the proposed Lake Ralph Hall Dam location. The aquatic biological community within these pools would be expected to be dependent on water quality conditions and available habitat within each pool, with alterations in water levels potentially leading to changes in water quality including pH, dissolved oxygen, conductivity, siltation level, and concentrations of ions, toxins, or pollutants. It is still unclear if there are plans to sample and monitor downstream biota and community structure.	Mitigation-aquatic biota	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
30	EPA 404	General Comments on the DEIS: Proposed mitigation for the surface water hydrology impacts previously included a minimum reservoir release of 6 acre-feet/month. This minimum release would not be considered for mitigation credit and is no longer specified in the DEIS. Has the minimum release been omitted from discussion (page 5-2) because it is no longer being considered as part of the mitigation?	Mitigation-minimum release	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
31	EPA 404	General Comments on the DEIS: Page 5-3 discusses how the "exiting aquatic biota community would change from intermediate stream species to a community more adapted for a lacustrine habitat." What is meant by an "intermediate" stream species? Is this in the context of intermediate vs. satellite species, or perhaps successional stage? Please clarify. Additionally, is this statement supposed to read "existing aquatic biota" as opposed to "exiting aquatic biota" [emphasis added]?	Mitigation-aquatic biota	"Intermediate" revised to "intermittent"
32	EPA 404	General Comments on the DEIS: Page 5-3 discusses the use of "directional drilling during construction of the pipeline at stream crossings" to avoid harming threatened and endangered species. Is directional drilling going to be utilized at all stream crossings or only at significant stream crossings, and what constitutes a "significant stream crossing?" Please clarify.	Stream impacts	For the purpose of deciding whether to use horizontal directional drilling (HDD) or open trench construction methods for raw water pipeline installation, directional drilling will be used at stream crossings with standing water below the OHWM at the time of construction in order to avoid and minimize impacts. If a stream does not have standing water below the OHWM, then the applicant will construct the pipeline crossing using open trench construction methods. Upon completion, temporary fill for cofferdams or other construction materials will be removed from the stream, the bed and bank contours below the ordinary high water mark will be restored, and the stream will be stabilized using appropriate post-construction best management practices in accordance with U.S. Army Corps of Engineers section 404 permit and Texas Commission on Environmental Quality section 401 Water Quality Certification and Stormwater Construction General Permit conditions. Any impacts associated with open trench crossings will be temporary in nature. Once construction activities are complete for each crossing, the area will be returned to grade. Appropriate erosion control best management practices will be implemented and monitored in accordance with a Storm Water Pollution Prevention Plan and the TCEQ Section 401 Water Quality Certification conditions issued for the USACE 404 permit.
33	EPA 404	General Comments on the DEIS: Page 5-6 specifies that at least 384 acres of existing soils would be disturbed during the construction of the Lake Ralph Hall Raw Water Pipeline Alignment. The ADEIS specified 1,000 acres. What explains the difference?	Soils	The pipeline alignment was revised after the ADEIS was submitted.

34	EPA 404	General Comments on the DEIS: Page 5-7 specifies that “no additional monitoring or mitigation is being considered for geology and soils.” EPA recommends monitoring of stream channel morphology upstream and downstream of the dam in addition to the required monitoring on the mitigation site to track any potential impacts to channel geomorphology.	Mitigation-monitoring	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
35	EPA 404	General Comments on the DEIS: Also, impacts to surface water hydrology due to the reservoir are assessed as major according to Table 4-35: Summary of Impacts from the No Action Alternative and Proposed Action Alternative. EPA recommends including this in the text of the first paragraph of Section 5.6 Surface Water Hydrology so that the severity level is not confused with that of the pipeline impacts, which are categorized as negligible to minor in the following paragraph.	Hydrology	Revised as suggested
36	EPA 404	General Comments on the DEIS: Page 5-9 discusses the Lake Ralph Hall Raw Water Pipeline Alignment has 59 stream crossings with 11,893 linear feet of stream impacts and 0.4 acres of stock tanks potentially impacted within the 100-foot Right of Way. These estimated impacts have changed from the 34 stream crossings with 4,305 linear feet of stream impacts, 2.0 acres of impoundments, and 3.0 acres of ponds specified in the ADEIS. Why does the newly adjusted route require more impacts to aquatic resources?	Stream impacts	The pipeline alignment was revised after the ADEIS was submitted.
37	EPA 404	General Comments on the DEIS: EPA has previously commented on the inadvisability of using isolated fragments of the remnant former North Sulphur River channel as reference reaches to develop mitigation design concepts, but it appears that this approach is still being utilized. EPA understands that additional reference reaches have been identified as per the August 28, 2018, mitigation site visit and that this information has not been included in the EIS.	Mitigation-calculation methods	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
38	EPA 404	General Comments on the DEIS: EPA notes that the resulting net uplift of functional capacity projected within the downstream aquatic resources mitigation boundary of 437 FCUs has not changed since the ADEIS, despite changes to the mitigation plan being anticipated which would affect the resulting uplift generated on site. Please provide the updated anticipated uplift to be generated with this mitigation site as soon as this information is available as well as lift generated from any additional mitigation sites.	Mitigation-calculation methods	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
39	EPA 404	General Comments on the DEIS: If the 8 acres of lacustrine fringe wetlands in the project footprint are jurisdictional WOUS, then any mitigation proposed as compensation would be expected to comply with the Guidelines and be placed under a site protection instrument and monitored for the successfully attainment of appropriate performance standards along with necessary long-term management plan, financial assurances, etc. being in place and any associated temporal loss of resource area and/or function being taken into account.	Mitigation-wetlands	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
40	EPA 404	General Comments on the DEIS: Page 5-15 references Special Conditions related to aquatic resources in the final Water Use Permit No. 5821 (dated December 11, 2013). What are these Special Conditions related to aquatic resources? Please include the final Water Use Permit No. 5821 as an appendix to the EIS for reference.	Special Conditions of permit	Water use permit added to the appendices.

41	EPA 404	General Comments on the DEIS: Page 5-16 states “due to the limited available habitat for invertebrates within the existing stream, impacts to these species is expected to be minimal,” but a summary of sample data, amounts, types, and associated characteristics of invertebrates currently found in the system to be impacted would add clarity. Additionally, the invertebrate species community is anticipated to change from riverine species to a community more adapted for a lacustrine habitat, which could represent a more than minimal impact if the entire community structure is predicted to shift.	Mitigation-aquatic biota	Summary of sampled invertebrates is included in Table 3-19. More current data would require additional sampling.
42	EPA 404	General Comments on the DEIS: The ADEIS listed the Quagga mussel as an aquatic invasive species known to occur in Texas reservoirs that might spread to Lake Ralph Hall. Why has it been omitted from discussion in the DEIS?	Mussels	Quagga was removed from the DEIS since it is not known to occur in Texas.
43	EPA NEPA	Our primary concern is the air quality analysis. Section 3.7 of the DEIS accurately identifies Collin County as part of the Dallas/Ft. Worth ozone nonattainment area. For clarity, please note that Collin County is a lead maintenance area (not a nonattainment as described in this section). Consequently, the general conformity process applies to NAAQS nonattainment or maintenance areas and requires evaluation of project emissions within these areas to determine the potential for negative air quality impacts. The DEIS contains no discussion of Clean Air Act (CAA) general conformity requirements. Section 176(c) of the CAA requires that federal projects conformity to the purpose of the State Implementation Plan (SIP), meaning that federal activities will not cause new violations of the National Ambient Air Quality Standards (NAAQS), increase the frequency or severity of NAAQS violations, or delay timely attainment of the NAAQS or any interim milestone. Specifically, we request that the Final EIS include a comparison of project emissions in Collin County for ozone precursors (nitrogen oxides (NOx) and volatile organic compounds (VOCs)), and lead against the de minimis emissions levels for ozone and lead nonattainment and maintenance areas specified in 40 CFR § 93.153 (Applicability). This comparison will determine if the project is exempt from further requirements under the General Conformity Regulations.	Air Quality	Revised lead discussion to "maintenance area" instead of "nonattainment area" in Section 3.7 of the FEIS. An emissions analysis has been added. A summary is included in Section 4.7 and the complete analysis is included in Appendix O.
44	Highland Village	A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF HIGHLAND VILLAGE, TEXAS, DECLARING SUPPORT OF THE ENVIRONMENTAL IMPACT STATEMENT PREPARED BY THE UNITED STATES ARMY CORPS OF ENGINEERS FOR THE LAKE RALPH HALL REGIONAL WATER SUPPLY RESERVOIR PROJECT... NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF HIGHLAND VILLAGE, TEXAS, THAT: SECTION 1. The above recitals are a true and correct statement of the position of the City Council of the City of Highland Village, Texas, and constitute a part of this resolution. SECTION 2. The City Council of the City of Highland Village has no objection to the Draft EIS. SECTION 3. The City Council of the City of Highland Village has supported and continues to support construction of the Lake Ralph Hall Reservoir Project. SECTION 4. This Resolution shall be effective immediately upon approval. PASSED AND APPROVED THIS THE 23RD DAY OF OCTOBER 2018.	Support	Comment noted

45	Ladonia	Ladonia and Upper Trinity Regional water District are long-term partners in this new water supply lake in Fannin County, and, I urge USACE to issue the required Federal 404 permit to Upper Trinity. Every time it rains, a portion of the North Sulphur River erodes away. The only businesses left in town are a cafe' and a convenience store. We see Lake Ralph Hall as a way to boost our local economy - -and to help address the continued erosion of the river. Lake Ralph Hall will provide many recreational opportunities for our residents, too. As Mayor of Ladonia, I thank you for your diligent work in preparing the DEIS. After considering the public's comments, I'm sure you will conclude that the proposed Lake Ralph Hall is a much needed project for the entire region.	Support	Comment noted
46	Ladonia	The City of Ladonia is continuing to work with Upper Trinity in planning for new fossil hunting opportunities at Lake Ralph Hall. The current direction of our joint planning activities is to focus on integrating the fossil hunting program into the overall lake experience. Rather than "relocating" the existing fossil park, we believe that visiting fossil hunters would be better served by being welcomed to the lake, to lake amenities, to sharing in a variety of interests and available programs. We do not seek a separate park or a separate pavilion of our own that could be a burden on the City to operate and maintain, and that would tend to separate some of our best visitors from other interesting parts of the lake. Rather, fossil hunters would prefer to feel welcome to the lake, as other visitors, and to enjoy a variety of activities under reasonable rules that apply to all visitors. The Upper Trinity staff has expressed support for this proposed plan; and, we expect to finalize a mutually acceptable plan, including selling the existing park property to Upper Trinity, and retaining the proceeds for the City's park system.	Fossil Park	UTRWD plans to provide a new location for the Ladonia Fossil Park, comparable in size, in amenities, in access to the river channel and with on-site parking. Conceptual renderings and a location map (subject to change) have been added as Appendix Q. Further opportunities to enhance the experience of visiting fossil hunters, as being suggested, are a matter of on-going discussion with the city of Ladonia and others.
47	Northeast Texas Trail Coalition (NETT)	On behalf of the Northeast Texas Trail (NETT) Coalition, we respectfully ask for consideration to link Lake Ralph Hall to the (NETT) by providing a pedestrian, bicycle shared use pathway through the City of Ladonia. This will add another healthful, recreational destination amenity to the Lake Ralph Hall complex. It will be a "Win/Win" partnership that will provide increased visitors, tourism, and economic development to each. The NETT is moving people through the picturesque countryside of Northeast Texas. From Farmersville (East Dallas) it rolls through 18 rural towns and 7 Counties to New Boston· (West Texarkana). The NETT adds to the quality of life of Texans as well as visitors to our area. We sincerely desire to be a destination point for Lake Ralph Hall.	Trail Link	The applicant will continue to cooperate with trail advocates for opportunities to enhance Lake Ralph Hall, including a hike/bike pathway to the downtown area of Ladonia, but any such pathway would be its own project, separate and apart from Lake Ralph Hall. No proposed trails are included in the Lake Ralph Hall Project, except provisions for a pathway on the new State Highway 34 Bridge.

48	Leslie Adams (Property owner)	When UTRWD began their quest fifteen years ago, we were told Fannin County needed a water resource and the proposed Lake Ralph Hall was the perfect fit. When the Fannin County Commissioners at that time refused to sign-on to the UTRWD proposal, the City of Ladonia became the local supporting partner in the proposed plan stating the city would receive a percentage of water in the deal. I found that totally ridiculous since the City of Ladonia has had, and continues to have, an excess of water since the town lost the Supreme Beef meat-processing plant more than a decade ago. It made sense only in that the person who initiated this entire project was Leon Hurse, the former mayor of Ladonia, who asked his former employer, Tom Taylor, head of UTRWD, to consider a reservoir be built in Ladonia. (Hurse also proposed a private prison to be built with training of all local residents to work in the prison, but that's another horrible idea that fortunately did not materialize.) Unfortunately, the LRH proposal has continued despite facts on the ground changing over the last fifteen years. A massive new lake is already in construction phase by North Texas Municipal Water District only 17 miles from the proposed LRH. Certainly Fannin County will have more than sufficient access to their future water needs with the agreements made between the county and NTMWD.	Need	Comment noted
49	Leslie Adams (Property owner)	I attended the October 25th public hearing in Ladonia and noted only the current mayor of Ladonia and one member of the Ladonia Chamber of Commerce made statements in favor of the proposed LRH, citing economic benefit with absolutely no specifics because there are none. The only current economic benefit coming to this community from outside the area is the fossil park. Every day, and especially on weekends and after heavy rainfall, fossil hunters converge in the North Sulphur River bottom to seek new fossils unearthed from the rainwater. This constant unearthing process with the rains can not be replicated in the Caddo Grasslands, thus fossil hunters will not be coming back to this area if LRH is constructed. The proposed LRH will not create any economic benefit except to UTRWD.	Fossil Park	The fossil park will not be relocated to the Caddo National Grasslands. Comment noted.
50	Leslie Adams (Property owner)	Your review states that the socioeconomic impacts of LRH would be minor and positive to our residents. Those landowners left in the immediate area would be negatively impacted by the closing of so many roads, the beautiful views of trees and farmland becoming an ugly dam and spillway with construction noise and pollution for many years, UTRWD dictating landowners use of their own land and property, and additional taxes imposed on the landowner by the UTRWD taxing entity for land within a mile around the proposed LRH. The detriments to the basin of origin are many.	Socioeconomic	Comment noted

51	Leslie Adams (Property owner)	Personally, my family and I would greatly experience severe hardship from this project. After being told we would be minimally affected, we have seen that change as the footprint expanded and even more land was to be taken for mitigation. We bought our 68 plus acres in 1997 and moved here from Dallas in 1999. Two other families on our road moved here also from DFW area for the exact reason we did - for a quiet country lifestyle. The irony of this is not lost on us. My husband and I have worked on our property for twenty-one years, putting in trees, fencing, driveways and ponds. We have done the work ourselves to save money and our property and house are paid off. We are now in our late 60s with no debt and almost at retirement. It would a severe hardship to start over now and we could not replicate what we have as land prices are higher in other counties and there is no more time and physical ability to do what we did twenty years ago. We responsibly planned so we would have no debt and we could live on minimal income in retirement. If LRH is approved we will be adversely impacted financially and otherwise and have no more time to recover our losses.	Socioeconomic/ Land Impacts	Comment noted
52	Leslie Adams (Property owner)	Over the past few years we have seen UTRWD create a presence in the area with their large sign on Hwy 34 and well as borrow money to purchase land. UTRWD has made every effort to show landowners in word and deed that LRH is a “done deal” and they should not resist even though UTRWD does not have the USACE permit yet. The Public Notice says USACE are requesting our input on this project to determine whether to issue a permit to UTRWD, but I also know it is required by law to hold hearings and public comment periods. If anyone’s opinion actually matters and truly makes a difference at this point in the process, I would sincerely ask that the permit be denied to UTRWD.	Opposition	Comment noted
53	NCTCOG	Submitted herewith is a Resolution signed by the Executive Board of the North Central Texas Council of Governments (NCTCOG) supporting the finalization of the Environmental Impact Statement (EIS) and issuance of a Section 404 Clean Water Act permit, allowing for construction and operation of the Lake Ralph Hall Regional Water Supply Reservoir Project in Fannin County, TX. THEREFORE, BE IT HEREBY RESOLVED THAT: Section 1. The NCTCOG Executive Board supports the finalization of the Environmental Impact Statement (EIS) and issuance of a Section 404 Clean Water Act permit, allowing for construction and operation of the Lake Ralph Hall Regional Water Supply Reservoir Project in Fannin County, TX.	Support	Comment noted
54	Water Resources Council (WRC), submitted by NCTCOG	The WRC would like to convey strong support for the Upper Trinity Regional Water District's construction and operation of the Lake Ralph Hall Regional Water Supply Reservoir Project in Fannin County, which will serve as a water supply reservoir for many North Central Texas communities. The successful construction and operation of this reservoir will help to address long term water supply needs and accommodate population growth.	Support	Comment noted

55	NTMWD	The North Texas Municipal Water District ("NTMWD") would like to express its support for the Lake Ralph Hall Water Supply Project ("Lake Ralph Hall") and for the U.S. Army Corps of Engineers' ("USACE's") analysis of potential effects, pursuant to the National Environmental Policy Act ("NEPA"), that culminated in publication of the Draft Environmental Impact Statement ("DEIS") for Lake Ralph Hall. 1 NTMWD supports the USACE's analyses and recommendations for Lake Ralph Hall, as the DEIS embodies a robust analysis of alternatives and takes a hard look at the potential environmental consequences of the project. The DEIS should serve as a foundation for USAGE decision making in reaching its determination of whether to issue a Clean Water Act ("CWA") 404 permit for Lake Ralph Hall. NTMWD agrees that the construction of Lake Ralph Hall by the Upper Trinity Regional Water District ("UTRWD") is necessary to meet the projected water resource needs of this growing region of our state... NTMWD does not propose any changes to the DEIS beyond those recommended by UTRWD, as the DEIS reflects a careful and comprehensive analysis of alternatives-in compliance with NEPA and the CWA-upon which the USAGE should base its ultimate CWA 404 permitting determination for Lake Ralph Hall. The DEIS demonstrates that the benefits of Lake Ralph Hall far outweigh the potential negative effects of the project, and the construction of Lake Ralph Hall is decidedly within the public interest. For these reasons, NTMWD urges the USAGE to issue the requested CWA 404 permit to authorize construction of the Lake Ralph Hall Preferred Alternative.	Support	Comment noted
56-1	NWF/SC	I. The DEIS fails to include future conservation in demand projections. The analysis in the DEIS completely ignores the impact of future water conservation efforts, even those compelled by law, on projected demand and, in the process, rejects other available alternatives because it fails to account for the delayed timing and extent of future demand that will result from water conservation. Upper Trinity Regional Water District (the “Applicant”) is subject to the most stringent water conservation requirement in Texas law. The state water rights permit that authorizes the impoundment and diversion of water from the proposed Lake Ralph Hall requires that each future water conservation plan “shall be designed to result in the highest practicable levels of water conservation and efficiency achievable within the jurisdiction of the Permittee at the time of submission.” Water Right Permit 5821 at p. 3, Provision 5. Under Texas law, revised water conservation plans must be developed and submitted no less frequently than every five years. 30 TAC §288.30 (1), (10). Thus, the level of water conservation required in the Applicant’s future water conservation plans will advance as improved water conservation practices and techniques become available. The permit also mandates that wholesale customers of Applicant must develop and implement water conservation measures that will result in the highest practicable levels of water conservation and efficiency. Water Right Permit 5821 at pp. 3-4, Provision 5. The DEIS ignores that requirement in assessing the role of water conservation as it may impact demand. Water conservation is only considered in the DEIS to the extent that it is imbedded in past water use. See DEIS at p. 1-37. The years used in that analysis—whether 2000, 2010, 2011 and 2012 as indicated in Table 1-9 or 2000-2012 as suggested in Figure 1-111--all occur prior to the issuance of Permit 5821 in late 2013 and prior to the time the requirement to achieve the highest practicable levels of water conservation and efficiency became applicable to Applicant and its wholesale customers.	Need	See response to comment #71. Demand projections are normalized for temporal variations including drought and associated drought response measures.

56-2	NWF/SC	The DEIS also fails to account for the ongoing conservation savings achieved as a result of Texas law mandating, in addition to the requirements of applicable federal efficiency standards for plumbing fixtures and appliances, that only highly efficient plumbing fixtures may be sold or imported. More stringent plumbing fixtures code requirements were adopted in 20092 and the savings are certain to increase over time as old fixtures are replaced. The impact of those requirements is uniformly recognized in water planning efforts in Texas but entirely missing from the analysis in the DEIS except to the limited extent it may be reflected in pre-2012 water use. The 2016 Region Water Plan projects a decrease in municipal water demand of 8.7 percent solely as a result of these legally mandated initiatives.3 As a result, the projected water demands relied upon to justify the project and to reject numerous alternative water supply options are unreasonably inflated, both in amount and in timing.4 The DEIS accepts those inflated usage levels, calculated as an average of 172 gallons per capita per day (gpcd), and projects them into the future—through 2060—as multiplied by population projections, without further consideration of water conservation advancements that will occur in those five decades. In fact, in 2004, the state's Water Conservation Implementation Task Force identified 140 gpcd as a reasonable water conservation goal for routine water conservation plans.5 The DEIS provides no justification for incorporating an ongoing gpcd level of 172 through 2060 for entities required to implement the highest practicable levels of water conservation and efficiency achievable. That assumption is not reasonable and cannot be justified. The DEIS projects essentially a one-to-one ratio of growth in water use to growth in population demand through 2060. In the DEIS, water use is projected to grow from 14.7 billion gallons in 2010 to 43.5 billion gallons in 2060, for a ratio of 2.96 (43.5/14.7=2.96). Similarly, in the DEIS, population is projected to grow from 231,000 in 2010 to 681,300 in 2060, for a ratio of 2.95 (231,000/681,300=2.95). Basically, a slight increase in per capita water use is assumed over that entire period.	Need	See response to comment #71. Demand projections are normalized for temporal variations including drought and associated drought response measures.

56-3	NWF/SC	In addition to ignoring future water conservation efforts required by the state permit, the DEIS fails to incorporate recent reductions in per capita water use for public supply that are happening in Texas and across the nation. Water conservation advancements are occurring even in the absence of the implementation of the mandated highest practicable levels of water conservation and efficiency achievable as required by UTRWD's permit. For example, on a nationwide basis, the USGS notes that "[p]ublic-supply withdrawals gradually increased from 1950 (14Bgal/d) to a peak in 2005 (44.4 Bgal/d), decreased for the first time in 2010 (42.0Bgal/d), and have continued to decrease at 7 percent in 2015 (39.0Bgal/d)."6 By contrast, the approach in the DEIS relies primarily on use data that fails to capture the post-2010 decrease in use levels Indeed, the overall project purpose statement incorporates this shortcoming in ignoring not only the potential, but the requirement incorporated into the state permit, to reduce and delay demands through the incorporation of mandated water conservation requirements. The project purpose statement fixes the firm demand amount of the project and date for meeting that demand without consideration of future water conservation potential or of demand reduction during drought periods. That results in an inflated firm demand target and an unjustifiably shortened timeline that are then improperly used to reject otherwise viable alternatives. The alternatives analysis is defective, both for those reasons and because it fails to consider the potential combination of aggressive water conservation and drought contingency measures with other water supply approaches. The ability of conservation measures to stretch existing supplies and allow more time for alternative supply sources to be developed must be assessed. The failure to do so results in a failure of the DEIS to provide a meaningful alternatives analysis. For example, a single conservation measure—the limitation of landscape watering to no more frequently than twice per week—has been determined to have the potential to reduce overall municipal water use in the Region C planning area, where UTRWD is located, from 7% to 11%, depending on the level of implementation effort.7 The City of Dallas, which is not subject to a requirement to implement highest practicable levels of water conservation and efficiency achievable, as UTRWD and its customers are, has implemented such a restriction.	Need	See response to comment #71. Demand projections are normalized for temporal variations including drought and associated drought response measures.

57-1	NWF/SC	II. The Proposed Safety Factor. The proposed safety factor is overly large and the stated justification is not well-founded. In fact, the discussion is quite misleading. The attempted reliance on Section 290.42 (g)(2) of the rules of the Texas Commission on Environmental Quality to support a specific safety factor, or any safety factor, in this context is inapposite. As the definition of "public water supply system" in Chapter 290 makes clear, that provision deals with the inclusion of a safety factor in the treatment and distribution system. Neither that provision nor Chapter 290 applies to the overall size of the underlying water supply. Section 290.39 (a) of Chapter 290 expressly states that the rules in that chapter are adopted to implement Subchapter C of Chapter 341 of the Health and Safety Code, which deals with minimum standards for sanitation and health protection measures. That misleading discussion should be deleted. Similarly, the reference to the requirement in water planning that planning groups must report any safety factor relied upon is inappropriately characterized in the DEIS as "encouraging" the use of a safety factor. In fact, the applicable rules merely indicate that if a safety factor, referred to as a "calculated planning management supply factor," is included, the extent of the safety factor must be reported. 31 TAC §357.35 (g)(2).8 The DEIS also misrepresents the discussion in the 2011 Region C Water Plan about the amount of water supplies made available to UTRWD by the City of Dallas. Contrary to the suggestion in the DEIS that the City of Dallas was unable to supply the amount contracted for, the reference to the 2011 Region C Water Plan provided in footnote 26 of the DEIS indicates otherwise. The relevant footnote to the referenced table in the Region C Water Plan clearly indicates that an assumed amount of supply from the City of Dallas was used for showing availability in 2010 as a result of a combination of "other supplies available to UTRWD" and limited Dallas supplies in 2010.9 That simply does not support the implied representation in the DEIS that the contracted supplies would not have been made available even if UTRWD had not had access to other supply sources. Indeed, the DEIS, at p. 1-23, states that UTRWD has not been restricted in water quantity under the contract. In addition, the situation that existed in 2010 has not been shown to exist today.	Need	See response to comment #71

57-2	NWF/SC	The DEIS, as further support for the apparent contention that other supplies are not reliable, notes that UTRWD has never diverted more than about 85% of the contract water from Lake Jim Chapman. However, there is no indication that UTRWD has ever needed or attempted to divert more than 85% of that water. If the need had been there historically, certainly the full amount would have been available for diversion in at least some years. This section of the DEIS includes another internal inconsistency by referencing the potential of serving Bolivar WSC as further support for including such a large safety factor. By contrast, the note to Table 1-10 expressly states that only entities with a contractual relationship to UTRWD and expressed intention to obtain water from UTWD are included in the DEIS. Similarly, the DEIS states at p. 1-28: “For future customers, this EIS only considers those with a written, clear and explicit request expressing an interest in joining UTRWD, coupled with UTRWD’s geographic service responsibility expressed in its authorization documents.” Bolivar WSC is not such an entity and, accordingly, should not be included in the DEIS discussion. The rationale for using such a large safety factor is further undermined because of the failure of the demand projections to incorporate any water conservation beyond levels in effect at some point between 2000 and 2012, much less to incorporate the highest practicable levels of water conservation and efficiency achievable as required by UTRWD’s state water right permit. The incorporation of even reasonable levels of water conservation measures already practiced by entities not legally required to implement highest practicable levels of water conservation and efficiency achievable likely would produce savings equaling or exceeding the asserted safety factor. That makes the application of such a high safety factor that much more unfounded. In addition, although seeking to rely on the potential for future severe droughts as justification for the safety factor, the DEIS fails to incorporate implementation of any drought contingency measures to help limit demands during those times. Again, that ignores the express requirement in Texas statutes and rules requiring UTRWD and its customers to have, and to implement, drought contingency plans to address just such situations that include quantified target goals for savings.10	Need	See response to comment #71

58-1	NWF/SC	III. Environmental Impacts: The summary discussion on page ES-13 regarding Biological Resources-Habitat is misleading. The discussion of the preferred alternative references the expected creation of fringe wetlands, which is highly questionable given fluctuating reservoir levels, but fails to include any acknowledgement of the wetland loss expected from the project. The DEIS quantifies that wetlands loss at 8 acres. DEIS at p. 4-28. As drafted, the discussion in the summary seems to suggest that only wetlands benefits are expected. The characterization under the Biological Resources-Habitat section of minimal loss of habitat is inconsistent with the moderate impact acknowledgement in the Biological Resources-Wildlife section on that same page. The DEIS includes an explicit misstatement that was corrected in the hearing on the state water rights permit. Contrary to the discussion on p. 3-39 of the DEIS, which states: "[a] small variety of freshwater invertebrates were collected with no fish species observed (UTRWD, 2006a)," fish were observed. The Use Attainability Analysis (UAA)11 developed by the Texas Commission on Environmental Quality (TCEQ) documents that fish are commonly present in, and collected from, pool habitats in the area that would be inundated by the dam and downstream of that area. Indeed, the only exceptions noted when fish were not collected are the two collection efforts reported by Alan Plummer Associates, UTRWD's consultants, from 2006. Those are the only collections referenced in the DEIS. Although 2006 was a very dry year, as one of UTRWD's witnesses, Mr. Voight, acknowledged under oath during the TCEQ hearing and as discussed further below, fish were present and observed during the May sampling trip mischaracterized in the DEIS. The characterization communicated to TCEQ, and reflected in the UAA and in the DEIS, that fish were not observed is inaccurate.12 Transcript, Vol. 2, p. 514, line 1 through p. 516, line 5 and p. 529, lines 12-17. Those same collections are also discussed in the DEIS at p. 3-62, with a continued inaccurate suggestion that fish were not present.	Impacts- aquatic biota	Wetland impacts are described in table under "Surface Water - Wetlands and Other Waters of the U.S." Impacts to "Habitat" and "Wildlife" were assessed separately. Removed discussion of sampling efforts since it's described in Section 3.11.3. Request response from UTRWD concerning flows during sampling. Comment noted concerning low flows below dam.

58-2		The years 2005 and 2006, which is when UTRWD's consultants did the bulk of their work to characterize aquatic habitat, were by far the driest years in the 29-year period from 1979 to 2008 characterized by UTRWD's consultants to show zero flow periods at the Cooper gauge. That characterization is reflected in Exhibit NWF 7 from the water right hearing, which is reproduced below. As NWF's Dr. Johns testified during the water right hearing, the year 2005 had 178 days of zero flow and 2006 had 175 days of zero flow.13 By comparison, the median number of zero-flow days during the period of 1979-2011 period was 18 days in a year. Id. 2005 and 2006 are not representative of normal conditions on the North Sulphur River. It simply is not appropriate to develop flow requirements based on such dry years. Mr. Voight, one of UTRWD's biological consultants, agreed that it wouldn't be appropriate to assess a river solely during drought. Transcript, Vol. 2, p. 530, lines 7-13 (cross-examination of Mr. Voight). Doing so is inconsistent with TCEQ's water quality standards and its Use Attainability Analysis. Figure B-2 from NWF's Final Argument in the state hearing, reproduced below, shows 10 years out of that 29-year period during which there were no days of zero flow at the Cooper gauge and 17 years out of that period with fewer than 20 days of zero flow. Expected conditions with the proposed dam in place have not been characterized. The DEIS includes limited discussion of River Ware modeling results that provide outputs on a daily basis, but fails to discuss data showing impacts to flows below the 25th percentile but above zero. However, the limited results presented indicate that flow reductions from the dam are greater, as a percentage of flow, during low flow periods. Thus, periods of extremely low flow downstream of the dam would be expected to increase, resulting in degradation of aquatic habitat and water quality.	Impacts- aquatic biota	Wetland impacts are described in table under "Surface Water - Wetlands and Other Waters of the U.S." Impacts to "Habitat" and "Wildlife" were assessed separately. Removed discussion of sampling efforts since it's described in Section 3.11.3. Request response from UTRWD concerning flows during sampling. Comment noted concerning low flows below dam.
59	NWF/SC	IV. Environmental Consequences: Public Lands The discussion of impact to the Caddo National Grasslands is lacking in substance. DEIS at p. 4-6. Without discussion of the mitigation provided to compensate for the tracts that will be inundated, it simply is not possible to draw a conclusion about the extent of the impacts.	Public Lands-Caddo National Grasslands	Additional information provided regarding impacts to Caddo National Grasslands. Proposed mitigation plan is currently being revised.
60	NWF/SC	IV. Environmental Consequences: Surface Water The discussion of water quality fails to acknowledge, as indicated elsewhere in the DEIS, that the referenced changes in aquatic life use designation have not been approved by the U.S.E.P.A. DEIS at pp. 4-14 - 4-15. Currently, the segment has not been shown to be in attainment of the standards recognized for purposes of the federal Clean Water Act. The discussion of water quality impact includes only discussion of modeling results from the monthly TCEQ WAM model rather than the River Water model which provides daily results. DEIS at p. 4-24. The failure to use the available daily results renders the discussion almost meaningless.	Surface Water	Approval of standard revisions is described in Section 3.6.2. Comment noted.

61	NWF/SC	IV. Environmental Consequences: Wetlands and Water Resources of the U.S. The discussion of floodplain impacts downstream of the confluence of the North and South Sulphur rivers fails to account for cumulative impacts. There does not appear to be any consideration of the cumulative impacts resulting from Jim Chapman Reservoir and the proposed Lake Ralph Hall. DEIS at pp. 4-27 through 4-31.	Wetlands and WOUS	Added to discussion on downstream floodplain impacts.
62	NWF/SC	IV. Environmental Consequences: Aquatic Biota The discussion of impacts to aquatic biota again appears to repeat the mischaracterization that fish species are not found in pools in the North Sulphur River downstream of the proposed dam. DEIS at p. 4-49 discusses only opportunistic invertebrates. As noted above, both the UAA and the studies undertaken for UTRWD found fish species. The DEIS also appears to mischaracterize the consideration only of pools greater than 75% full as being conservative. It is not obvious that the methodology is conservative in its failure to consider how often pools may be less than 75% full with the proposed dam in place compared to without the dam. In addition, it appears that the hydrologic analysis failed to evaluate impacts on daily flows between the 25th percentile and zero flow. At any rate, the limited analysis provided predicts a dramatic reduction in time when pools would be 75% full in the reach of the restored current channel of the North Sulphur River between the proposed dam and the confluence with Baker Creek, which is the reach asserted to achieve the characteristics of intermittent flow with perennial pools.	Aquatic Biota	Fish sampled are described in Section 3.11.3 and Section 4.11.1.2. Table 3-18 and Table 4-8 list fish species sampled during TCEQ sampling efforts in support of the UAA. Comment noted concerning pools between proposed dam and Baker Creek.
63	NWF/SC	V. Socio-Economic Environmental Consequences: No Action Alternative As discussed above, the failure to consider any future water conservation measures, even though such measures are required by law, renders the decision to dismiss all potentially available alternatives defective and makes this discussion, beginning at p. 4-67, of impacts inaccurate.	No Action Alternative/Socioeconomics	See previous responses.

64	NWF/SC	VI. Mitigation Plan: The mitigation plan assumes that the restored current channel of the North Sulphur River downstream of the proposed dam will have intermittent rather than ephemeral flow characteristics. However, no analysis is provided to support that assumption. Without the requirement of some level of pass-through of upstream flow, the assumption of the maintenance of an intermittent stream with perennial pools is unjustified. Although analyses of flood flows is provided, analysis of periods during non-flood periods appears to be lacking. Accordingly, it is unclear how uplift credit associated with intermittent flow with perennial pools has been justified for that stream segment. The mitigation plan, at p. 48, represents that a technical memo from Robert J. Brandes Consulting can be found in Appendix F addressing that issue. However, we were unable to locate such a memo in that Appendix. Although not in Appendix F, we were able to locate a memo from that consultant addressing flood flow levels. As noted in the comments of the Texas Parks and Wildlife Department, the criterion for remedial action to address non-native, noxious, or invasive species is inadequately protective. We adopt the comments of TPWD. Action is needed at levels far below when the three most dominant woody species in any restoration are made up of such species. A comparable requirement also is needed for the terrestrial mitigation areas. For all areas of herbaceous cover, the requirement for remedial action to address nonnative, noxious, or invasive species at a more reasonable level should be expressly continued in effect until at least a seven-year period with the requisite percent cover achieved and without any nonnative, noxious, or invasive species present at a dominant level.	Mitigation Plan	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
65	SJRA	SJRA supports Lake Ralph Hall as a necessary, thoughtfully-planned project that will help UTRWD meet growing demands within its regional service area. SJRA does not propose any changes or edits to the DEIS, as the document reflects a careful and comprehensive analysis, in compliance with the National Environmental Policy Act and the Clean Water Act, upon which USACE should base its ultimate permitting determination for Lake Ralph Hall.	Support	Comment noted
66	SRA	SRA currently supplies 40,000 acre-feet of temporary water to North Texas Municipal Water District to service their area. SRA will not be able to continue to sell this temporary water as SRA's water supply needs grow. Increasing water resources by constructing new reservoirs such as Lake Ralph Hall will help fill the demand for water supply as growth continues in North Central Texas. The Sabine River Authority of Texas (SRA) supports issuance of a 404 permit to allow construction and operation of the Lake Ralph Hall Regional Water Supply Reservoir in Fannin County, Texas to increase the water resources for the State of Texas.	Support	Comment noted
67	TCA	Texas Conservation Alliance requests that the application of Upper Trinity Municipal Water District to construct Ralph Hall Lake be denied. The DEIS fails to justify Purpose and Need for Ralph Hall Lake and fails to analyze practicable Alternatives and combinations of Alternatives essential in determining the Least Environmentally Damaging Practicable Alternative (LEDPA). The analysis underlying the DEIS is not adequate to meet the legal standards and guidelines set forth in Section 404 of the Clean Water Act and in rules and guidance of the Corps in determining purpose and need. Further, there remain inadequacies in the DEIS's assessment and depiction of the level of environmental impacts.	Need	Comment and recommendation noted

68-1	TCA	PURPOSE AND NEED The DEIS for the proposed Ralph Hall Lake project fails to justify Purpose and Need for the reservoir in multiple ways. The DEIS uses an inappropriate safety factor in projecting future demand, especially near-term future demand., that results in inflated demand projections and fails to take into consideration inevitable reductions in future water demand due to state-mandated water conservation. Safety Factor No scientific basis is presented in the DEIS for using a 15% safety factor in lieu of the more typical 10%. But even if one were to accept the validity of the 15% safety factor figure in general, it would not be appropriate to apply that figure in the short term. The justification for the larger-than-usual safety factor was primarily that UTRWD obtains most of its water from contracts, so there is the risk of losing a contract on top of all the normal risks of providing water. Between now and 2024 (the deadline stated in Screening Criterion 3), however, the risk of losing a contract is very very small. UTRWD's contract with the City of Commerce is not up for renewal until 2041 and UTRWD has a renewal clause that allows them to continue that contract at least until 2066. Thus there is zero risk of losing that contract. In the case of UTRWD's contract with the City of Dallas, both Dallas and UTRWD have assumed that the contract will be renewed in 2022 – in the Region C Water Plan, in Dallas' Long-Range Water Supply Plan, and in UTRWD's planning. The DEIS inappropriately uses language that makes this risk seem more than it is, saying "DWU will make no commitment to renew that contract". The actual letter from the Director of Dallas Water Utilities simply explains that Dallas does not evaluate contracts until they come due. It goes on to add that Dallas, in completing its Long-Range Water Supply Plan (which was approved by the Dallas City Council), assumed that the contract would be renewed in 2022.	Need	The 15 percent safety factor is not atypical and is appropriate given the factors of uncertainty facing UTRWD. This Applicant faces an additional degree of uncertainty because it does not control its water supply and the completion, terms and duration of future contracts represents an uncertainty, increased by the number of supply contracts. One element of the uncertainty relates to the possibility that future drought will have an impact greater than historical droughts and beyond existing planning measures. The net water supply need evident for UTRWD is greater than the safety factor. See previous comments.
68-2	TCA	Using a 15% safety factor between now and 2024 on the basis of such a thin thread as the possibility of UTRWD's losing the Dallas contract is not sound water planning. Hurrying to build a $330 million reservoir on that basis would be absurd. The incorporation of predictable levels of water conservation measures, as discussed below, can be expected to achieve savings equaling or exceeding the safety factor used in the DEIS. Also, although using the potential for future severe droughts as part of its justification for the safety factor, the DEIS fails to incorporate implementation of any drought contingency measures to help limit demands during those times. This despite express requirements in Texas statutes and rules requiring UTRWD and its customers to have and to implement drought contingency plans. In addition to the points above, Texas Conservation Alliance adopts the comments submitted by the Texas Center for Policy Studies, which discuss in more detail the potential of drought contingency measures to produce more accurate projections of future demand, and of the National Wildlife Federation, et.al., whose discussion of the DEIS's failure to incorporate reasonable water conservation measures supports TCA's assertion that the safety factor is inflated.	Need	The 15 percent safety factor is not atypical and is appropriate given the factors of uncertainty facing UTRWD. This Applicant faces an additional degree of uncertainty because it does not control its water supply and the completion, terms and duration of future contracts represents an uncertainty, increased by the number of supply contracts. One element of the uncertainty relates to the possibility that future drought will have an impact greater than historical droughts and beyond existing planning measures. The net water supply need evident for UTRWD is greater than the safety factor. See previous comments.

69-1	TCA	ALTERNATIVES: As noted in the DEIS for Ralph Hall Lake, the Council on Environmental Quality (CEQ) requires that all reasonable alternatives be rigorously explored and objectively evaluated. The following alternatives were inappropriately omitted from consideration. Proper consideration of them, individually or in combination, will show clearly that Ralph Hall Lake is not the Least Environmentally Damaging Practicable Alternative. Reuse. As referred to on P. 1-24 of the DEIS, almost all the water reclamation plants serving UTRWD's Customers release treated water back into Lewisville Lake. This means that approximately 50% of all the water supplied by UTRWD is reusable and could serve as water supply for UTRWD. Put another way, water in the UTRWD service area that is not used consumptively inevitably becomes, after treatment, new water supply in Lewisville Lake. Provided UTRWD takes the necessary steps to secure rights to these reuse supplies (unaccounted for in the DEIS), UTRWD can meet the demands for its non- consumptive use indefinitely. What this means in determining the need, or lack of need, for Ralph Hall Lake can be seen by making appropriate corrections to Table 1-12. This is the table the Applicant uses to make its case for short- term needs. But the water supply figures in the table omit the available reuse water. If we make the reasonable assumption that 40% of the demand figures is physically available for reuse, then in the year 2020, the demand of 79,995 AFY implies that about 32,000 AFY would be available for reuse, of which UTRWD counts only 15,000 AFY. Adding the additional 17,000 AFY that is physically available to the water supply, listed in the DEIS as more than 85,000 AFY, gives a surplus of approximately 22,000 AFY for 2020, rather than the 5,490 AFY surplus stated in the table. Similarly, in the year 2030, when demand is assumed to be about 102,000 AFY, the available reuse would be about 40,000 AFY, which is 25,000 AFY more than incorporated in the table. Hence, in the year 2030, there would be a 15,000 AFY surplus rather than an almost 10,000 AFY deficit. Thereby clearly showing that when reuse supply is included, there is no short-term need for the proposed Ralph Hall Lake.	Alternatives Analysis	UTRWD has maximized the reuse potential for its water supply, within the limitations of its water rights, for many years and intends to make maximum use of its non-consumed discharge water in the future. The District operates two water treatment plants and four water reclamation plants. Present water reuse is constrained by the amount of water UTRWD withdraws from Chapman Lake that can then be used by its customers and discharged from a water reclamation plant into Lewisville Lake and subject to its water rights permit and a pass-through agreements with Dallas Water Utilities, the City of Denton and the City of Lewisville. The maximum quantity of Chapman Lake Reuse water UTRWD could use is 9,664 acre-feet/year, based on the District's permitted maximum annual diversion from Chapman Lake and a sixty percent return flow factor. However, the actual quantity available to UTRWD is based on the quantity of Chapman Lake water that is discharged from specified wastewater treatment plants. Over the past ten years (2009-2018) the average Chapman Lake reuse water used by the District was 3,808 acre-feet/year. UTRWD plans to secure reuse water rights, based on water withdrawn from the proposed Lake Ralph Hall that can then be used by its customers and discharged from a water reclamation plant into Lewisville Lake for indirect reuse consistent with the Texas State Water Plan. UTRWD anticipates receiving similar permit conditions for reuse from Lake Ralph Hall. Under these conditions, the maximum quantity of reuse water that would be available to the District from Lake Ralph Hall would be 18,387 acre-feet/year, based on a yield of 34,050 acre-feet/year and a sixty percent return flow factor. This supply would be used to address demands identified in Chapter 1 of the EIS above and beyond the 34,000 ac-ft firm yield from the project. Additionally, UTRWD received a Section 408 authorization from the USACE in February 2017 allowing the discharge (but not storage) of proposed Lake Ralph Hall water into Lewisville Lake.

69-2	TCA	Even in the year 2060, if demand actually reaches the 173,000 AFY projected, the implied reuse would be about 68,000 AFY, meaning that the projected deficit of 73,502 AFY would in fact be a deficit of only about 5,500 AFY. Since the demand figures include a 15% safety factor, it is likely that there would be no deficit at all. If UTRWD takes the steps necessary to secure reuse of the return flows from its service area to supply its non-consumptive uses of water, then the firm yield needed from other sources will be approximately equal to its consumptive water use. In the Upper Trinity region, consumptive use is dominated by landscape irrigation, which, in turn, is dominated by lawn watering. It is difficult to project with certainty what UTRWD's current and future consumptive water needs will be. But it is easy to place an upper limit on what can reasonably be expected. To illustrate, we can start by making the following extreme assumptions: (1) that the projected population of 680,000 assumed by the DEIS for 2060 are all housed in single family homes, (2) that each family home has a quarter acre of irrigated lawn, (3) that each home has only two occupants, and (4) that the area to be watered will need 12 inches of water applied each year. With two people per dwelling, there would be 340,000 homesites. Multiply by a quarter acre per homesite, then by 12 inches of water per irrigated area and we see that future consumptive needs in this upper-limit case will be at most 85,000 AFY: 340,000 X ¼ acre X 1 foot = 85,000 AFY As noted, this would be the extreme high case for consumptive demand. In truth, not everyone would live in a single-family house, not every house would have a quarter acre of lawn, the average number of persons per household is more than two, and 12 inches of lawn watering is a generous estimate. UTRWD's current water supply exclusive of reuse totals approximately 71,000 AFY, projected to be 84,000 AFY in 2060.	Alternatives Analysis	UTRWD has maximized the reuse potential for its water supply, within the limitations of its water rights, for many years and intends to make maximum use of its non-consumed discharge water in the future. The District operates two water treatment plants and four water reclamation plants. Present water reuse is constrained by the amount of water UTRWD withdraws from Chapman Lake that can then be used by its customers and discharged from a water reclamation plant into Lewisville Lake and subject to its water rights permit and a pass-through agreements with Dallas Water Utilities, the City of Denton and the City of Lewisville. The maximum quantity of Chapman Lake Reuse water UTRWD could use is 9,664 acre-feet/year, based on the District's permitted maximum annual diversion from Chapman Lake and a sixty percent return flow factor. However, the actual quantity available to UTRWD is based on the quantity of Chapman Lake water that is discharged from specified wastewater treatment plants. Over the past ten years (2009-2018) the average Chapman Lake reuse water used by the District was 3,808 acre-feet/year. UTRWD plans to secure reuse water rights, based on water withdrawn from the proposed Lake Ralph Hall that can then be used by its customers and discharged from a water reclamation plant into Lewisville Lake for indirect reuse consistent with the Texas State Water Plan. UTRWD anticipates receiving similar permit conditions for reuse from Lake Ralph Hall. Under these conditions, the maximum quantity of reuse water that would be available to the District from Lake Ralph Hall would be 18,387 acre-feet/year, based on a yield of 34,050 acre-feet/year and a sixty percent return flow factor. This supply would be used to address demands identified in Chapter 1 of the EIS above and beyond the 34,000 ac-ft firm yield from the project. Additionally, UTRWD received a Section 408 authorization from the USACE in February 2017 allowing the discharge (but not storage) of proposed Lake Ralph Hall water into Lewisville Lake.

69-3	TCA	Comparing UTRWD's current supply to the upper-limit for consumptive use of 85,000 AFY calculated above shows that UTRWD's current supply is adequate to meet its demands at least until the year 2060, perhaps forever. In its submissions for the state permit hearing on Ralph Hall Lake, UTRWD routinely added reuse of 50% of the firm yield from Ralph Hall Lake as part of their water supply. UTRWD failed, however, to give similar credit for reuse to other alternatives, even those with as much potential for reuse as Ralph Hall Lake. The effect of this was to make the per-unit cost of water from Ralph Hall Lake lower than the competing alternatives. In short, when it was helpful to UTRWD's case to include reuse, they did so. When not helpful, they ignore it. The failure of the DEIS to count additional reuse as a potential supply results in an implied inadequacy of supply to meet water demands. Not considering additional reuse as an Alternative means a safe, reliable, low-cost Alternative to Ralph Hall Lake has been ignored. Without consideration of additional reuse as an Alternative, the DEIS fails to meet the standards for an adequate EIS.	Alternatives Analysis	UTRWD has maximized the reuse potential for its water supply, within the limitations of its water rights, for many years and intends to make maximum use of its non-consumed discharge water in the future. The District operates two water treatment plants and four water reclamation plants. Present water reuse is constrained by the amount of water UTRWD withdraws from Chapman Lake that can then be used by its customers and discharged from a water reclamation plant into Lewisville Lake and subject to its water rights permit and a pass-through agreements with Dallas Water Utilities, the City of Denton and the City of Lewisville. The maximum quantity of Chapman Lake Reuse water UTRWD could use is 9,664 acre-feet/year, based on the District's permitted maximum annual diversion from Chapman Lake and a sixty percent return flow factor. However, the actual quantity available to UTRWD is based on the quantity of Chapman Lake water that is discharged from specified wastewater treatment plants. Over the past ten years (2009-2018) the average Chapman Lake reuse water used by the District was 3,808 acre-feet/year. UTRWD plans to secure reuse water rights, based on water withdrawn from the proposed Lake Ralph Hall that can then be used by its customers and discharged from a water reclamation plant into Lewisville Lake for indirect reuse consistent with the Texas State Water Plan. UTRWD anticipates receiving similar permit conditions for reuse from Lake Ralph Hall. Under these conditions, the maximum quantity of reuse water that would be available to the District from Lake Ralph Hall would be 18,387 acre-feet/year, based on a yield of 34,050 acre-feet/year and a sixty percent return flow factor. This supply would be used to address demands identified in Chapter 1 of the EIS above and beyond the 34,000 ac-ft firm yield from the project. Additionally, UTRWD received a Section 408 authorization from the USACE in February 2017 allowing the discharge (but not storage) of proposed Lake Ralph Hall water into Lewisville Lake.
70	TCA	ALTERNATIVES: Additional Yield in Lewisville Lake The DEIS bases UTRWD's case for the proposed Ralph Hall Lake project on assumptions about future population growth. Should the projected population growth be realized, it will carry with it attendant urbanization that will inevitably increase run-off, which will add firm yield to Lewisville Lake. USACE is no doubt thoroughly familiar with the effects of urbanization on local run-off patterns. Without a study to project the amount of increase in firm yield from these future changed run-off patterns, the need or lack of need for Ralph Hall Lake cannot be accurately assessed. A look back at the example above of everyone living in a single-family home with no more than 2 people per homesite would give a conservative estimate of this increase in yield. Assuming 18 inches of rainfall in a dry year and a tenth of an acre of impervious cover for every two people (enough to cover their house and the impervious cover of roads, businesses, etc, to serve them), we see that, conservatively, urbanization will lead to an increase in runoff of 51,000 AFY in a dry year. 340,000 X 0.1 acre X 1.5 feet of rain = 51,000 AFY of water This amount would be added to the available firm yield in Lake Lewisville, providing an obvious Alternative to Ralph Hall Lake which was not even mentioned in the DEIS. It a serious oversight that water planning routinely ignores the effect of urbanization on water supply. TCA would urge USACE to take the lead in correcting this omission.	Alternatives Analysis	This comment is presumably referring to storm water run-off; the potential for effluent water supplies was addressed in the previous comment #70. Water captured in the wastewater collection system would be subject to the reuse limitations addressed under comment #70. Urban runoff conveyed through stormwater systems to regional surface water streams and lakes is subject to the existing Texas water rights law and priorities. In the UTRWD setting under existing law, the District cannot capture this water and convert it to firm annual yield.

71-1	TCA	ALTERNATIVES: Water Conservation The DEIS for Ralph Hall Lake fails to adequately consider conservation as a potential source of supply. Nor does it consider conservation as an interim strategy to extend the date when UTRWD would be projected to need additional water. Extending the date would increase the range of alternatives available and increase the certainty with which UTRWD's decisions are made. The alternative of conservation, both by itself and in combination with other alternatives, should have been evaluated as an Alternative in the DEIS. This omission is further indication of the failure of the DEIS to do a thorough needs analysis and alternatives review. The DEIS' failure to incorporate any future water conservation into the demand projections beyond levels in effect in 2012 both ignores the potential for significant increased future water conservation due to proven conservation measures and fails to take into consideration a requirement in UTRWD's state permit requiring the highest practicable level of conservation. If the State of Texas is requiring the highest practicable level of conservation if Ralph Hall Lake is built, then that level of conservation could also be implemented without building Ralph Hall Lake. Failure to consider significant conservation in the DEIS has resulted in inflated demand projections. The number of entities in Texas (and elsewhere) who have already reached gpcd levels well below the 172 gpcd figure used for projections in the DEIS is evidence by itself that UTRWD's water use per capita could go down. As far back as 2004, the state's Water Conservation Implementation Task Force identified 140 gpcd as a reasonable water conservation goal for routine water conservation plans. Projecting a static gpcd over fifty years ignores the current trends in water use and is unrealistic in today's world, where water conservation is becoming an increasingly high priority. The DEIS provides no justification for doing so.	Alternatives Analysis	Conservation was carefully considered in the DEIS as a reducer of present and future water demands, consistent with past practice in similar 404 Permit evaluations. Once water use patterns and conservation programs are determined to be reasonable, the USACE defers to State and local perogative. Further, water conservation can only meet a portion of future UTRWD water demand which is projected to be much greater than the future supplies plus additional yield from the preferred alternative. Applied as a need reducer, conservation is accounted for in the short term and long term water requirements for UTRWD. The effects of future conservation are captured in the water use patterns projected as part of future demand. UTRWD Member and Customer conservation programs and water use patterns were found to be reasonable and consistent with comparable water providers. Water providers must have similarities for a comparison of water use patterns to be meaningful. The GPCD assumed for water demand projections is defensible, based on actual recent experience, normalized for temporal effects on water usage. The USACE accepts the State's role ensuring that UTRWD is in compliance with its permits and policies with respect to water conservation. Water use patterns and conservation effects on those patterns are properly considered at the point of end use, not at the point of diversion. Water losses back to the point of diversion at the source are accounted for separately, but build upon water demand projections after accounting for conservation. The lawn sizes of future homes served by UTRWD Member and Customers are not necessarily smaller than that of existing customers, since original, core city lots are often smaller than suburbanizing lots.

71-2	TCA	In the specific case of UTRWD, the District's state permit to build Ralph Hall Lake mandates that wholesale customers of the applicant must develop and implement water conservation measures that will result in the highest practicable levels of water conservation and efficiency. As advances are made in water conservation practices and techniques become available, UTRWD is mandated to implement them, increasing its level of water conservation and resulting in an ever-lower aggregate gpcd for its customers. UTRWD's customers will also achieve ongoing conservation savings as a result of a Texas law passed in 2009 which mandates more stringent plumbing fixture code requirements as old fixtures are replaced with new ones. The DEIS fails to reflect these improved levels of water conservation, even though they are inevitable. On Page 1-37, the DEIS indicates that the per capita water use figures in the DEIS are based on water use at the point of use. If so, the losses during treatment, conveyance, and distribution enumerated on Page 1-38, which total 9.5% of the water diverted, must be added to the 172 gpcd measured at the tap, to reflect the overall amount of water that must be diverted for use by UTRWD's customers. Adding 9.5 % to the 172 gpcd used in the UTRWD projections in the DEIS would result in a per capita water use number of 188 gpcd, much higher than is typical throughout the state, illustrating that there is significant potential for increased water conservation to bring the numbers down. [It should be noted that these losses are in general not consumptive losses, and the water will show up elsewhere as potential supply. Some account of this should be made.] [Note: If, as is typical, the gpcd figures in the DEIS are based on the amount of water diverted by UTRWD and pumped from UTRWD to each water provider divided by the population served by that provider, then the water losses between UTRWD and the water provider are already built into the projection and adding the conveyance losses, as is done in the DEIS when calculating water demands, would be double counting.]	Alternatives Analysis	Conservation was carefully considered in the DEIS as a reducer of present and future water demands, consistent with past practice in similar 404 Permit evaluations. Once water use patterns and conservation programs are determined to be reasonable, the USACE defers to State and local perogative. Further, water conservation can only meet a portion of future UTRWD water demand which is projected to be much greater than the future supplies plus additional yield from the preferred alternative. Applied as a need reducer, conservation is accounted for in the short term and long term water requirements for UTRWD. The effects of future conservation are captured in the water use patterns projected as part of future demand. UTRWD Member and Customer conservation programs and water use patterns were found to be reasonable and consistent with comparable water providers. Water providers must have similarities for a comparison of water use patterns to be meaningful. The GPCD assumed for water demand projections is defensible, based on actual recent experience, normalized for temporal effects on water usage. The USACE accepts the State's role ensuring that UTRWD is in compliance with its permits and policies with respect to water conservation. Water use patterns and conservation effects on those patterns are properly considered at the point of end use, not at the point of diversion. Water losses back to the point of diversion at the source are accounted for separately, but build upon water demand projections after accounting for conservation. The lawn sizes of future homes served by UTRWD Member and Customers are not necessarily smaller than that of existing customers, since original, core city lots are often smaller than suburbanizing lots.

71-3	TCA	In discussing the potential of conservation as a water management strategy for Upper Trinity Municipal Water District, it is important to make the distinction between consumptive and non-consumptive uses of water. Because, as noted above, a significant portion of UTRWD's return flows can readily be reused, and hence serve as the water supply for most non-consumptive uses, the firm yield from water supply lakes serves primarily to supply consumptive uses, principally lawn watering. For purposes of increasing available supplies, then, conservation consists of reducing the amount of water that is used consumptively. The large population increase that is a major element of UTRWD's projections implies an increase in population density. As density goes up, lawns become smaller, more people live in multi-family dwellings, and demand per capita for lawn watering goes down. To complement this predictable decline, water conservation programs that emphasize lawn watering have been shown to lead to additional reductions in water use. If UTRWD's population projections are correct, the population of its service area will more than double by 2070. This means that more than 50% of the population will be living in housing not yet built. This housing will have smaller lawns and can be expected to have landscaping that is less water- consumptive. This makes it almost certain that future per capita consumptive water use will be less. The information provided by the applicant for the DEIS and in the applicant's conservation plan emphasizes that UTRWD is a wholesale provider of water, without direct enforcement of the retail water customers whose behavior dictates the level of conservation achieved. In contradiction, the applicant stated in Section 6.2 of its conservation plan that it will include language in all future contracts that reads, "…Customer agrees to amend its water conservation plan or other water conservation measures, and drought contingency plan as requested by UTRWD in order to comply with the requirements of UTRWD's water conservation plan and drought contingency plan, program and/or rules." This gives the applicant the opportunity to require its member cities to take actions that lower per capita water usage rates sufficiently that the region as a whole can attain a substantially lower per capita use than the 172 gpcd used in the DEIS for making future water demand projections.	Alternatives Analysis	Conservation was carefully considered in the DEIS as a reducer of present and future water demands, consistent with past practice in similar 404 Permit evaluations. Once water use patterns and conservation programs are determined to be reasonable, the USACE defers to State and local perogative. Further, water conservation can only meet a portion of future UTRWD water demand which is projected to be much greater than the future supplies plus additional yield from the preferred alternative. Applied as a need reducer, conservation is accounted for in the short term and long term water requirements for UTRWD. The effects of future conservation are captured in the water use patterns projected as part of future demand. UTRWD Member and Customer conservation programs and water use patterns were found to be reasonable and consistent with comparable water providers. Water providers must have similarities for a comparison of water use patterns to be meaningful. The GPCD assumed for water demand projections is defensible, based on actual recent experience, normalized for temporal effects on water usage. The USACE accepts the State's role ensuring that UTRWD is in compliance with its permits and policies with respect to water conservation. Water use patterns and conservation effects on those patterns are properly considered at the point of end use, not at the point of diversion. Water losses back to the point of diversion at the source are accounted for separately, but build upon water demand projections after accounting for conservation. The lawn sizes of future homes served by UTRWD Member and Customers are not necessarily smaller than that of existing customers, since original, core city lots are often smaller than suburbanizing lots.

71-4	TCA	When testifying in the state hearing before TCEQ, UTRWD's consulting engineer, Tom Gooch of Freese and Nichols, acknowledged that contracts between UTRWD and its wholesale water customers, or retailers, could establish requirements for retail water conservation plans, including criteria for rate structures [TCEQ Transcript for Ralph Hall Lake permit, Vol. 4 at p. 875, line 23 through p. 876, line 5]. UTRWD's ability to influence its customer cities over time is particularly important because UTRWD's water conservation plan is weak compared to other wholesale water providers. Water conservation expert Chris Brown, testifying for the National Wildlife Federation in the TCEQ hearing on Ralph Hall Lake in 2012 (testimony attached), stated that UTRWD's conservation plan is weak compared to the basic conservation plans of other wholesale water providers' plans he has reviewed. UTRWD's conservation plan lacks a regional program offered to end users on behalf of its retail customers and lacks a set of rules requiring retailers to implement specific programs and report on their progress over time. Weak phrases from the plan such as "…is creating a work group…", "…will encourage…", and "…make every effort to measure and quantify..." lack enforceability and highlight the fact that UTRWD does not require its customers to achieve implementation of objectives. The plan lacks specific reporting requirements for its retailers and is missing a schedule and scope for the conceptual programs in the plan. In addition to reviewing the conservation plan, Mr. Brown reviewed UTRWD's 2010 Conservation Implementation Report filed with the TCEQ and TWDB Form 1966 Water Conservation Report for 2011. According to Mr. Brown, the reports do not indicate that UTRWD is implementing technical assistance programs, rebate programs, landscape water conservation programs, a coordinated data collection effort on water conservation efforts, or other programs at the levels needed to achieve the highest practicable levels of water conservation. Further, Mr. Brown, who along with other broad experience in water development has developed conservation and drought contingency plans for the cities of Corpus Christi, San Angelo, and Waco, and contributed to the City of Dallas 2005 Water Conservation Strategy, gave it as his expert opinion that UTRWD's expenditure level for its ati is not sufficient t t t the l el t hi	Alternatives Analysis	Conservation was carefully considered in the DEIS as a reducer of present and future water demands, consistent with past practice in similar 404 Permit evaluations. Once water use patterns and conservation programs are determined to be reasonable, the USACE defers to State and local perogative. Further, water conservation can only meet a portion of future UTRWD water demand which is projected to be much greater than the future supplies plus additional yield from the preferred alternative. Applied as a need reducer, conservation is accounted for in the short term and long term water requirements for UTRWD. The effects of future conservation are captured in the water use patterns projected as part of future demand. UTRWD Member and Customer conservation programs and water use patterns were found to be reasonable and consistent with comparable water providers. Water providers must have similarities for a comparison of water use patterns to be meaningful. The GPCD assumed for water demand projections is defensible, based on actual recent experience, normalized for temporal effects on water usage. The USACE accepts the State's role ensuring that UTRWD is in compliance with its permits and policies with respect to water conservation. Water use patterns and conservation effects on those patterns are properly considered at the point of end use, not at the point of diversion. Water losses back to the point of diversion at the source are accounted for separately, but build upon water demand projections after accounting for conservation. The lawn sizes of future homes served by UTRWD Member and Customers are not necessarily smaller than that of existing customers, since original, core city lots are often smaller than suburbanizing lots.
72	TCA	CRITERION 3 The analysis above makes it clear there is no short-term need for Ralph Hall Lake. Therefore, Screening Criterion 3, "Add new firm annual yield to UTRWD's supplies by 2024", is not valid as a screening criterion and should not be included as such. The DEIS dismisses several Alternatives solely on the basis of Criterion 3. Should additional water ever actually be needed, alternatives such as Lake Texoma should then be evaluated.	Alternatives Analysis	The water demand forecasting analyses in comments #71 and 72 are incorrect. UTRWD needs additional firm annual yield by 2024.
73	TCA	LEAST ENVIRONMENTALLY DAMAGING PRACTICABLE ALTERNATIVE (LEDPA): Section 404(b)(1) of the Clean Water Act and federal guidelines (40 CFR, Part 230) require that USACE permit only the least environmentally damaging practicable alternative (LEDPA), unless the LEDPA has other significant adverse environmental consequences. As shown above, the Alternatives of reuse and conservation either, or in combination, are adequate to provide sufficient water for UTRWD's future needs. The complete failure of the DEIS to analyze reuse and conservation as Alternatives results in a DEIS that is seriously flawed.	Alternatives Analysis	The responses to comments #71 demonstrates that reuse and conservation have been properly considered in the DEIS.

74	TCA	ENVIRONMENTAL IMPACTS AND MITIGATION PLAN Caddo National Grasslands In choosing mitigation for the grasslands inundated by Ralph Hall Lake (if the reservoir is built), emphasis should be placed first on acquiring tracts of native prairie in the region that could be added to the national grasslands and secondly on obtaining tracts which aid the US Forest Service (USFS) with its projects to restore native vegetation to the site. Most of the native grassland in Texas (and throughout North America) is degraded from its original unplowed state. Sustaining those rare pockets of the native prairie which still exist is a high priority for conservation. Effort should be made to identify any pockets of native prairie left in the region and acquire them as part of the mitigation for land inundated by the reservoir. Land in the national grasslands is checkerboarded, with numerous gaps of private inholdings. This makes management actions such as prescribed fire or grazing difficult to impossible. Acquisition of inholdings to consolidate larger parcels would have extensive ecosystem benefits and would enhance USFS's ability to restore native prairie. If any pockets of pre-plow native prairie remain within the footprint of the Ralph Hall Lake project, mitigation for those pockets should be like-kind and greater than one acre for one acre. Inundating an ecosystem as rare as native prairie is a major impact. The DEIS fails to characterize the land impacted, other than explaining that they are mostly common and degraded. Care should be taken to assess whether there are high-quality pockets of habitat on the approximately 300 acres inundated.	Public Lands-Caddo National Grasslands	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing. Additional description of Caddo Grassland habitat provided.

75	TCA	ENVIRONMENTAL IMPACTS AND MITIGATION PLAN Environmental Impacts Texas Conservation Alliance has reviewed the comment letter submitted by Texas Parks and Wildlife Department and shares the concerns expressed about impacts on aquatic and terrestrial habitats that Ralph Hall Lake would cause. Of particular note is the proposed use of lake-shore as mitigation for lost lacustrine wetlands, which cannot be counted on to provide like-kind mitigation. TCA strongly supports TPWD's recommendations for protecting Species of Greatest Conservation Need (SGCN) and other state-listed species. There is a national push to stabilize SGCN to avoid their reaching the vulnerability and expensive recovery of becoming endangered. The mitigation plan should specify operations schedules that avoid nest disturbance of birds. Directional drilling at pipeline stream crossings rather than open trenching should be required to avoid aquatic impacts and impacts to small vertebrates. A protocol should be required to avoid introducing invasive species – aquatic or terrestrial – or to export invasive species to other areas. TCA also adopts the comments submitted by the National Wildlife Federation, et.al., regarding Environmental Impacts. A particularly egregious error is the characterization that no fish species were present during collection efforts. This error was corrected in the contested case hearing before TCEQ. Also of concern is the lack of analysis of changes in projected low-flow conditions with the dam in place. The limited results presented indicate that flow reductions from the dam are greater, as a percentage of flow, during low flow periods. This would be expected to produce an increase in periods of extremely low flow downstream of the dam, resulting in degradation of aquatic habitat and water quality. The DEIS also gives uplift credit for the restored channel downstream of the dam, assuming that this stream segment will have intermittent flow rather than ephemeral flow, without giving justification for that assumption.	Aquatic Biota	Comment noted
76	Testimony of Chris Brown (on behalf of NWF)	Summary: The Upper Trinity Regional Water District Water Conservation Plan is not adequate to achieve the highest practicable levels of water conservation for a wholesale water agency and further language is necessary to improve said plan, if the permit [404] is to be issued.	Need	Comment and recommendation noted
77	Texas Commission on Environmental Quality (TCEQ)	In addition to the information contained in the DEIS, the following information is needed for review of the proposed project. Responses to this letter may raise other questions that will need to be addressed before a water quality certification determination can be made. l. A shoreline management plan or a watershed management plan is an important tool for maintaining water quality of a reservoir. These tools are particularly important for the areas within and adjacent to the reservoir, which are to be established as mitigation areas. Please have the applicant provide more details regarding what steps will be taken to ensure water quality is maintained in the proposed reservoir.	Shoreline management plan	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.

78	TCEQ	2. From the applicant's mitigation plan, it is unclear why the pre-project baseline functional capacity unit (FCU) for restoration/creation is zero. A restored stream is presumed to begin with some non-zero function. A created stream would begin with zero function. Please clarify the description of the mitigation activity :in the mitigation plan accordingly. Please clarify the number of credits (FCUs) that are proposed to be generated by each aquatic resource type and mitigation method separately (e.g., restoration, creation, re-establishment, etc.).	Mitigation-calculation methods	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
79	TCEQ	3. The applicant is proposing mitigation activities via the creation or re-establishment of streams which are difficult-to-replace resources. The Texas Commission on Environmental Quality (TCEQ) recommends that mitigation for impacts to difficult-to-replace resources be provided through in-kind rehabilitation, enhancement, or preservation, because the likelihood of success is greater with these methods. If the applicant continues to propose creation or re-establishment of difficult-to-replace resources, then ecological performance standards should include a future jurisdictional determination to confirm that the created resources have become waters of the U.S.	Mitigation-streams/riparian	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
80	TCEQ	4. It is unclear from the DEIS if the approximately 8 acres of wetland impacts will be mitigated. Please have the applicant explain how they plan to compensate for these wetland impacts.	Mitigation-wetlands	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
81	TCEQ	5. Please have the applicant describe in further detail the restoration plans for the North Sulphur River main channel. Specifically, please justify the highly sinuous nature of the proposed restored channel.	Mitigation-streams/riparian	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
82	TCEQ	6. The TCEQ recommends that performance standards include a post-mitigation functional assessment. TCEQ recommends that additional ecologically-based performance standards be incorporated into the mitigation plan that would indicate relevant chemical, physical, and biological conditions. Performance standards should also include a description of dam release schedules and goals that support the mitigation area.	Mitigation-streams/riparian	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
83	TCEQ	7. The TCEQ recommends that long-term protection for the mitigation area be provided through a third-party conservation easement rather than a USACE-approved deed restriction.	Mitigation- 3rd party easement	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.

84	Texas Center for Policy Studies (TCPS)	Conservation and Drought Contingency Practices: The Texas Center for Policy Studies (TCPS) disagrees with demand projections in the DEIS for several reasons: 1. The projections for conservation do not reasonably reflect the trend over the past 50 years for water saving through conservation. The DEIS assumes no significant saving of water use per capita over the next 50 years. There is no justification provided in the DEIS for such an assumption. 2. The projections for conservation do not reflect the development of management practices used widely by UTRWS and others during periods of drought over the last 5 to 10 years that have proved cost effective and reasonable to become part of the projected water conservation practices of the UTRWS. 3. The requirements in Texas law for drought contingency plans for entities such as UTRWD and its customers do not reflect the current advancement of such practices that can further reduce the demand figures during droughts. While supplies may go down during droughts, demands have also been reduced significantly. The need projections (supplies minus demands) were also shown to go down during the past droughts. USACE should take reevaluate the water needs of UTRWD based on mandatory implementation drought contingency plans of UTRWD and its customers at the triggers for the voluntary implementation of the plans. Such an evaluation could reduce future needs significantly, possibly as much water as the reservoir is projected to provide over the planning horizon. USACE is missing an important opportunity to require use of reasonably available water saving practices that are less expensive than new reservoirs, and, thus, avoiding the negative environmental impacts of the reservoir projects. The report of TCPS, Learning from the Drought, provides additional analysis of such opportunities for avoiding development of new reservoirs. It shows that the projected future needs of the state could easily be cut in half, with a few very basic requirements, including using the results of the implementation of the drought contingency plans in the most recent period of significant drought.	Need	See previous responses. Water demand projections are normalized for temporal influences such as droughts. Drought response measures according to existing plans are assumed.
85	TCPS	The 15% Safety Factor: TCPS also disagrees with demand projections in the DEIS because of the use of the 15% safety factor. Under Texas law, projections of demands and needs are based on the drought of record, not an arbitrary value greater than that figure. The process used for the projected demands and needs is already very conservative. There is no analysis to justify the use of this fudge factor, such as when the state planning process has failed to assure adequate supplies to any major water supplier because of the lack of such a safety factor. The Texas water planning process has a number of other ways cities and others to develop conservative demand projections. Neither UTRWD nor anyone else has presented any scientific basis for using a 15% safety factor. The use of the 15% figure in rules of the TCEQ does not apply to UTRWD and provides no basis for the assumption in the DEIS.	Safety Factor	The use of the 15% safety factor and its justification were described in detail in the DEIS. The safety factor accounts for a myriad of uncertainties not considered in the projections of water supply and demand. The use of safety factors is a common utility practice. See previous responses.
86	TCPS	The Projections of GPCD Usage TCPS also disagrees with the method used in the DEIS for projecting existing and future use per capita. While the historic use figures may be reasonable, many Texas cities have shown that, with some simple public education and water use limits, the use per capita can be reduced significantly. Moreover, there is no valid basis for use of the projected use figures, given the historic trends and reasonably available conservation practices.	Need	The UTRWD, its Members and Customers have had a public education program and other conservation programs in place for many years, which has helped reduce water use within the District. The savings from these programs are reflected in the water demand projections. Even assuming additional future conservation, the preferred action would still be needed. See previous responses.

87	TCPS	Environmental Impacts: TCPS disagrees with the USACE's approach to mitigation. The significant loss of uplands in the Caddo National Grasslands may not be wetlands, but their loss, with no guarantee or requirement for mitigation of them, does not allow the DEIS to assume any will be replaced or their loss mitigated. Clearly, the impacts on the National Grasslands would not result with the choice of an alternative approach, using water conservation, drought contingency planning, and the other supplies available from Dallas and other existing reservoirs that have been discussed in the comments of the Texas Conservation Alliance. TCPS supports TCA comments filed earlier today and those comments filed today by the National Wildlife Federation and Sierra Club.	Mitigation-Caddo National Grasslands	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
88	THC	We have found this Draft EIS to be very well written and researched and we have only minor comments that are intended to clarify statements made in the text or correct minor typographical errors. We concur with the recommendations presented from the 15 percent sample survey, and we are confident that sufficient archeological survey, testing, and mitigation work will be performed as appropriately defined within the proposed Programmatic Agreement for the reservoir development. We have additionally offered two minor comments to the draft Programmatic Agreement that was included as Appendix M. Please see the attached comments to this letter.	Cultural Resources	Thank you for your comments.
89	THC	DEIS, Vol. I, Pg. ES-15 The table lists as separate items Cultural Resources - Historic and Cultural Resources - Archeological. Under the Historic row, there is the statement, "Due to a lack of access, not all properties with the area of potential effects (APE) were surveyed ... further study is required" We recommend that this statement, or similar should be repeated for the Archeological row immediately below. The second full paragraph states that approximately 15 percent of the Proposed Action project area was surveyed. An additional statement should be added that the remaining 85% of the project area will be considered and surveyed according to the Programmatic Agreement that is yet in progress. A fut1her statement that additional sites will likely be encountered, that these will need to be assessed for NHRP and SAL eligibility and eligible sites will need to be evaluated and mitigated for project impacts according to procedures specified in the PA. These statements will lead the reader to the following paragraph that summarizes the desktop survey and predictive modeling report.	Cultural Resources	Revised as suggested
90	THC	DEIS, Vol. I, Pg. 4-118 The table row for Archeological resources contains a typo. Please change "All future cultural resources survey will be done in accordance with the PA." to "A future cultural resources survey ... " or "All future cultural resources investigations will be done ... "	Cultural Resources	Revised as suggested
91	THC	DEIS, Vol. I, Pg. 5-19 The first sentence of the final paragraph contains an identical typo to the comment above. The typo should be changed in the same way as above.	Cultural Resources	Revised as suggested
92	THC	Vol II, Appendix M, Pg. 5: We recommend that Section II.B.1 should be amended to clarify that specific work plans should be developed for each site that will undergo Phase II Testing. These work plans should contain specific research themes and data requirements that the site must contribute to for it to be considered eligible for the NRHP. The specific site work plans should be incorporated in the overall testing plan for the reservoir project that is specified in this section.	Cultural Resources	No change necessary.

93	THC	Vol II, Appendix M, Pg. 6: We recommend that Section III.C should be amended to state that the draft mitigation plan will also be subject and reviewed per the Texas Administrative Code, Title 13, Part 2, Chapter 26.	Cultural Resources	The final PA, Section IV. C state "The draft mitigation plan shall be distributed to the SHPO, the UTRWD, the Tribes, and the other consulting parties for a 30 day period of review and comment in accordance with 36 CFR 800.5 and under review of the Texas Administrative Code, Title 13, Part 2, Chapter 26."
94	Paul & Twyla Hund, Matthew & Amber Todd (Property Owners)	Our property is located adjacent to the west side of the existing City of Irving balancing reservoir. We purchased the property in 2013 from two owners within one family, and we divided the tract for two homesites each comprising 13 acres. The topography is a mix of gullies, and creek beds and most of the tract is heavily wooded. The tract is sloping from east to west and the part that is not wooded is prone for erosion. There is a deep creek bed that meanders through the center of the tract with walls of 20+ feet deep. The creek drains through a culvert under County Road 702 along the front of the property which also collects runoff from the County Road 702 ditches north and south of the culvert. The installation of a pipeline on this property would cause drainage and erosion issues given that it would cross multiple gullies and the creek bed. We own a smaller acreage tract and any pipeline through our property would be very near our houses and could significantly impact their values.	Pipeline Impacts-erosion and drainage	Comment noted
95	Paul & Twyla Hund, Matthew & Amber Todd (Property Owners)	Also, if a road is needed within the pipeline right-of-way for access to the balancing reservoir, the use of our property would be severely impacted in a negative way. Additionally, our south property line abuts the City of Irving's pipeline and road easement with maintenance traffic present throughout the week. The addition of any additional access roads through our property would seem to be very unnecessary and impactful to our homes. We would hope that the City of Irving's access road could be shared to keep from severely impacting our property and homes.	Roads	Comment noted
96	TPWD	3.2 Public Lands: TPWD recommends that mitigation for loss of both the Ladonia Fossil Park and Caddo National Grasslands be a mitigation measure identified as a special condition of the Section 404 permit.	Fossil Park and Caddo National Grasslands	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.

97	TPWD	3.11 Biological Resources: The state of Texas has a Texas Conservation Action Plan (TCAP) that provides guidance for addressing Species of Greatest Conservation Need (SGCN) and important habitats and includes a statewide handbook and handbooks for each ecoregion of the state. In addition to state- and federally-protected species, SCGN are tracked by TPWD, and TPWD actively promotes their conservation. SGCN are included in the TPWD Rare, Threatened and Endangered Species of Texas by County (RTEST) online resource. After reviewing the county lists for Fannin, Collin, and Hunt Counties, and based on the presence of potentially suitable habitat, a species' mobility, or life history requirements, SGCN with greater potential to be impacted by project activities include the southern crawfish frog (Lithobates areolatus areolatus), western burrowing owl (Athene cunicularia hypugaea), Plains spotted skunk (Spilogale putorius interrupta), Texas garter snake (Thamnophis sirtalis annectens), a crayfish (Procambarus steigmani), Topeka purple-coneflower (Echinacea atrorubens), and Hall's prairie clover (Dalea hallii). TPWD encourages developers to consider a project's impacts to SGCN and minimize impacts to rare resources and their habitat in order to reduce the likelihood of endangerment and preclude the need to list such species as threatened or endangered in the future. These are species that fall between commonly occurring species and those that are federally- or state-listed threatened or endangered, and should be recognized as species needing conservation within the project area. TPWD recommends the U.S. Army Corps of Engineers (USACE) incorporate the SGCN species of potential occurrence into the DEIS within Sections 3.11, '4.11 and 5.11 regarding wildlife and habitat biological resources. TPWD encourages UTR WD and its contractors to be mindful of SGCN and to avoid or minimize impacts to SGCN if encountered during project activities.	SGCN	SGCN species added.
98	TPWD	4.6 Surface Water Section 4.6 Surface Water, page 4-23, regarding impacts to hydrology during construction of the raw water pipeline, indicates that horizontal directional drilling would be used at significant stream crossings, yet "significant" stream crossings is not clearly defined in the DEIS. The applicant should define "significant" stream crossings. This section does not discuss the number of streams being crossed by open trench or the number being crossed by directional drilling. Page 4-26, regarding impacts to water quality during construction of the raw water pipeline, indicates that the South Sulphur River may be crossed by either open trench or directional drilling. Page 4-29, regarding impacts to waters of the U.S. during construction of the raw water pipeline, indicates 59 stream crossings with 11,893 linear feet of stream impacts, and 0.4 acres of stock tanks, all proposed to be impacted within the 100-ft right-of-way (ROW). TPWD recommends identifying or estimating the waters being crossed by directional drilling versus open trench and identifying the amount of time each open-trench crossing is expected to take.	Surface Water	For the purpose of deciding whether to use horizontal directional drilling (HDD) or open trench construction methods for raw water pipeline installation, directional drilling will be used at stream crossings with standing water below the OHWM at the time of construction in order to avoid and minimize impacts. If a stream does not have standing water below the OHWM, then the applicant will construct the pipeline crossing using open trench construction methods. Upon completion, temporary fill for cofferdams or other construction materials will be removed from the stream, the bed and bank contours below the ordinary high water mark will be restored, and the stream will be stabilized using appropriate post-construction best management practices in accordance with U.S. Army Corps of Engineers section 404 permit and Texas Commission on Environmental Quality section 401 Water Quality Certification and Stormwater Construction General Permit conditions. Any impacts associated with open trench crossings will be temporary in nature. Once construction activities are complete for each crossing, the area will be returned to grade. Appropriate erosion control best management practices will be implemented and monitored in accordance with a Storm Water Pollution Prevention Plan and the TCEQ Section 401 Water Quality Certification conditions issued for the USACE 404 permit.
99	TPWD	4.11 Biological Resources: Page 4-47 indicates that ruffed grouse (Bonasa umbellus) could occur in wooded areas of the raw water pipeline alignment. Please note that ruffed grouse are non-migratory birds with a year-round range in Canada and some northern U.S. states and are not found in Texas.	Wildlife	Ruffed grouse removed.

100	TPWD	4.11 Biological Resources: Page 4-47 also indicates that UTRWD is only required to comply with the Migratory Bird Treaty Act (MBTA) in a way to avoid intentional takings of migratory birds, as a result of the Department of Interior's memo issued December 22, 2017 which indicates that the MBTA prohibits intentional acts (not omissions) that directly (not indirectly or accidentally) kill migratory birds. Please note that Texas Parks and Wildlife (TPW) Code Section 64.002, regarding protection of nongame birds, provides that no person may catch, kill, injure, pursue, or possess a bird that is not a game bird. TPW Code Section 64.003, regarding destroying nests or eggs, provides that no person may destroy or take the nests, eggs, or young and any wild game bird, wild bird, or wild fowl. TPW Code Chapter 64 does not allow for incidental take and therefore is more restrictive than the MBTA. Within the project area, potential impacts to migratory birds may occur during site preparation and grading activities through the disturbance of existing vegetation and bare ground that may harbor active bird nests, including nests that may occur in grass, shrubs and trees, and on bare ground, including gravel pads and roads. In addition to the bird protection best management practices (BMPs) identified in mitigation Section 5.11 Biological Resources, page 5- 16, TPWD recommends excluding vegetation clearing activities during the general bird nesting season, March 15 through September 15, to avoid adverse impacts to breeding migratory birds. If clearing vegetation during the migratory bird nesting season is unavoidable, TPWD recommends surveying the area proposed for disturbance to ensure that no nests with eggs or young will be disturbed by operations. Any areas where occupied nests are located should not be disturbed until the eggs have hatched and the young have fledged.	MBTA/TPWC	The applicant is responsible for ensuring their action complies with the Migratory Bird Treaty Act. The applicant is responsible for contacting appropriate local office of the U.S. Fish and Wildlife Service to determine applicable measures to reduce impacts to migratory birds, including whether ‘‘incidental take’’ permits are necessary and available under the Migratory Bird Treaty Act for the project. The applicant also should coordinate with TPWD to address state requirements.
101	TPWD	4.11 Biological Resources: This section and Section 5.11 mention that the pipeline would be installed by horizontal directional drilling (HOD) at "significant" stream crossings. The applicant should provide an objective definition of "significant." For those streams that would be trenched, TPWD recommends identifying protection BMPs for wildlife and aquatic biota as presented below in Section 5.11 Biological Resources.	Stream Impacts/Directional Drilling	For the purpose of deciding whether to use horizontal directional drilling (HDD) or open trench construction methods for raw water pipeline installation, directional drilling will be used at stream crossings with standing water below the OHWM at the time of construction in order to avoid and minimize impacts. If a stream does not have standing water below the OHWM, then the applicant will construct the pipeline crossing using open trench construction methods. Upon completion, temporary fill for cofferdams or other construction materials will be removed from the stream, the bed and bank contours below the ordinary high water mark will be restored, and the stream will be stabilized using appropriate post-construction best management practices in accordance with U.S. Army Corps of Engineers section 404 permit and Texas Commission on Environmental Quality section 401 Water Quality Certification and Stormwater Construction General Permit conditions. Any impacts associated with open trench crossings will be temporary in nature. Once construction activities are complete for each crossing, the area will be returned to grade. Appropriate erosion control best management practices will be implemented and monitored in accordance with a Storm Water Pollution Prevention Plan and the TCEQ Section 401 Water Quality Certification conditions issued for the USACE 404 permit.

102	TPWD	5.0 Mitigation: The Table 5-1 summary indicates the proposed mitigation to reduce impacts on surface water hydrology and threatened and endangered species includes directional drilling during construction of the raw water pipeline at stream crossings. Because directional drilling is not being proposed at all stream crossings, TPWD recommends the mitigation measure in the table clearly indicate that directional drilling is only being proposed at some specific stream crossings and to incorporate mitigation actions for streams being crossed by open trench. The mitigation for reduction of impacts should also be included in Biological Resources - Wildlife and Biological Resources-Aquatic Biota sections.	Stream Impacts/Directional Drilling	Whenever practicable, the applicant proposes to construct within waterbodies during periods when streams or wetlands may be dry.
103	TPWD	5.6 Surface Water: Table 5-3 compares functional capacity units (FCUs) of impacts to proposed mitigation. Note that it is inappropriate to combine FCUs; units should be separated by resource type since mitigation must be in-kind, i.e. the same resource type. The table should be revised to separate units by resource types.	Mitigation-calculation methods	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
104	TPWD	5.6 Surface Water: Regarding Table 5-4, it is inappropriate to include the lacustrine fringe wetland impacts within the broader impoundment/open water impacts. Impacts should be separated by resource type. Approximately 8 acres of lacustrine fringe wetlands were identified in the paragraph preceding Table 5-4, but no specific mitigation is proposed. The ADEIS mentions that "the increase in shallow lake edge along the shoreline of the proposed Lake Ralph Hall reservoir is anticipated to develop substantially more than 8 acres of lacustrine fringe wetland area as well as an increase in open water." However, the shoreline of the reservoir is likely to fluctuate widely, which may make wetland establishment difficult. TPWD recommends the applicant propose a specific location for wetland mitigation, place a conservation easement (CE) on the area, and monitor the location to ensure that the area actually becomes wetland.	Mitigation-wetlands	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
105	TPWD	5.9 Recreation: TPWD recommends consideration of the water regime when selecting boater access locations, i.e. given that the reservoir may be more than 10 feet below the conservation elevation 23% of the time according to the Sulphur River Water Availability Model, TPWD recommends developing access sites (boat ramps) with an appropriate slope and length as to extend to an elevation at least 5 to 10 feet below the 541' elevation. The recreational value of a reservoir is dependent on the user's ability to access the resource.	Recreation	Boat ramps are not included in the project.
106	TPWD	5.11 Biological Resources: The Habitat portion of Section 5.11 Biological Resources references a Special Condition of Water Use Permit No. 5821 requiring the establishment and maintenance of riparian buffer zones around the perimeter of the reservoir and along Bear Creek, Brushy Creek, Pickle Creek, Davis Creek, Leggets Branch, Bralley Pool Creek, Merrill Creek, the North Sulphur River, and along unnamed tributaries within the area of the reservoir project. These areas are no longer included in the mitigation plan for the Clean Water Act Section 404 permit (Section 404 permit). Clarification should be provided on whether this riparian buffer work will be separate from the mitigation for the Section 404 permit.	Mitigation-habitat	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.

107-1	TPWD	Wildlife and Aquatic Biota: Texas Parks and Wildlife Code Sections 12.015, 12.019, 66.015 and Texas Administrative Code Sections 52.101-52.105, 52.202, and 57.251-57.259 regulate the introduction and stocking of fish, shellfish, and aquatic plants into public waters of the state. The Permit to Introduce Fish, Shellfish or Aquatic Plants into Public Waters allows for movement (i.e., introduction, stocking, transplant, relocation) of aquatic species in waters of the state to alleviate potential natural resources risks. Dewatering can impact aquatic resources through stranding fish and mussels. Other harmful construction activities, such as trenching, can trample, dredge or fill areas exhibiting stationary aquatic resources such as plants and mussels. Relocating aquatic life, including, but not limited to, native fish, turtles, and mussels, to an area of suitable habitat outside the project footprint avoids or reduces impacts to aquatic life. Relocation activities are done under the authority of a TPWD Permit to Introduce Fish, Shellfish or Aquatic Plants into Public Waters. An Aquatic Resource Relocation Plan (ARRP) is used to plan resource handling activities and assist in the permitting process. If dewatering activities and other project-related activities cause mortality to fish and wildlife species, then the responsible party would be subject to investigation by the TPWD Kills and Spills Team (KAST) and will be liable for restitution to the state of Texas for the value of the lost resources under the authority of Texas Parks and Wildlife Code Sections 12.0011 (b) (1) and 12.301. To avoid disturbance to streams and aquatic resources, TPWD recommends trenchless installation methods for installing the raw water pipeline, especially where the project crosses perennial streams and intermittent streams when water is present. If construction of the raw water pipeline, dam, or State Highway (SH) 34 bridge occurs in streams during times when water is present, then TPWD recommends relocating native aquatic resources in conjunction with a Permit to Introduce Fish, Shellfish or Aquatic Plants into Public Waters and an ARRP. The ARRP should be completed and approved by TPWD 30 days prior to activity within project waters and/or resource relocation and submitted with an application for a no-cost Permit to Introduce Fish, Shellfish, or Aquatic Plants into Public Waters.	Mitigation-wildlife	The applicant will utilize wildlife impact avoidance BMPs throughout the project area to avoid impacts to fish and wildlife species, including but not limited to utilizing previously disturbed areas for staging when practicable, minimizing the amount and time that trenches remain open, recommending use of straw or natural fiber mulch or net free erosion control blankets instead of plastic mesh when appropriate, and revegetating disturbed areas with native grass and forb species wherever practicable. Aquatic impacts to significant streams will be avoided by horizontal directional drilling under the stream. Where trenching is used, stream impacts from the pipeline trench will be rendered temporary by restoring to preconstruction contours, maintaining existing flows or by constructing during periods when streams or wetlands are dry. When practicable, trenching and backfilling associated with the project will be done in a phased approach to minimize the time trenches remain open. Appropriate sediment and erosion control BMPs will be used as required by Sections 401 (Water Quality Certification) and 402 (Stormwater Permit) of the Clean Water Act. The applicant is committed to complying with state regulations and will assess the need to submit a Permit to Introduce Fish, Shellfish, or Aquatic Plants into Public Waters and ARRP on a stream by stream basis. Aquatic organisms, including all native freshwater mussel species were considered in the planning and route selection process. The applicant will avoid and minimize impacts to aquatic resources using HDD at streams with standing water below the OHWM and by realigning the pipeline route to miss or minimize impacts to streams wherever practicable. The applicant will assess the need for any further compliance with this recommendation on a stream by stream basis during construction. The presence of a biological monitor during all clearing and construction activities is not required. The applicant is committed to providing information packets with photographs on key species that may be found in the project area.

107-2	TPWD	For Collin, Fannin, and Hunt Counties, an ARRP can be submitted to Greg Conley, TPWD Region 2 KAST (Greg.Conley@tpwd.texas.gov and 903-566- 2518). Because the DEIS only indicates HDD of significant streams, with no definition of "significant", then these recommendations regarding KAST coordination and permitting should be adopted as proposed mitigation measures in Chapter 5 for Surface Water - Hydrology, Biological Resources - Aquatic Biota, and Threatened and Endangered Species, and included as a special condition to the Section 404 permit or as a stipulation of approval or authorization of a regulatory agency. Section 4.12 indicates that impacts to four state-listed mollusks occurring in the Sabine and Sulphur River basins may occur during pipeline construction. The DEIS indicates that significant streams would be crossed by directional drilling, yet also indicates that the primary crossing methodology would be by open-trench and would impact 59 stream crossings, 11,893 linear feet of streams, and 0.4 acres of stock tanks. The DEIS indicates no mitigation is proposed for potential impacts to the state-listed timber rattlesnake (Crotalus horridus) and four state-listed mollusk species that may occur within the project area. The DEIS indicates implementing BMPs to avoid impacts to nesting migratory birds. In addition to the recommendations added above for migratory birds, TPWD recommends including the following mitigation measures for protecting wildlife, SGCN, and state-listed species during construction and revegetation to reduce the anticipated moderate impacts on wildlife biological resources. To assist in detecting wildlife, SGCN, and state-listed species that would be impacted by project activities, TPWD recommends a biological monitor be present during clearing and construction activities for the raw water pipeline, dam, SH 34 bridge, and for vegetation removal or earthwork within the reservoir footprint.	Mitigation-wildlife	The applicant will utilize wildlife impact avoidance BMPs throughout the project area to avoid impacts to fish and wildlife species, including but not limited to utilizing previously disturbed areas for staging when practicable, minimizing the amount and time that trenches remain open, recommending use of straw or natural fiber mulch or net free erosion control blankets instead of plastic mesh when appropriate, and revegetating disturbed areas with native grass and forb species wherever practicable. Aquatic impacts to significant streams will be avoided by horizontal directional drilling under the stream. Where trenching is used, stream impacts from the pipeline trench will be rendered temporary by restoring to preconstruction contours, maintaining existing flows or by constructing during periods when streams or wetlands are dry. When practicable, trenching and backfilling associated with the project will be done in a phased approach to minimize the time trenches remain open. Appropriate sediment and erosion control BMPs will be used as required by Sections 401 (Water Quality Certification) and 402 (Stormwater Permit) of the Clean Water Act. The applicant is committed to complying with state regulations and will assess the need to submit a Permit to Introduce Fish, Shellfish, or Aquatic Plants into Public Waters and ARRP on a stream by stream basis. Aquatic organisms, including all native freshwater mussel species were considered in the planning and route selection process. The applicant will avoid and minimize impacts to aquatic resources using HDD at streams with standing water below the OHWM and by realigning the pipeline route to miss or minimize impacts to streams wherever practicable. The applicant will assess the need for any further compliance with this recommendation on a stream by stream basis during construction. The presence of a biological monitor during all clearing and construction activities is not required. The applicant is committed to providing information packets with photographs on key species that may be found in the project area.

107-3	TPWD	To avoid take of a state-listed species and for encounters with state-listed species that will not readily leave the premises, TPWD recommends a TPWD-permitted individual translocate the animal if it is in harm's way. State-listed species may only be handled by persons authorized through the TPWD Wildlife Permits Office (Christopher.maldonado@tpwd.texas.gov or 512-389-4647) for relocation, surveys, and monitoring. Translocations of state-listed reptiles should be the minimum distance possible and no greater than one mile, preferably within 100-200 yards from the initial encounter location. Activities regarding aquatic state-listed species should be coordinated via TPWD KAST for the appropriate authorization, as mentioned above, in addition to possessing the appropriate permit from the TPWD Wildlife Permits Office. To reduce potential loss of rare snake species, TPWD recommends the responsible party inform employees and contractors of the potential for the Texas garter snake (Thamnophis sirtalis annectens), an SGCN, and the state-listed threatened timber rattlesnake to occur in the project construction areas. Contractors should be advised to avoid impacts to these and other snakes. Compared to other rattlesnakes, the timber rattlesnake is a rather docile species. Injury to humans usually occurs when the snake becomes agitated following harassment or when someone attempts to handle a recently dead snake that still contains its bite reflex. Contractors should avoid contact with the species, and, if encountered, allow snakes to safely leave the premises. Various small vertebrates including snakes, lizards, toads, and mice may fall into trenches and become trapped. The Texas garter snake and the state-listed threatened timber rattlesnake are susceptible to becoming trapped in trenches. Wildlife unable to escape from trenches are susceptible to loss from backfilling activities, exposure to elements, starvation, dehydration, and predation by other wildlife. TPWD recommends that any open trenches or excavation areas be covered overnight and inspected every morning to ensure no wildlife species have been trapped. If trenches cannot be backfilled the day of initial trenching, then escape ramps should be installed at least every 90 meters and should consist of short lateral trenches or wooden planks sloping to the surface at an angle of less than 45 degrees. Trenches should be i cted f the pr e of t d wildlif i to backfilli	Mitigation-wildlife	The applicant will utilize wildlife impact avoidance BMPs throughout the project area to avoid impacts to fish and wildlife species, including but not limited to utilizing previously disturbed areas for staging when practicable, minimizing the amount and time that trenches remain open, recommending use of straw or natural fiber mulch or net free erosion control blankets instead of plastic mesh when appropriate, and revegetating disturbed areas with native grass and forb species wherever practicable. Aquatic impacts to significant streams will be avoided by horizontal directional drilling under the stream. Where trenching is used, stream impacts from the pipeline trench will be rendered temporary by restoring to preconstruction contours, maintaining existing flows or by constructing during periods when streams or wetlands are dry. When practicable, trenching and backfilling associated with the project will be done in a phased approach to minimize the time trenches remain open. Appropriate sediment and erosion control BMPs will be used as required by Sections 401 (Water Quality Certification) and 402 (Stormwater Permit) of the Clean Water Act. The applicant is committed to complying with state regulations and will assess the need to submit a Permit to Introduce Fish, Shellfish, or Aquatic Plants into Public Waters and ARRP on a stream by stream basis. Aquatic organisms, including all native freshwater mussel species were considered in the planning and route selection process. The applicant will avoid and minimize impacts to aquatic resources using HDD at streams with standing water below the OHWM and by realigning the pipeline route to miss or minimize impacts to streams wherever practicable. The applicant will assess the need for any further compliance with this recommendation on a stream by stream basis during construction. The presence of a biological monitor during all clearing and construction activities is not required. The applicant is committed to providing information packets with photographs on key species that may be found in the project area.

107-4	TPWD	For soil stabilization and/or revegetation of disturbed areas within the project area, TPWD recommends erosion and seed/mulch stabilization materials that avoid entanglement hazards to snakes and other wildlife species, including birds. Because the mesh found in many erosion control blankets or mats pose an entanglement hazard to wildlife, TPWD recommends the use of no-till drilling, hydromulching, and/or hydroseeding rather than erosion control blankets or mats to reduce risk to wildlife. If erosion control blankets or mats will be used, the product should contain no netting or should contain loosely woven, natural fiber netting in which the mesh design allows the threads to move, therefore allowing expansion of the mesh openings. Plastic mesh matting should be avoided. To aid in the scientific knowledge of a species' status and current range, TPWD recommends reporting encounters of state-listed species to the Texas Natural Diversity Database (TXNDD) according to the data submittal instructions found on the TXNDD website.	Mitigation-wildlife	The applicant will utilize wildlife impact avoidance BMPs throughout the project area to avoid impacts to fish and wildlife species, including but not limited to utilizing previously disturbed areas for staging when practicable, minimizing the amount and time that trenches remain open, recommending use of straw or natural fiber mulch or net free erosion control blankets instead of plastic mesh when appropriate, and revegetating disturbed areas with native grass and forb species wherever practicable. Aquatic impacts to significant streams will be avoided by horizontal directional drilling under the stream. Where trenching is used, stream impacts from the pipeline trench will be rendered temporary by restoring to preconstruction contours, maintaining existing flows or by constructing during periods when streams or wetlands are dry. When practicable, trenching and backfilling associated with the project will be done in a phased approach to minimize the time trenches remain open. Appropriate sediment and erosion control BMPs will be used as required by Sections 401 (Water Quality Certification) and 402 (Stormwater Permit) of the Clean Water Act. The applicant is committed to complying with state regulations and will assess the need to submit a Permit to Introduce Fish, Shellfish, or Aquatic Plants into Public Waters and ARRP on a stream by stream basis. Aquatic organisms, including all native freshwater mussel species were considered in the planning and route selection process. The applicant will avoid and minimize impacts to aquatic resources using HDD at streams with standing water below the OHWM and by realigning the pipeline route to miss or minimize impacts to streams wherever practicable. The applicant will assess the need for any further compliance with this recommendation on a stream by stream basis during construction. The presence of a biological monitor during all clearing and construction activities is not required. The applicant is committed to providing information packets with photographs on key species that may be found in the project area.

108	TPWD	Invasive Species: The DEIS acknowledges that invasive plant species may become established in disturbed areas and that invasive aquatic species could be introduced to the lake through recreational boating. No mitigation is proposed to offset impacts that may be associated with invasive species, but the DEIS indicates that any USACE permit can require additional actions be taken as appropriate if aquatic invasive species occur in the lake. Because construction equipment can carry invasive species away from a project site or introduce invasive species to a project site, TPWD recommends the DEIS incorporate mitigation actions to minimize potential invasive species impacts that may occur in association with construction of the raw water pipeline, dam, and SH 34 bridge. If equipment will come in contact with inland streams or waterbodies, TPWD recommends the UTRWD prepare and follow an aquatic invasive species transfer prevention plan which outlines BMPs for preventing inadvertent transfer of aquatic invasive plants and animals on project equipment to and from the construction site. TPWD recommends UTR WD also prepare and follow a revegetation and maintenance plan to prevent, monitor, treat and control invasive species within the construction and operation of ROWs.	Invasive species	The applicant has committed that their contractor will comply with all state regulations in regards to invasive species. The applicant shall implement best management practices to reduce the risk of transferring invasive plant and animal species to or from project sites.
109	TPWD	5.2 Public Land, 5.9 Recreation, and 5.16 Paleontological Resources: The DEIS indicates that the details regarding the location and amenities for the Ladonia Fossil Park have not been finalized, but gives an indication that a replacement site will be placed near the intersection of Farm to Market Road 904 and the North Sulphur River and will provide access to the river for fossil hunting with a path to access the channel. Because the exact location of the replacement site is not clearly presented and the length of the access trail is not apparent, then a potentially long access trail can be a limiting factor for the intended use of the park by fossil hunters. The mitigation and relocation criteria for this site should be more fully described. If the details are not clearly presented, TPWD recommends that the proposed replacement site and details of the amenities be given opportunity for public comment beyond the DEIS due to the inadequacy of the details presented in the DEIS.	Fossil Park	UTRWD plans to provide a new location for the Ladonia Fossil Park, comparable in size, in amenities, in access to the river channel and with on-site parking. Further opportunities to enhance the experience of visiting fossil hunters, as being suggested, are a matter of on-going discussion with the city of Ladonia and others.

110	TPWD	Appendix L - Mitigation Plan for Impacts to Aquatic Resources and Terrestrial Habitats: The mitigation plan of the DEIS is the same version/date as was included in the ADEIS, thus all of the comments from TPWD's 21 May 2018 letter would still apply. Following this statement, the document lists: III. Compensatory Mitigation, A. Aquatic Resources Mitigation: 5. Baseline Information for Aquatic Resources in Mitigation Area and 6. Mitigation Work Plan for Aquatic Resources, and the associated comments repeated from ADEIS. It also lists: VI. Maintenance Plan, VII. Site Protection Instrument, VIII. Performance Standards, X. Long Term Operation and Management Plan, XI. Adaptive Management Plan, XII. Financial Assurances, Appendix C-2 of Appendix L, and Appendix G of Appendix L, and the associated comments repeated from ADEIS.	Mitigation Plan	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
111	TRA	The Authority fully supports: 1) the Upper Trinity Regional Water District's development of the Lake Ralph Hall Water Supply Project; 2) the U.S. Army Corps of Engineers' analysis under the National Environmental Policy Act ("NEPA"); and, 3) the Draft Environmental Impact Statement ("DEIS") for Lake Ralph Hall that is now open for public comment. As required by NEPA, the DEIS presents a thorough analysis of the potential effects of the proposed reservoir project and considers a range of alternatives to the proposed project. The Authority believes the DEIS to be a comprehensive and satisfactory document that should result in an affirmative U.S. Army Corps of Engineers' decision to issue a Clean Water Act ("CWA") 404 permit to authorize the construction of Lake Ralph Hall. The environmental, social, and economic benefits of Lake Ralph Hall are demonstrated by the DEIS, and the reservoir will be an asset to the region. The Authority does not propose any revisions to the DEIS beyond those recommended by the Upper Trinity Regional Water District.	Support	Comment noted
112	TRWD	TRWD supports issuance of a 404 permit to allow construction and operation of Lake Ralph Hall Regional Water Supply Reservoir in Fannin County, Texas.	Support	Comment noted
113	TWSP	We commend the USACE for its development of a comprehensive DEIS and appreciate the extensive review of project alternatives and environmental impacts. The TWSP support Upper Trinity Regional Water District's (UTRWD) efforts in obtaining a Section 404 Clean Water Act permit to construct and operate Lake Ralph Hall.	Support	Comment noted

114-1	UTRWD	Characterization of the Lake Ralph Hall Project: The DEIS includes varying descriptions of what constitutes the "Proposed Action," "Project Area," "Permit Area," etc. that would be covered by any Clean Water Act Section 404 Permit ("404 Permit") issued to UTRWD for the Lake Ralph Hall project. Each of these terms should be clearly defined at their initial use and employed consistently throughout the EIS. UTRWD seeks authorization for the construction of Lake Ralph Hall, including the dam and reservoir, the principal and emergency spillways, the raw water pipeline, and the balancing reservoir (together, the "Proposed Action"). On numerous occasions, where the Proposed Action is discussed, the text only addresses resources or impacts associated with the reservoir (and not the other project components), the reservoir and pipeline (to the exclusion of the balancing reservoir), and similar incomplete combinations of project components. This is done throughout the DEIS in both the text and in the titles of figures, including in the second paragraph of the Executive Summary, which fails to reference the balancing reservoir. For additional examples, see Pg. 1-4, Figure 1-2, which only shows the reservoir boundary but is titled "Project and Conservation Pool Boundaries"; see also Pgs. 3-18 and 3-19, Sec. 3.4.4 and Figure 3-10, which only show the reservoir and part of the pipeline in the Figure titled "Well Locations near Lake Ralph Hall Permit Area" while in the legend the reservoir footprint is identified as the "Project Area." The EIS's inconsistency in referencing the entire Project Area or discrete, clearly-identified project components could be misinterpreted as a failure of the EIS to fully identify all affected resources and impacts to those resources, because not all components of the Proposed Action have been appropriately evaluated and analyzed. We believe that the EIS does in fact identify and analyze all affected resources and impacts to those resources for the various project components and for the Project Area as a whole, and therefore it is essential that the EIS be worded so as to accurately reflect this identification and analysis.	Study Area	No change.
114-2	UTRWD	UTRWD therefore requests that USACE include revisions in the FEIS to appropriately and consistently reflect that UTRWD seeks authorization for the construction of the Lake Ralph Hall project—including the dam and reservoir, principal and emergency spillways, raw water pipeline, and balancing reservoir—and then appropriately characterize all these components, when considered together, as the "Proposed Action" throughout the FEIS. In identifying affected resources, all resources associated with these components should either be discussed for the Proposed Action collectively or should be individually discussed for each and every component. And then, the impacts to each affected resource should likewise be discussed either collectively for the Proposed Action or individually in relation to each component.	Study Area	No change.
115	UTRWD	Clarification of the pipeline footprint acreage: UTRWD recommends inserting the word "approximately" before every reference to the 384-acre pipeline footprint, given that this acreage is estimated based 2016 aerial imagery.	Pipeline footprint	Revised as suggested

116	UTRWD	References to “Lower Bois d’Arc Creek Reservoir” should be revised and updated to refer to Bois d’Arc Lake”: While the FEIS for that reservoir project does use the name Lower Bois d’Arc Creek Reservoir (“LBCR”), the reservoir has since been renamed by the North Texas Municipal Water District as Bois d’Arc Lake (“BDL”). The explanation of the renaming of the impoundment, as currently included at DEIS page 2-41, is appropriate to retain with the substitution of “Bois d’Arc Lake” for “North Texas Municipal Lake.” However, the Lake Ralph Hall FEIS would be more accurate and clear by using the name “Bois d’Arc Lake” throughout when not referring expressly to the LBCR EIS.	Editorial	Revised as suggested
117	UTRWD	Pg. ES-1, Sec. ES2.1, line 2. UTRWD Comment: The word “its” should be revised to “UTRWD’s” to clarify to what entity’s wholesale customers it refers.	Editorial	Revised as suggested
118	UTRWD	Pg. ES-1, Sec. ES2.1, line 3. UTRWD Comment: The words “by 2024” should be inserted after “additional water” so that sentence reads, “The purpose of the proposed Lake Ralph Hall is to provide additional raw water supplies to meet the growing demands from UTRWD’s wholesale customers and the proposed lake is one strategy to provide that additional water by 2024 while providing additional security in the event supply from any of its other sources is interrupted.”	Editorial	No change.
119	UTRWD	Pg. ES 4, Sec. ES1.3.2, para.1. UTRWD Comment: Change “7,605 acres” to “7,568 acres.”	Editorial	Revised as suggested
120	UTRWD	Pg. ES-6, Sec. ES1.5.2, Table ES-1. UTRWD Comment: Suggest updating table to include meetings held after January 2017—July 3rd Agency Meeting in Ft. Worth and August 28th Agency Site Visit to Mitigation Area.	Agency Coordination	Revised as suggested
121	UTRWD	Pg. ES-7, Sec. ES6.1, Table ES-2. UTRWD Comment: Each row of Table ES-2 should include the use of a defined term for the intensity of impacts (as defined on pages ES-6 to ES-7) for both the No Action Alternative and the Proposed Action Alternative. Currently, numerous rows in the table do not include a description of the effects. Implementing this change would make Table ES-2 consistent with Chapter 4 of the DEIS and would provide a more helpful and complete Executive Summary.	Intensity of Impacts	Revised table to be consistent with Chapter 4
122	UTRWD	Pg. ES-9, Sec. ES6.1, Table ES-2, Soils, Proposed Action Alternative states: “…inundation of the soils within the conservation pool and periodic flooding of the soils within the littoral zone.” UTRWD Comment: The littoral zone is the near-shore shallow water area within the conservation pool where sunlight penetrates to the lake bottom. The soils that would be periodically flooded are those above the conservation pool within the reservoir floodplain. Suggest replacing the phrase “littoral zone” with “reservoir flood plain.”	Soils	Revised as suggested
123	UTRWD	Pg. ES-9, Sec. ES1.5.3, Table ES-2, Surface Water-Water Quality, Proposed Action states: “Downstream site calculations indicate a slight increase in pollutant concentrations due to decreased flow.” UTRWD Comment: This conclusion of expected increases in pollutant concentrations is overstated and incorrect, and it is unnecessarily alarming. Suggest replacing the word “slight” with the word “negligible.”	Surface Water	No change.
124	UTRWD	Pg. ES-12, Sec. ES1.5.3, Table ES-2, Recreation, Proposed Action states: “…administered by the U.S. would be converted…” UTRWD Comment: This should say “…administered by the U.S. Forest Service would be…”	Recreation	Revised as suggested

125	UTRWD	Pg. ES-14, Sec. ES1.5.3, Table ES-2, Threatened and Endangered Species, Proposed Mitigation states: “Directional drilling…at stream crossings.” UTRWD Comment: This should say “at some stream crossings.”	T/E	For the purpose of deciding whether to use horizontal directional drilling (HDD) or open trench construction methods for raw water pipeline installation, directional drilling will be used at stream crossings with standing water below the OHWM at the time of construction in order to avoid and minimize impacts. If a stream does not have standing water below the OHWM, then the applicant will construct the pipeline crossing using open trench construction methods. Upon completion, temporary fill for cofferdams or other construction materials will be removed from the stream, the bed and bank contours below the ordinary high water mark will be restored, and the stream will be stabilized using appropriate post-construction best management practices in accordance with U.S. Army Corps of Engineers section 404 permit and Texas Commission on Environmental Quality section 401 Water Quality Certification and Stormwater Construction General Permit conditions. Any impacts associated with open trench crossings will be temporary in nature. Once construction activities are complete for each crossing, the area will be returned to grade. Appropriate erosion control best management practices will be implemented and monitored in accordance with a Storm Water Pollution Prevention Plan and the TCEQ Section 401 Water Quality Certification conditions issued for the USACE 404 permit.
126	UTRWD	Pg. ES-15, Sec. ES1.5.3, Table ES-2, Cultural Resources – Archeological, Proposed Action states: “…15 percent of the Proposed Action.” UTRWD Comment: This should be revised to refer to “15 percent of the APE.”	Cultural Resources	Revised as suggested
127	UTRWD	Pg. ES-16, Sec. ES1.5.3, Table ES-2, Environmental Justice and Protection of Children, Proposed Action states: “Adverse impacts…would be minor.” UTRWD Comment: Suggest adding “would be negligible to minor” for consistency with Chapter 4 conclusion.	Environmental Justice	No change. The conclusion of Chapter 4 states, "Overall, adverse impacts on environmental justice populations within the study area would be minor".
128	UTRWD	Pg. 1-1, Sec. 1.1., para. 1, line 6, states: “The project boundary includes property to be purchased and managed by the applicant adjacent to the proposed conservation pool.” UTRWD Comment: See Overall Comment No. 1. Suggest adding all project components to this sentence so that it reads, “The Proposed Action includes property to be purchased and managed by the applicant adjacent to the proposed conservation pool and also includes the acreage associated with the raw water pipeline and the balancing reservoir.”	Study Area	Revised as suggested
129	UTRWD	Pg. 1-1, Sec. 1.1., para. 2, lines 4 and 5, state: “…constructing the proposed Lake Ralph Hall project, including the construction of the dam, reservoir, and a pipeline.” UTRWD Comment: See Overall Comment No. 1. Suggest adding the balancing reservoir to this list in order to accurately reflect the complete Project.	Study Area	Revised as suggested
130	UTRWD	Pg. 1-4, Sec. 1.1, Figure 1-2. UTRWD Comment: See Overall Comment No. 1. Figure title and legend should be revised to clarify that the figure does not reflect the entire Project Area. Should revise the title of Figure 1-2 to read, “Reservoir and Conservation Pool Boundaries.”	Editorial	Revised as suggested
131	UTRWD	Pg. 1-5, Sec. 1.1, Figure 1-3. UTRWD Comment: See Overall Comment No. 1. The legend should be revised to identify the blue-bordered area as “Proposed Lake Ralph Hall” rather than “Project Area,” as the figure does not illustrate all project components.	Study Area	Revised as suggested

132	UTRWD	Pg. 1-6, Figure 1-4. UTRWD Comment: See Overall Comment No. 1. This figure should be updated to label the major waterbodies that are relevant to the project, such as the proposed Lake Ralph Hall, North Sulphur River, Red River, Sabine River, East Fork Trinity River, Bois d'Arc Creek, and South Sulphur River. Additionally, the legend reference to "Project Area" should be revised to refer to "Proposed Lake Ralph Hall."	Study Area	Revised as suggested
133	UTRWD	Pg. 1-7, Sec. 1.2, Table 1-1. UTRWD Comment: Should clarify that the Texas Pollutant Discharge Elimination System permit from TCEQ is a storm water construction permit.	Editorial	Revised as suggested
134	UTRWD	Pg. 1-8, Sec. 1.2, Table 1-2. UTRWD Comment: Table title should be revised to say, "Other Requirements, Approvals, and Review Authorities," as not all of the items listed constitute a requirement or approval.	Editorial	Revised as suggested
135	UTRWD	Pg. 1-12, Sec. 1.5, para. 1. UTRWD Comment: Change "7,601 acres" to "7,568 acres."	Project Acreage	Revised as suggested
136	UTRWD	Pg. 1-12, Sec. 1.5, para. 2. UTRWD Comment: Recommend consistently referring to the state water right permit for Lake Ralph Hall as "Water Use Permit No. 5821" throughout the document.	Editorial	Revised as suggested
137	UTRWD	Pg. 1-12, Sec. 1.5, para. 2. UTRWD Comment: Revise to read as follows: "Water Use Permit No. 5821, the TCEQ-issued state water right permit for Lake Ralph Hall, authorizes UTRWD to impound up to 180,000 AF in the proposed Lake Ralph Hall and authorizes the diversion and use of water supplies with a firm yield of approximately 34,050 AF/year when the proposed project would be operated as part of UTRWD's overall water supply system."	Editorial	Revised as suggested
138	UTRWD	Pg. 1-12, Sec. 1.5. UTRWD Comment: The last paragraph begins: "The proposed Lake Ralph Hall Raw Water Pipeline will be 48 inches in diameter…" Suggest revising this comment to state, "The proposed Lake Ralph Hall Raw Water Pipeline will be approximately 60 inches in diameter." While the ultimate pipeline diameter used may be less than 60 inches, this change is recommended.	Editorial	Revised as suggested
139	UTRWD	Pg. 1-15, Sec. 1.5. UTRWD Comment: The list of county roads in the last paragraph reads: "The following County Roads would be abandoned or partially abandoned as a result of the impoundment of the proposed Lake Ralph Hall; FM 2990, CR 1550, CR 3360, CR 3365, CR 3370, CR 3380, CR 3600, CR 3605, CR3610, and CR 3640." The sentence should read: "The following State and County Roads would be abandoned or partially abandoned as a result of the impoundment of the proposed Lake Ralph Hall; FM 2990, FM 1550, CR 3365, CR 3370, CR 3380, CR 3600, CR 3605, CR3610, and CR 3640." Note that CR 1550 and CR 3360 have been deleted from the list. CR 1550 should have been FM 1550, and CR 3360 is not impacted by the proposed project.	Roads	Revised as suggested
140	UTRWD	Pg. 1-17, Sec. 1.6, Figure 1-7. UTRWD Comment: This figure contains inaccuracies. UTRWD will provide the USACE with a new, accurate figure.	Roads	A revised Figure 1-7 is attached to this response
141	UTRWD	Pg. 1-19, Sec. 1.6.1, Table 1-4. UTRWD Comment: The footnote identifies "North Texas Water District." This should refer to "North Texas Municipal Water District."	Editorial	Revised as suggested
142	UTRWD	Pg. 1-23, Sec. 1.6.1.1, para. 2. UTRWD Comment: Consider adding a citation to DWU's long-range water supply plan to support the last sentence of the first full paragraph. The correct citation would read: "Dallas Water Utilities, 2014 Dallas Long Range Water Supply Plan to 2070 and Beyond (Dec. 2015)."	Editorial	Revised as suggested

143	UTRWD	Pg. 1-26, Sec. 1.6.1.6, para. 2. UTRWD Comment: The Doe Branch plant was completed in November 2016. The paragraph should be revised to read, "…2) the 2.0 mgd Riverbend Treatment Plant; 3) the 0.94 mgd Peninsula Treatment Plant; and 4) the 2.0 mgd Doe Branch Treatment Plant serve Customers in the northeast portion of UTRWD's service area." The final sentence of the paragraph should be deleted.	Editorial	Revised as suggested
144	UTRWD	Pg. 1-49, Sec. 1.8. UTRWD Comment: Recommend revising the last paragraph of this section to reflect TCEQ's determination, in its issuance of Water Use Permit No. 5821, that UTRWD has achieved the "highest practicable levels of water conservation and efficiency achievable within [its] jurisdiction," as required by Texas Water Code § 11.085(l)(2). See Upper Trinity Reg'l Water Dist. v. Nat'l Wildlife Fed'n, 514 S.W.3d 855 (Tex. App—Houston [1st Dist.] 2017, no pet.) (upholding TCEQ's determination that UTRWD had developed and implemented a water conservation plan that would result in the "highest practicable levels of water conservation and efficiency achievable within its jurisdiction, as required by section 11.085(l)(2) of the Water Code," for the interbasin transfer authorized for the Lake Ralph Hall project).	Editorial	Additional conservation language was added in relation to Water Use Permit No. 5821.
145	UTRWD	Pg. 2-4, Table 2-1, Row 2, Lake Ralph Hall (APA) Alternative. UTRWD Comment: Source column indicates "New water right." This should be revised to say "Existing water right" to reflect that a water right is not a hurdle for the Lake Ralph Hall alternative.	Editorial	Revised as suggested
146	UTRWD	Pg. 2-5, Sec. 2.3.1, bullet 1. UTRWD Comment: The reference should be corrected to read "40 CFR 230.3(l)."	Editorial	Revised as suggested
147	UTRWD	Pg. 2-12, Sec. 2.4.2, para.1. UTRWD Comment: Change "7,601 acres" to "7,568 acres."	Project Acreage	Revised as suggested
148	UTRWD	Pg. 2-12, Sec. 2.4.2. para. 2, states: "…UTRWD would provide water to towns and cities in Collin, Cooke, Dallas, Denton, Grayson, and Wise Counties within the Trinity River Basin." UTRWD Comment: UTRWD would also make water available to the City of Ladonia and to those portions of Fannin County that lie in the Sulphur River Basin.	Water availability	Revised as suggested
149	UTRWD	Pg. 2-16, Sec. 2.4.2.1, Applicant's Preferred Alternative (Dam Site C), states a top of dam elevation of 562 feet. UTRWD Comment: Further studies have identified a need to provide more freeboard. The elevation of the top of dam will vary between 566 ft. and 568 ft. MSL.	Dam Elevation	Revised as suggested
150	UTRWD	Pg. 2-16, Sec. 2.4.2.1, Applicant's Preferred Alternative (Dam Site C). UTRWD Comment: In the first paragraph, change "7,601 acres" to "7,568 acres."	Project Acreage	Revised as suggested
151	UTRWD	Pg. 2-34, Sec. 2.4.3, George Parkhouse Reservoir (North), para. 2, states: "Due to failure of Criteria 2, 3, and 5, the George Park House Reservoir (North) Alternative was not carried forward for detailed evaluation in this DEIS." UTRWD Comment: On page 3-32, the DEIS concludes that this alternative would meet Criterion 2. Therefore, the sentence should be revised to read, "Due to failure of Criteria 3 and 5, the George Parkhouse Reservoir (North) Alternative was not carried forward for detailed evaluation in this DEIS."	Alternatives Analysis	Revised as suggested
152	UTRWD	Pg. 2-36, Sec. 2.4.3, George Parkhouse Reservoir (South), para. 2. UTRWD Comment: Replace "George Park House Reservoir (South)" with "George Parkhouse Reservoir (South)."	Editorial	Revised as suggested

153	UTRWD	Pg. 2-37, Sec. 2.4.3, Cypress Creek Basin – Lake O' the Pines. UTRWD Comment: The conclusion states, "Due to failure of Criterion 3, the Cypress Creek Basin Alternative…" It should say "failure of Criteria 2 and 3" based upon the DEIS conclusion in the preceding paragraph regarding Criterion 2.	Editorial	Revised as suggested
154	UTRWD	Pg. 2-46, Sec. 2.4.3, Table 2-9. UTRWD Comment: The table should be revised to reflect the edits provided in UTRWD Comments 38 and 40, above, for consistency with the body paragraphs of Sec. 2.4.3.	Editorial	Revised as suggested
155	UTRWD	Pg. 3-2, Sec. 3.1, Existing Land Use, line 3 states: "…stock tanks, and on-channel ponds)." UTRWD Comment: Delete parenthesis after "ponds."	Editorial	Revised as suggested
156	UTRWD	Pg. 3-3, Sec. 3.1, Figure 3-1: Existing Land Use within Project Area. UTRWD Comment: See Overall Comment No. 1. Revise title of figure to refer only to the reservoir and dam, rather than "Project Area," as the figure does not contain all project components. Retitle the figure as "Existing Land Use within the Proposed Reservoir Boundary" and change the legend reference "Project Boundary" to "Proposed Reservoir Boundary."	Editorial	Revised as suggested.
157	UTRWD	Pg. 3-4, Sec. 3.1, Figure 3-2: Ownership within Project Area. UTRWD Comment: See Overall Comment No. 1. Revise title of figure to refer only to reservoir and dam, rather than "Project Area," as the figure does not contain all project components. Retitle the figure as "Ownership within the Proposed Reservoir Boundary" and change the legend reference "Project Area" to "Proposed Reservoir Boundary."	Editorial	Revised as suggested
158	UTRWD	Pg. 3-4, Sec. 3.1, Figure 3-2: Ownership within the Project Area. Source for the figure is identified as "Alan Plummer Associates, Inc." UTRWD Comment: The correct source is "UTRWD, 2018b" as already included in the DEIS references section.	Editorial	Revised as suggested
159	UTRWD	Pg. 3-4, Sec. 3.2, para. 1, last sentence, states: "The larger Bois d'Arc Unit is located in northern Fannin County, and the smaller Ladonia Unit is located west of Ladonia in the southwest portion of the project area, within the reservoir footprint." UTRWD Comment: Insert the word "partially" before "within the reservoir footprint."	Editorial	Revised as suggested
160	UTRWD	Pg. 3-15, Sec. 3.4.2, para. 1, states: "Therefore, it could be expected that the North Sulphur River, that was channelized about 75 years ago, has completed the evolutionary sequence and might be approaching a new state of equilibrium with the imposed flows and sediment loads." UTRWD Comment: The Mussetter Report (UTRWD 2016) states that the North Sulphur River has not reached a state of equilibrium and will continue to erode at an average rate of 2 inches vertically and 4 inches horizontally for the foreseeable future. If channel segments that have apparent equilibrium are downstream of the proposed dam site, this should be clarified.	Erosion	No change. Text was previously added. See page 3-16 line 6.
161	UTRWD	Pg. 3-23, Sec. 3.4.6, states: "Projects considered exempt under the FPPA include those that require no additional right-of-way (ROW), or projects that require additional ROW but that ROW is developed, urbanized or zoned for urban use." UTRWD Comment: Land committed to water storage (i.e., water supply reservoir) is also exempt. This should be referenced here. See 7 U.S.C. § 4201(c)(1)(A) (excluding land committed to water storage from the definition of "farmland" and thus from the FPPA).	FPPA	No change. Previously revised to include that permit actions are exempt and included for disclosure purposes. Reservoir language concerning being exempt is not included as per USACE direction.

162	UTRWD	Pg. 3-37, Sec 3.6.2.2, Table 3-7. UTRWD Comment: Footnote 1, related to "Indicator Bacteria," does not currently point to any text. A footnote should be added that states, "The appropriate indicator criteria for Lewisville Lake is E. coli." Additionally, the column header "Public Contact Recreation" should be revised to read "Primary Contact Recreation."	Water Quality	Footnote added
163	UTRWD	Pg. 3-39, Sec. 3.6.4. UTRWD Comment: Heading should read "Wetlands and Waters of the U.S.	Editorial	Revised as suggested
164	UTRWD	Pg. 3-40, Sec. 3.6.4. para. 1, sent. 2, states: "For many years, wetlands have been regarded as wastelands or idle lands and substantial areas of wetland have been developed for other purposes such as agriculture and building construction." UTRWD Comment: This sentence is not relevant to the Proposed Action and should be deleted. The remaining first sentence of this paragraph should then be combined with following paragraph. If the wetland commentary is kept, the next paragraph starting with "The increased awareness…" should be combined with this paragraph.	Wetlands and WOUS	Revised as suggested
165	UTRWD	Pg. 3-42, Sec. 3.6.4, para. 1, line 8, states: "Revisions to the delineation of waters of the United States were accomplished and 10 acres of lacustrine fringe wetlands (Photo 3-6) were added within assessment area (UTRWD, 2017c). Utilization of the 1987 USACE Wetland Delineation Manual (USACE, 1987), including the Great Plains Supplement (USACE, 2010), also occurred." UTRWD Comment: Revise text to state, "Based on the supplement report, 10 acres of lacustrine fringe wetlands (Photo 3-6) were identified within the assessment area (UTRWD, 2017d). The delineation of aquatic resources was conducted utilizing the 1987 USACE Wetland Delineation Manual (USACE, 1987), including the Great Plains Supplement (USACE, 2010). The Approved Jurisdictional Determination was issued July 27, 2017 (Appendix E-4)."	Wetlands and WOUS	Revised as suggested
166	UTRWD	Pg. 3-45, Sec 3.7, para. 1. UTRWD Comment: Update sentence regarding the regional classification of the DFW area and deadline for attainment to state, "Regionally, the Dallas Fort Worth area…is classified as a marginal ozone nonattainment area for 9-hour NAAQS and must be in attainment by August 3, 2021."	Air Quality	Revised to current deadline.
167	UTRWD	Pg. 3-49, Sec. 3.10, states: "…viewshed consists of floodplains…" UTRWD Comment: No floodplains fall within the project area, as the 100-year flood would be contained within North Sulphur River channel and tributary channels. Sentence should be revised to state, "The viewshed consists of historic floodplains…"	Floodplains	Revised as suggested
168	UTRWD	Pg. 3-58, Sec. 3.11.2, last paragraph of sec., sent. 1. UTRWD Comment: "16 United State Code" should read "16 United States Code."	Editorial	Revised as suggested
169	UTRWD	Pg. 3-58, Sec. 3.11.2, para. 3. UTRWD Comment: Before the last sentence of the paragraph, the following text included in Section 4.11.1.2 Wildlife should be added (or text similar thereto): In Texas, pursuant to a U.S. Court of the Appeals for the Fifth Circuit 2015 decision, and pursuant to a legal memo issued by the Department of Interior dated December 22, 2017, the MBTA prohibits intentional acts (not omissions) that directly (not indirectly or accidentally) kill migratory birds. Consequently, UTRWD is only required to comply with the MBTA by avoiding intentional takes of migratory birds.	MBTA	No change. Previous USACE comment included, "The section describes the Act and is applicable – not how UT would be required to comply."
170	UTRWD	Pg. 3-63, Sec. 3.11.3, paragraph associated with Table 3-20. UTRWD Comment: A comma is needed following "Caenidae (36 percent)."	Editorial	Revised as suggested

171	UTRWD	Pg. 3-65, Sec. 3.11.4. UTRWD Comment: Texas Parks and Wildlife Code § 66.0071 requires removal of exotic aquatic plants upon any vehicle or vessel leaving any waterbody of the state. The discussion should correctly reference Texas Parks and Wildlife Code § 66.007, which addresses exotic, harmful fish and shellfish.	Editorial	Revised as suggested
172	UTRWD	Pg. 3-68, Sec. 3.12, Table 3-22. UTRWD Comment: Provide separate sections and tables to address species listed pursuant to federal law and species listed pursuant to state law to achieve better clarity in this discussion and to accurately reflect the extent of USFWS and TPWD jurisdiction, respectively. This division of treatment in the analyses of effects on federally-listed species and state-listed species is important, because the protections afforded under state law and under the federal ESA—and particularly differences in their treatment under the CWA 404 permitting process—are very different (e.g., Section 7 consultation under the federal ESA for only federally-listed species). The recommended change could be accomplished by creating subsections within Sec. 3.12 (e.g., "Sec. 3.12.1 Federally-Listed Species" and "Sec. 3.12.2 State-Listed Species") and by exchanging the current Table 3-22 for two tables (e.g., "Table 3-22A Federally-Listed Threatened and Endangered Species…" and "Table 3-22B State-Listed Threatened and Endangered Species…"), each within their respective subsection.	T/E	Revised as suggested
173	UTRWD	Pg. 3-67, Sec. 3.12, para. 2. UTRWD Comment: Insert "of Title 31" after "Sections 69.1 –69.9" to clarify the section of the TAC.	Editorial	Revised as suggested
174	UTRWD	Pg. 3-69, Table 3-22. Under the description for the Blackside Darter—a fish species— it references the "Sulfur" River basin. UTRWD Comment: Change "Sulfur" to "Sulphur."	Editorial	Revised as suggested
175	UTRWD	Pg. 3-72, Sec. 3.13. UTRWD Comment: The third full paragraph lists more state and county road impacts than are accurate. The correct list of roads omits certain roads and should read: "CR 3365, CR 3370, CR 3380, CR 3600, CR 3605, CR 3610, CR 3640 and FM 1550."	Roads	Revised as suggested
176	UTRWD	Pg. 3-72, Sec. 3.13. The last paragraph refers to an active rail spur five miles north of the project site. UTRWD Comment: UTRWD knows of no active rail spur five miles north of the site. Suggest revising the last paragraph to read: "There are many inactive rail spurs throughout the area and one active spur. The Fannin Rural Rail Transportation District was developed to preserve railroad service in eastern Grayson, Fannin, and Lamar counties to meet present and future transportation requirements. The closest active rail spur, the Dallas, Garland and Northeastern RR (DGNO), runs from Sherman, in Grayson County thru the towns of Trenton and Leonard in Fannin County to Greenville in Hunt County. Amtrak does not provide direct passenger train service to Bonham, and the closest Amtrak passenger station is approximately 60 miles from the proposed reservoir in Gainesville."	Railroads	Revised as suggested
177	UTRWD	Pg. 3-76, Sec. 3.15. UTRWD Comment: In the second paragraph, revise "flood pool" to "floodplain."	Editorial	Add "flood pool of the proposed Lake Ralph Hall".
178	UTRWD	Pg. 3-80, Sec. 3.15.1.2, para. 3, last sent. UTRWD Comment: Suggest replacing "by" with "before."	Editorial	Revised as suggested
179	UTRWD	Pg. 3-84, Sec. 3.15.2.1, Background, para. 1, sent. 5. UTRWD Comment: The reference to "North and Sulphur Rivers" is confusing. Should revise to state "North Sulphur River and South Sulphur River."	Editorial	Revised as suggested

180	UTRWD	Pg. 3-84, Sec. 3.15.2.1, Background, para. 1, sent. 5. UTRWD Comment: The reference to "(Slaughter and Hoover, 1965)." should be revised to reflect other relevant references to prehistoric artifacts. The reference should read, "(Slaughter and Hoover, 1965; Bohlin, 1993; Bousman and Skinner, 2007; C. Britt Bousman, 2005; Tom Jennings, 2005; Jeff Bohlin, 1989)."	Editorial	No change. References were taken directly from AR Consultants Archeology Report (2006)
181	UTRWD	Pg. 3-84, Sec. 3.15.2.1, Previous Investigations. UTRWD Comment: This discussion should be clarified in certain ways to accurately reflect current knowledge of archaeological sites and resources beyond the 2002 date of TARL. Additionally, the reference to LBCR (BDL) in this paragraph is in error, as the 1968 archaeological survey conducted by Hsu for the predecessor of the Texas Historical Commission was actually for a different project that was contemplated to be built upstream from where BDL is being built today but was never constructed. This history is described in an Archeological Survey Report Number 2 titled "An Appraisal of the Archeological Resources of Timber Creek and Bois d'Arc Reservoirs, Fannin County, Texas" written by Dick Ping Hsu and published by the Texas State Building Commission and Texas State Water Development Board in 1968. Therefore, the references to this prior reservoir should be clarified for accuracy. In sum, the first paragraph of this subsection should be revised to read: Few cultural investigations have been done in the Ladonia area due to the absence of any large-scale land modifying activities in the area. Although the Ladonia Unit of the Caddo National Grasslands is nearby, very little archaeological survey has been done on these lands which are controlled by the U.S. Forest Service (Jurney, Winchell, and Moir, 1989) and the only other investigations in the area have been in conjunction with the construction of roads, pipelines, flood-water retarding structures and similarly small-scale projects. The first major archaeological site survey in Fannin County was conducted in 1968 (Hsu, 1968) in anticipation of the construction of Timber Creek Reservoir, which is now known as Lake Bonham, and at a planned Bois d'Arc Reservoir that was never built (and which is distinct from the BDL project that is currently being built). No excavation was conducted at Lake Bonham, and Bois d'Arc Reservoir has not been built. This single survey resulted in locating fifteen archaeological sites. In 1994, four archaeological sites were recorded on the Ladonia Unit of the National Grasslands (Servello, 1994) and these included two prehistoric and two historic sites (Table 3-25). No sites were recorded in the floodplain of the North Sulphur River within Fannin County prior to the 2005 Lake Ralph Hall survey that is discussed below, although hundreds of prehistoric projectiles and numerous Late Pleistocene fossils have been recovered by artifact collectors. . . .	Cultural Resources	Language taken directly from AR Report. No change.
182	UTRWD	Pg. 3-86, Sec. 3.15.2.2, para. 1. UTRWD Comment: The third sentence should be revised to reflect that the USACE also reviewed the report in 2006. That sentence should state, "The Cultural Survey Report was submitted to and reviewed by the THC, which is the State Historic Preservation Office for Texas, as well as the USACE."	Cultural Resources	No change.
183	UTRWD	Pg. 3-86, Sec. 3.15.2.2, para. 2. UTRWD Comment: See Overall Comment No. 1. The first sentence reference to "the Proposed Action project area" should be clarified to either refer to the Project Area (meaning all project components) or to the reservoir footprint, whichever accurately reflects the survey parameters.	Editorial	Revised as suggested
184	UTRWD	Pg. 3-88, Sec. 3.15.2.3. UTRWD Comment: Recommend including text regarding whether responses were received from each of the notified tribes.	Tribal Coordination	No change. Discussed in Section 6.3.
185	UTRWD	Pg. 3-88, Sec. 3.15.2.3. UTRWD Comment: Reference to the "Area of Interest" should be replaced with "APE."	Cultural Resources	Revised as suggested

186	UTRWD	Pg. 3-88, Sec. 3.16, bullet 3. UTRWD Comment: Reference to “seal level” should be replaced with “sea level.”	Editorial	Revised as suggested
187	UTRWD	Pgs. 3-94 through 3-100, Sec. 3.17.2, including Table 3-28; Table 3-30; Table 3-32; Table 3-33; Table 3-100. UTRWD Comment: It is unclear to what area the columns entitled “Lake Ralph Hall” refer in each of the tables and in related the body text discussion. Based upon the sizeable population numbers included in Table 3-29 in the “Lake Ralph Hall” column, it does not appear that these numbers reflect either the proposed reservoir boundary or the larger Project Area. Please define “Lake Ralph Hall” for the purposes of these tables (or reword the column header for clarity) and adjust any populated fields as necessary.	Editorial	In Table title, "Lake Ralph Hall" was changed to "Lake Ralph Hall PIA" for Tables 3-28 and 3-30. The population numbers in Table 3-29 are jurisdictions outside the PIA.
188	UTRWD	Pg. 3-115, Sec. 3.17.2.2, Education PIA. UTRWD Comment: It is unclear why the SIA is not addressed for education.	Socioeconomic	No increase or decreases to student populations or school district finances are anticipated in the SIA. Therefore, no SIA for education exists in this instance. Text added for clarification.
189	UTRWD	Pg. 3-117, Sec. 3.17.4, Table 3-49. UTRWD Comment: This table references population data for Collin County. The proposed pipeline is primarily located in Hunt County with small portions located in Fannin and Collin Counties. Less than 3 miles are in Collin County. Recommend clarifying that Table 3-49 only includes Collin County data because analogous data for Hunt and Fannin Counties were already presented in previous tables in Sec. 3.17. Alternatively, Table 3-49 could be revised to present such data from all three counties side by side.	Socioeconomic	The fact that the majority of the pipeline length will be in Hunt County is explained on Pg. 3-116. Fannin and Hunt County addressed earlier as also explained. Only Collin County presented here to avoid text redundancy.
190	UTRWD	Pg. 3-117, Sec. 3.17.4, Age, sent. 2, states: “The proportion of the population over sixty in the county is 13 percent compared to Texas at 16 percent.” UTRWD Comment: The proportion of the population over sixty in Texas totals 15 percent, not 16 percent.	Socioeconomic	Comment noted. Text was revised to note that the median age in the PIA is moderately higher than the overall Texas median, and the proportion of the population over 60 is eight 14 percent higher in the PIA (29%) as compared to Texas (15%).
191	UTRWD	Global Comment: Throughout this chapter [Chapter 4], the discussion should identify the intensity of the impact associated with each resource, including in both the No Action Alternative and the Preferred Action Alternative. This has been accomplished in most instances, but certain sections have failed to include a conclusion statement that utilizes the DEIS’ defined terms for impacts (as defined on pages ES-6 and ES-7).	Intensity of Impacts	Conclusion statement of impact provided where applicable.
192	UTRWD	Pg. 4-2, Sec. 4.0, Figure 4-1. UTRWD Comment: Suggest adding the proposed pipeline and balancing reservoir to this figure.	Editorial	Revised as suggested
193	UTRWD	Pg. 4-3, Sec. 4.1.1.2 and pg. 4-113, Sec. 4.20, states: “As of May 2017, there are two residences remaining within the project area that would need to be purchased before construction begins.” UTRWD Comment: Suggest revision of such statement consistent with Section 4.17.1.2, pg. 4-75, to state, “As of August 2018, one residence remained in the project boundary that would need to be acquired prior to construction.”	Displacements	Revised as suggested
194	UTRWD	Pg. 4-4, Sec. 4.1.1.2, para. 2, line 8, states: “Adjacent project lands are to be open space and available to the public…” UTRWD Comment: UTRWD’s state water right, Water Use Permit No. 5821, only requires UTRWD to “establish and maintain a riparian buffer zone of permanent vegetation around the perimeter of the reservoir averaging at least 50 feet in width with the exception of reasonable access areas and the area of the dam and spillway.” This permit requirement should be noted here.	Land Use	No change as per USACE direction in ADEIS.

195	UTRWD	Pg. 4-5, Sec. 4.1.2.1. UTRWD Comment: For clarity and accuracy, revise the last sentence to read, "The No Action Alternative would not contribute to any cumulative changes in land use over the long term, because the lands are currently leased to the prior property owner, and, if the No Action Alternative were selected, the lands would continue to be leased or eventually put on the open market."	Land Use	Revised as suggested
196	UTRWD	Pg. 4-5, Sec. 4.1.2.1. UTRWD Comment: BDL should be discussed in this section in the same manner as it is addressed in para. 2 of Sec. 4.1.2.2, as BDL is a future action that will occur independent of whether the No Action Alternative or Proposed Action Alternative is selected for the Lake Ralph Hall project.	Land Use	Revised as suggested
197	UTRWD	Pg. 4-5, Sec. 4.1.2.2, para. 2. UTRWD Comment: Recommend also including the acreage associated with the mitigation site for BDL. Insert into the sentence referencing BDL the following statement, "…would cover up to 17,068 acres of bottomland and adjacent upland habitat along Lower Bois d'Arc Creek in Fannin County and would include approximately 17,895 acres of mitigation property."	Land Use	Still in a state of flux. No change.
198	UTRWD	Pg. 4-5, Sec. 4.1.2.2., para. 2, sent. 4. UTRWD Comment: Phrase "cover up" should instead read "inundate."	Editorial	Revised as suggested
199	UTRWD	Pg. 4-6, Sec. 4.2.1.2, Proposed Action, para. 1. UTRWD Comment: Sentence reads "Construction of Lake Ralph Hall could provide deterrent to current erosive forces degrading stream channels on USFS tracts and may provide a be considered a benefit." Suggest omitting the phrase "provide a."	Editorial	Revised as suggested
200	UTRWD	Pg. 4-8, Sec. 4.3.1.2, Proposed Action, last sentence. UTRWD Comment: The BDL 404 permit was issued in February 2018 rather than January. This comment applies elsewhere in the DEIS as well and should be adjusted in all instances for accuracy.	Editorial	Per USACE, change to ROD signed Jan 2018
201	UTRWD	Pg. 4-8, Sec. 4.3.1.2, Balancing Reservoir. UTRWD Comment: Consider providing a concise explanation of what type of minor alteration to topography would occur by revising the text of the subsection to state, "The topography of the balancing reservoir would be altered by excavating earth and creating an embankment to create the reservoir. The height of the embankment will vary with the existing grades and is anticipated to be between 20 to 25 feet above the existing grade."	Topography	Revised as suggested
202	UTRWD	Pg. 4-11, Sec. 4.4.1.2, Soils, para. 1, states: "The approximate amount of borrow for each element is 3.5 million cubic yards for the dam, 750,000 cubic yards for the SH 34 roadway embankment and 400,000 cubic yards for the North Sulphur River downstream of the dam." UTRWD Comment: UTRWD provided the following quantities for earthwork related to Lake Ralph Hall in its Response Number 1, dated June 26, 2018, to the MBI RFI dated June 2018: "The revised estimates for the dam, SH 34, and the North Sulphur River channel downstream of the dam are, 3,700,000 cubic yards, 750,000 cubic yards and 470,000 cubic yards respectively." The FEIS should use these values.	Soils	No change. Values in DEIS match comment.
203	UTRWD	Pg. 4-11, Sec. 4.4.1.2, Soils, para. 2, first sent., states: "During construction of the Lake Ralph Hall Raw Water Pipeline Alignment at least 384 acres of existing soils would be disturbed." UTRWD Comment: The phrase "at least" should be deleted and replaced with "approximately."	Editorial	Revised as suggested
204	UTRWD	Pg. 4-11, Sec. 4.4.1.2, Prime Farmland. para. 2, sent. 2, states: "This 384-acre area would be precluded from other uses,…" UTRWD Comment: Insert "approximately" before "384-acre area."	Editorial	Revised as suggested

205	UTRWD	Pg. 4-12, Sec. 4.5.1.1. UTRWD Comment: The second sentence states: "The amount of groundwater available from the Trinity Aquifer to the counties within the UTRWD service area is 38,269 acre-feet per year (AF/YR) and groundwater available from the Woodbine Aquifer is 10,086 AF/YR (Texas Water Development Board [TWDB], 2015a)." The values presented were taken from Table 3-5 of the Region C 2016 water plan and represent the Managed Available Groundwater (MAG) values. The text implies, incorrectly, that the entire MAG quantity would be available to meet future water supplies. The text in the 2016 Region C plan that precedes Table 3-5 clarifies the reality of groundwater availability in UTRWD service area, stating, "Groundwater supplies, which represent approximately 6 percent of the total available supply to the region, are over 86 percent utilized by current water users. The total groundwater supply available for future allocation is around 20,000 acre-feet per year." UTRWD suggested revised text in its response to MBI's RFI dated June 26, 2018 as follows: "…The total amount of groundwater available from the Trinity Aquifer to the counties within the UTRWD service area is 38,269 acre-feet per year (AF/YR) and total amount of groundwater available from the Woodbine Aquifer is 10,086 AF/YR, but approximately 86 percent of this available groundwater is utilized by current water users, leaving approximately 5,357 AF/YR from the Trinity Aquifer and 1,412 AF/YR from the Woodbine Aquifer for use by UTRWD, its members and customers (Texas Water Development Board [TWDB], 2015a)…" UTRWD suggests the text be revised as previously suggested to more accurately reflect the existing groundwater conditions in its service area.	Groundwater availability	Comment noted. Revised text to reflect correct interpretation of Region C report.
206	UTRWD	Pg. 4-23, para. 1, states: "Temporary impacts to hydrology would be avoided by using horizontal directional drilling to install the pipeline at significant stream crossings…" UTRWD Comment: Suggest revising "significant stream crossings" to say "some stream crossings."	Stream Impacts/Directional Drilling	For the purpose of deciding whether to use horizontal directional drilling (HDD) or open trench construction methods for raw water pipeline installation, directional drilling will be used at stream crossings with standing water below the OHWM at the time of construction in order to avoid and minimize impacts. If a stream does not have standing water below the OHWM, then the applicant will construct the pipeline crossing using open trench construction methods. Upon completion, temporary fill for cofferdams or other construction materials will be removed from the stream, the bed and bank contours below the ordinary high water mark will be restored, and the stream will be stabilized using appropriate post-construction best management practices in accordance with U.S. Army Corps of Engineers section 404 permit and Texas Commission on Environmental Quality section 401 Water Quality Certification and Stormwater Construction General Permit conditions. Any impacts associated with open trench crossings will be temporary in nature. Once construction activities are complete for each crossing, the area will be returned to grade. Appropriate erosion control best management practices will be implemented and monitored in accordance with a Storm Water Pollution Prevention Plan and the TCEQ Section 401 Water Quality Certification conditions issued for the USACE 404 permit.
207	UTRWD	Pg. 4-24, para. 1, and pg. 4-26, paras. 2 and 3. UTRWD Comment: Suggest omitting the phrase "approved engineering" in all three instances in which it occurs, as its meaning is unknown.	Editorial	Revised as suggested

208	UTRWD	Pg. 4-24, Sec. 4.6.1.2, last para., states, "Downstream site calculations indicate a slight increase in pollutant concentrations due to decreased flow as a result of Lake Ralph Hall." UTRWD Comment: Many of the constituents in Table 4-4 are the same with and without the lake. The maximum difference is 3.3 percent for TSS. A 3 percent difference is well within the accuracy of the modeling. It would be more accurate to say, "Downstream calculations (Table 4-4) indicate a negligible increase in pollutant concentrations are essentially the same with and without Lake Ralph Hall."	Water Quality	No change.
209	UTRWD	Pgs. 4-24 and 4-26, Sec. 4.6.1.2, Table 4-3 and Table 4-4. UTRWD Comment: The calculations in these tables are not clear. Please explain the calculations.	Water Quality	Previously addressed. See page 4-24.
210	UTRWD	Pg. 4-27, Sec. 4.6.1.2. UTRWD Comment: The first line on this page and first line of second paragraph each contain references to "remnant floodplains" that imply that there are small remaining areas of floodplain within the Project Area. A more appropriate adjective would be "historic," which is consistent with the next sentence: "Therefore, no loss of existing floodplain function would occur since there is no overbank storage or filtration of floodwaters in the present setting." Recommend replacing "remnant" with "historic."	Floodplains	Revised as suggested
211	UTRWD	Pg. 4-27, last para., second-to-last line. UTRWD Comment: The term "USACE authorized activity" should be revised to read "proposed activity," as none has yet been authorized.	Editorial	Revised as suggested
212	UTRWD	Pg. 4-31, Sec. 4.6.2.2, para. 4, states: "Any shoreline development that may occur around the proposed Lake is likely to have a minimal contribution to declines in water quality." UTRWD Comment: Recommend adding, "UTRWD's state water right, Water Use Permit No. 5821, requires UTRWD to 'establish and maintain a riparian buffer zone of permanent vegetation around the perimeter of the reservoir averaging at least 50 feet in width with the exception of reasonable access areas and the area of the dam and spillway.' In so doing, minimal contributions to water quality would occur."	Water Quality	Revised as suggested
213	UTRWD	Pg. 4-30, line 1. UTRWD Comment: The term "directional installation" should be revised to say "directional drilling installation."	Stream Impacts/Directional Drilling	Revised as suggested
214	UTRWD	Pg. 4-30, Sec. 4.6.2.2, sent. 1, states: "Nonpoint source pollution includes agricultural lands and timber production via logging." UTRWD Comment: Suggest striking "and timber production via logging" and replacing with "as well as all other diffuse sources of pollutants from the watershed." Elsewhere, the DEIS makes clear that no timber production occurs in the Project Area, and this recommended change would decrease the potential for confusion.	Water Quality	Revised as suggested. No significant timber production in Fannin County.
215	UTRWD	Pg. 4-31, Sec. 4.6.2.2, Wetlands and Waters of the U.S. UTRWD Comment: This paragraph identifies LBCR (BDL) wetlands impacts but does not disclose BDL's 651,140 linear feet of stream impacts. Stream impacts should also be identified to complete the cumulative effects analysis. The current text should be revised to read, "BDL would impact 5,874 acres of wetlands and 651,140 linear feet of stream channel, which are being mitigated in accordance with USACE requirements and the LBCR Revised Mitigation Plan (USACE 2017c)."	Cumulative Impacts-wetlands	Revised as suggested

216	UTRWD	Pg. 4-30, Sec. 4.6.2.2., para. 2. UTRWD Comment: Recommend adding discussion of Fannin County authority to regulate zoning around the perimeter of the reservoir, which can address potential water quality and lake development concerns. See Texas Local Government Code, Chapter 231, Subchapter G. Recommend adding, immediately before the final sentence in the paragraph, the following sentence: "Fannin County possesses the legal authority to regulate zoning around the proposed Lake in order to implement such water quality controls."	Cumulative Impacts- water quality	Revised as suggested
217	UTRWD	Pg. 4-37, Sec. 4.9.2.2. UTRWD Comment: At the beginning of this section, insert the phrase "to recreational resources" after the words "Cumulative effects."	Cumulative Impacts- Recreation	Revised as suggested
218	UTRWD	Pg. 4-37, Sec 4.9.2.2, para. 1. UTRWD Comment: Consider briefly clarifying what "changes" are anticipated at Bonham State Park in particular, as Caddo National Grasslands is understood from other sections of the DEIS to be directly impacted by the Lake Ralph Hall footprint. Revise the first sentence to state, "…as well as changes at Caddo National Grasslands and Bonham State Park, specifically potential future increases in visitation of the Caddo National Grasslands and Bonham State Park as a result of future population growth within Fannin County."	Cumulative Impacts- Recreation	Revised as suggested
219	UTRWD	Pg. 4-45, Sec. 4.11.1.2, paragraph starting with "The Wildlife Habitat Appraisal Procedure (WHAP) was used to quantify land use cover type acreages to be eliminated within the project area including the conservation pool, dam embankment, and spillway areas (Table 4-7). The Memorandum Summary of SWAMPIM and WHAP Data Set and Reports for the Proposed Lake Ralph Hall Project Site is provided in Appendix F-2." UTRWD Comment: Change "project area" to "lake area."	Editorial	Revised as suggested
220	UTRWD	Pg. 4-46, Sec. 4.11.1.2, para. 4, states: "The 31.9 mile pipeline route would be maintained with a 100-ft ROW." UTRWD Comment: The word "with" should be "within."	Editorial	Revised as suggested
221	UTRWD	Pg. 4-47, Sec. 4.11.1.2, last para., states: "…but personnel would be trained to avoid disturbing birds and nests when present within a work area. Similarly, birds nesting and/or foraging in this area could also be disturbed during construction activities." UTRWD Comment: The MBTA—as interpreted by the U.S. Court of Appeals for the Fifth Circuit, the USFWS, and DOI—does not prohibit disturbance of or harm to migratory birds where such disturbance or harm is not the purpose of the action. See U.S. v. CITGO Petroleum Corp., 801 F.3d 477 (5th Cir. 2015); Solicitor's Opinion M-37050 (Dec. 22, 2017); and USFWS April 2018 guidance memorandum on the M-Opinion, available at https://theiwrc.org/wp-content/uploads/2018/05/m-opinion-memo.pdf. Further, the final sentence in the paragraph ("All required permits will be obtained prior to construction.") is inappropriate, as no federal or state migratory bird permit program exists to authorize activities aside from game bird hunting or academic study.	MBTA	MBTA is an applicant responsibility. Removed last sentence with permit language.
222	UTRWD	Pg. 4-48, Sec. 4.11.1.2, Aquatic Biota, states: "The North Sulphur River within the proposed Lake Ralph Hall footprint is an intermittent stream that normally experiences periods of no flow." UTRWD Comment: Suggest adding "and is periodically completely dry."	Aquatic Biota	No change.

223	UTRWD	Pg. 4-48, Sec. 4.11.1.2, Aquatic Biota, Table 4-8. UTRWD Comment: Presence and location of fish species listed in the table should be verified. Black bullhead is not listed in TCEQ 2007 data for the North Sulphur River sampling stations. Central stoneroller reported from Station 17613 (North Sulphur River at FM 38) is not within the proposed Lake Ralph Hall footprint as stated, but several miles downstream. Only Stations 18844 and 18846 are within the proposed reservoir footprint. Please revise accordingly, further verify the information in the table, and clarify the last sentence of the preceding paragraph. Although Table 3-18 shows this detailed info, Table 4-8 still presents a compiled list of all fish species reported from the North Sulphur River (all stations) under a title indicating they are from "within the Proposed Lake Ralph Hall Footprint."	Aquatic Biota	Species in Tables 3-18 and 4-8 verified through TCEQ raw data download. Species in Table 4-8 include data from 18844 and 18846 in the LRH footprint. - No change.
224	UTRWD	Pg. 4-49, Sec. 4.11.1.2, Aquatic Biota, para. 3, states: "Based on the biological sampling effort conducted, it is assumed similar aquatic organisms occupy pools downstream of the proposed Lake Ralph Hall Dam location." UTRWD Comment: Biological sampling effort conducted in May 2006 included two stations downstream of the proposed dam location (near FM 904 and SH 38). Suggest revising the sentence to state, "Based on the biological sampling efforts conducted, comparable habitat for opportunistic invertebrates also exists downstream of the proposed Lake Ralph Hall Dam location."	Aquatic Biota	Revised as suggested
225	UTRWD	Pg. 4-49, para. 1, sent. 3. UTRWD Comment: The sentence lists several water quality parameters that affect aquatic biota, but it should also include one of the most important—temperature—which affects bio-chemical processes, reaeration rate, dissolved oxygen saturation, and others.	Aquatic Biota	Parameters described are mentioned in sources cited. No change.
226	UTRWD	Pg. 4-52, Sec. 4.11.2.2, para. 2. UTRWD Comment: "Oil and gas" should be inserted before the term "wells" to clarify the type of wells being discussed.	Cumulative Impacts-Biological resources	Revised as suggested
227	UTRWD	Pgs. 4-53 and 4-54, Sec. 4.12.1.2., para. 1, states: "…the U.S. Fish and Wildlife Service (USFWS) lists the least tern (Sterna antillarum) as an endangered species occurring or potentially occurring in Fannin County. In addition, the USFWS lists the piping plover (Charadrius melodus) and red knot (Calidris canutus rufa) as threatened species occurring or potentially occurring in Fannin County (USFWS, 2018)." UTRWD Comment: Recommend providing clarification that the USFWS has directed that, for project planning purposes, the piping plover and red knot only need to be considered for wind energy projects. See IPaC Report (USFWS 2018). This clarification should be added both places these species are mentioned.	T/E	Revised as suggested

228	UTRWD	Pg. 4-55, Sec. 4.12.1.2. UTRWD Comment: TPWD lists four mollusk species, including the Louisiana pigtoe, southern hickorynut, Texas heelsplitter, and Texas pigtoe, as "potentially occurring" within the Sabine and Sulphur River Basins, but recent mussel survey data (TAMU 2010, Howells, 1996, USFWS iPAC) do not report any of the four species for the Sulphur River. TPWD's listing is solely based on an assumption that habitat may exist in the Sulphur River Basin even though there exist no data or studies to support such assumption nor is there any data in the administrative record to support this assumption given that UTRWD sampling did not result in the location of any state-listed mollusk species. The mere potential presence of habitat for these mollusks is not evidence that such habitat in fact occurs within the project area, within Fannin County, or even within ecologically relevant areas of the Sulphur River Basin. Nor is it evidence that those species occur in those areas. Absent such information in the record, it is inappropriate to evaluate potential impacts to these species or their possible habitat. Proposed pipeline installation via horizontal directional drilling or tunneling of stream channels that contain potential habitat for mollusks would avoid any potential impacts to the state-listed mollusk species. Therefore, these species would not be impacted by the construction of the proposed Lake Ralph Hall Raw Water Pipeline Alignment. This section should be revised to (1) only analyze impacts to state-listed mollusk species that have been identified in the project area for the Proposed Action (i.e., Sabine River Basin only); and (2) to indicate that no impacts to state-listed mollusks will occur for any species within the area of the Lake Ralph Hall Raw Water Pipeline Alignment in the Sabine River Basin, because proposed pipeline installation via boring or tunneling would avoid potential impacts to mollusk species.	T/E	For the purpose of deciding whether to use horizontal directional drilling (HDD) or open trench construction methods for raw water pipeline installation, directional drilling will be used at stream crossings with standing water below the OHWM at the time of construction in order to avoid and minimize impacts. If a stream does not have standing water below the OHWM, then the applicant will construct the pipeline crossing using open trench construction methods. Upon completion, temporary fill for cofferdams or other construction materials will be removed from the stream, the bed and bank contours below the ordinary high water mark will be restored, and the stream will be stabilized using appropriate post-construction best management practices in accordance with U.S. Army Corps of Engineers section 404 permit and Texas Commission on Environmental Quality section 401 Water Quality Certification and Stormwater Construction General Permit conditions. Any impacts associated with open trench crossings will be temporary in nature. Once construction activities are complete for each crossing, the area will be returned to grade. Appropriate erosion control best management practices will be implemented and monitored in accordance with a Storm Water Pollution Prevention Plan and the TCEQ Section 401 Water Quality Certification conditions issued for the USACE 404 permit.
229	UTRWD	Pg. 4-59, Sec. 4.13.1.2, Figure 4-8. UTRWD Comment: The project area and the depiction of roadways in this figure are shown incorrectly. UTRWD will provide a corrected figure.	Roads	A revised Figure 1-7 is attached to this response.
230	UTRWD	Pg. 4-61, Sec. 4.14.1.2., para. 2, last sent., states: "Since no violation was issued and the case was closed to issue are anticipated due to this listing." UTRWD Comment: The words "to issue" should be changed to ", no issues."	Editorial	Revised as suggested
231	UTRWD	Pg. 4-62, Sec. 4.15.1.1, Archeological Resources, sent. 1. UTRWD Comment: This discussion references "trench testing" conducted in the project area in 2005. While some backhoe trenching was conducted as part of the survey, it was primarily shovel tests that were excavated. Therefore, UTRWD recommends that the phrase "cultural resources survey" or "pedestrian survey" be used as an alternative to "trench testing," as no testing (i.e., Phase 2 work) was done in 2005.	Cultural Resources	Revised as suggested
232	UTRWD	Pg. 4-63, Sec 4.15.1.2, Historic Buildings and Structures. UTRWD Comment: Reference to Table 3-25 should instead reference Table 3-24.	Editorial	Revised as suggested
233	UTRWD	Pg. 4-64, Sec 4.15.1.2, Archaeological Resources. UTRWD Comment: Reference to Table	Editorial	Revised as suggested
234	UTRWD	27 should instead reference Table 3-26.	Editorial	Revised as suggested

235	UTRWD	Pg. 4-64, Archeological Resources, last sent. UTRWD Comment: Sentence reads “Impacts to archeological resources would be major.” Suggest adding “but would be mitigated through procedures set forth in the PA.”	Cultural Resources	No change
236	UTRWD	Pg. 4-64, Sec. 4.15.2.1, No Action Alternative, sent. 2. UTRWD Comment: It should be noted that not all construction projects are subject to federal and state historic preservation laws.	Cultural Resources	Revised as suggested
237	UTRWD	Pg. 4-65, Sec. 4.15.2.2, Proposed Action, sent. 2. UTRWD Comment: It should be noted that not all construction projects are subject to federal and state historic preservation laws.	Cultural Resources	Revised as suggested
238	UTRWD	Pg. 4-65, Sec. 4.15.2.2, para. 2, sent. 3, states: “For all cultural resources that will be adversely affected, an avoidance plan or mitigation plan will be developed in consultation with the consulting parties.” UTRWD Comment: Sentence should read, “For all significant cultural resources that are anticipated to be adversely affected, an avoidance plan or mitigation plan will be developed by USACE in consultation with the consulting parties.”	Cultural Resources	Per USACE direction changed "are anticipated to" to "will be"
239	UTRWD	Pg. 4-67, Sec 4.17. UTRWD Comment: Reference to the “Pipeline Alternative” should be to the “Preferred Pipeline Alternative.”	Editorial	Revised as suggested
240	UTRWD	Pg. 4-67, Sec. 4.17.1.1, states: “If all the unused groundwater in Region C was fully deployed, that groundwater would meet Member and customer needs for only an additional decade.” UTRWD Comment: There exists no support for this statement. The apparent confusion on the definition of Managed Available Groundwater (“MAG”) is leading to an overestimation of the quantity of groundwater available in UTRWD’s service area, resulting in an inaccurate statement in this paragraph. See UTRWD Comment 127, immediately below.	Groundwater availability	Comment noted. Revised text to reflect correct interpretation of Region C report.

241	UTRWD	Pg. 4-70, Sec. 4.17.1.1, para. 1, states: "However, if all the members and customers developed new groundwater supplies as required to meet demands until they reached the maximum available amount, it would delay the need for a new water supply by approximately 10 years or more." UTRWD Comment: This statement reaches the impractical conclusion that all the groundwater supplies in Region C would or could be available to meet the demands in UTRWD's service area. The first reason this conclusion is impractical is that the groundwater referenced is distributed across the entire Region C, which spans over 12,000 square miles, an area larger than the State of Maryland. The practicality of assembling a collection system to gather groundwater from such an enormous area is mind-boggling. Second—as commented on at Pg. 4-12, Sec. 4.5.1.1—the values presented in that section were taken from Table 3-5 in the Region C 2016 plan and represent the Managed Available Groundwater (MAG) values. The text again implies, incorrectly, that the entire MAG quantity would be available to meet future UTRWD water supplies. The text in the 2016 Region C plan that precedes Table 3-5 of that plan clarifies the reality of groundwater availability in UTRWD service area, stating, "Groundwater supplies, which represent approximately 6 percent of the total available supply to the region, are over 86 percent utilized by current water users. The total groundwater supply available for future allocation is around 20,000 acre-feet per year." UTRWD recommends that the DEIS text be revised to more accurately reflect the existing groundwater conditions in its service area. UTRWD suggests revising the text as follows: "Given that 86 percent of the groundwater resources in Region C are currently being used to meet existing demand, less than 6,800 acre-feet per year would be available to meet the needs of the Applicant's members and customers."	Groundwater availability	Comment noted. Revised text to reflect correct interpretation of Region C report.
242	UTRWD	Pg. 4-75, para. 2, last sent. UTRWD Comment: Does "that industry" refer to the forest products industry? Please clarify.	Editorial	Changed "industry" to "land use type"
243	UTRWD	Pg. 4-77, Sec. 4.17.1.2., Land Development near Lake Ralph Hall, Local Governance. UTRWD Comment: The second-to-last paragraph in the subsection should reference Fannin County's authority to undertake zoning around the perimeter of the reservoir. See Texas Local Government Code, Chapter 231, Subchapter G. Recommend adding, as the final sentence in the paragraph, the following sentence: "Fannin County possesses the legal authority to regulate zoning around the proposed lake."	Socioeconomics-land use	Revised as suggested
244	UTRWD	Pg. 4-79, Sec. 4.17.1.2, Education, Inundation Impacts. UTRWD Comment: The discussions relating to law enforcement, emergency service vehicles, and other public facilities are not appropriate for this section.	Editorial	No change. Previous response: Education and Emergency Services/Law is under the "Public Facilities and Service subheading). Changed heading size to show it is different subsection
245	UTRWD	Pg. 4-79, Summary of Public Facilities and Services Impacts. UTRWD Comment: Delete the comma after "from" in the last sentence.	Editorial	Revised as suggested
246	UTRWD	Pg. 4-82, Sec. 4.17.1.2, Property Tax. UTRWD Comment: Clarify that the "State of Texas" does not levy property taxes.	Socioeconomics	Revised as suggested
247	UTRWD	Pg. 4-85, Section 4.17.1.2, states that the pipeline footprint has a 70-ft temporary ROW easement for construction and then a 30-ft permanent ROW easement. UTRWD Comment: For consistency and clarity, the text should simply state that the pipeline easement has a 100-ft ROW.	Editorial	Revised as suggested

248	UTRWD	Pg. 4-88, Sec. 4.17.1.2, Table 4-26. UTRWD Comment: Revised land use acres, based on assessment of 2016 aerials, are provided in the table, but the source cited is still "Pipeline Alt Land Use Table, UTRWD, 2010." Please revise citation to reflect the 2016 aerial data.	Socioeconomics-land use	Revised as suggested
249	UTRWD	Pg. 4-93, Sec. 4.17.1.2, Rate Impacts on UTRWD Members and Customers, para. 1, states: "Over the whole period, the average annual difference in the wholesale effective rate is 2.9 percent (or about 24 cents per 1,000 gallons in any year)." UTRWD Comment: While the 24 cents per 1,000 gallons is correct, applying this to the effective rate of $4.33 results in a percentage change of 5.5 percent, not 2.9 percent. The 2.9 percent should be revised accordingly.	Socioeconomics	Text revised as needed.
250	UTRWD	Pg. 4-93, Sec. 4.17.1.2, Rate Impacts, para. 3, states: "From 2016 to 2024, when the project is expected to be completed, the average annual rate difference is 1.5 percent (about 9 cents per 1,000 gallons) per year." UTRWD Comment: The average annual rate difference needs to be changed to 2 percent.	Socioeconomics	Text revised as needed.
251	UTRWD	Pg. 4-93, Sec. 4.17.1.2, Rate Impacts, para. 3, states: "Between 2025 and 2035, the annual rate differences . . . are fairly consistent, an average of 5.7 percent (40 cents per 1,000 gallons), a high of 6.1 percent and a low of 4.7 percent." UTRWD Comment: Based on the calculations performed as of November 2016, the sentence should be amended to read as follows: "…an average of 9.2 percent (40 cents per 1,000 gallons), a high of 11.6 percent, and a low of 6.2 percent."	Socioeconomics	Text revised as needed.
252	UTRWD	Pg. 4-93, Sec. 4.17.1.2, Rate Impacts, para. 3, states: "After 2035, the annual rate differences fall off every year, from 5.3 percent in 2035 down to 0.3 percent in 2060. The average change in the wholesale effective rate in this period is 2.1 percent." UTRWD Comment: Based on the most recent numbers, these sentences should be amended to read as follows: "…from 11 percent in 2035 down to 0.8 percent in 2060. The average change in the wholesale effective rate in this period is 5.3 percent."	Socioeconomics	Text revised as needed.
253	UTRWD	Pg. 4-95, Sec. 4.17.1.2, Socioeconomic Impact Summary of the Proposed Alternative, para. 3, states that wholesale water rate increases will be "an average of 2.1 percent higher in each year between 2016 and 2060." UTRWD Comment: The "2.1 percent" should be "5.5 percent" based on the most recently available calculations.	Socioeconomics	Text revised as needed.
254	UTRWD	Pg. 4-95, Sec. 4.17.1.2, Socioeconomic Impact Summary of the Proposed Alternative, para. 3, states: "…wholesale rates will be an average of 5.7 percent higher than without Lake Ralph Hall once Lake Ralph Hall is filled, for an extended period." UTRWD Comment: Based on this wording, we understand the referenced period to reflect 2024 through 2060. Assuming this identified period is correct, the average is more appropriately stated as "6.3 percent."	Socioeconomics	Text revised as needed.
255	UTRWD	Pg. 4-97, Lower Bois d'Arc Reservoir, para. 3, sent. 2. UTRWD Comment: Note that the CWA 404 permit was issued in February 2018 rather than January.	Editorial	Per USACE, changed to ROD signed Jan 2018

256	UTRWD	Pg. 4-98 and 4-99, Sec. 4.17.2.2. UTRWD Comment: UTRWD suggests that the text beginning with the last paragraph on Pg. 4-98 be revised to read, in its entirety, as follows: "However, with the two lakes, there may be some competition between them for new lake-oriented visitors and residents and therefore some sharing of the benefits. People are unlikely to buy two lake-view properties just because two new lakes are being built, and they will choose which lake to visit on a given weekend. Overall, this will cause a modest reduction in the overall effects (i.e. the total impacts of the two lakes will be somewhat less than the sum of the impacts projected for each lake) due to this competition." UTRWD does not agree that the character of the two reservoirs differ relative to "lakeside" and "lake-view" homesites.	Socioeconomics-cumulative	Revised as needed.
257	UTRWD	Pg. 4-108, Sec. 4.18.1.2, Operation Phase, para. 1, sent. 2, reads: "…if herbicides are applied for the purpose of maintenance around the periphery of the reservoir…" UTRWD Comment: The use of pesticides, including herbicides, is likely more common with the existing agricultural land uses than around the periphery of the reservoir. UTRWD reservoir management operations are not likely to include widespread, if any, use of herbicides around the lake. Suggest omitting this reference to herbicide usage around the lake, as there exists no basis for this management scenario.	Environmental Justice	Revised as suggested
258	UTRWD	Pg. 4-108, Sec. 4.18.1.2, Operation Phase, last para. UTRWD Comment: Reference to Lake Ralph Hall contains an "s" that should be deleted (i.e., "Halls").	Editorial	Revised as suggested
259	UTRWD	Pg. 4-109, Sec. 4.18.1.2, Conclusion, and Sec. 4.18.2.2. UTRWD Comment: The intensity of impact referred to in the conclusion and the first sentence of the cumulative effects for the Proposed Action are inconsistent (i.e., minor vs. negligible). This disparity should be reconciled.	Intensity of Impacts	No change. Direct impacts vary from cumulative impacts.
260	UTRWD	Pg. 4-110, Sec. 4.19.1.1, states: "The report also indicates that a 25-50 percent increase in water withdrawals is projected in the project region with climate change effects. Although there would be no GHG emissions…" UTRWD Comment: Additional pumping from groundwater or other sources should produce additional GHG emissions.	Greenhouse Gas	Revised as suggested
261	UTRWD	Pg. 4-111, Geology and Soils, last sent. UTRWD Comment: This sentence implies that the littoral zone is separate from the footprint, which is incorrect. The littoral zone is within the reservoir footprint, i.e., the conservation pool.	Soils	Revised as suggested
262	UTRWD	Pg. 4-112, Sec. 4.20, Biological Resources/Threatened and Endangered Species. UTRWD Comment: Revise the title to be "Biological Resources/State-Listed Species" and revise this section to only refer to state-listed species, as there are no anticipated impacts to federally-listed species.	T/E	No changes. Section describes that federal species were reviewed.
263	UTRWD	Pg. 4-113, Sec. 4.20, Table 4-35. UTRWD Comment: Consistently use the DEIS-defined impact terminology (see pages ES-6 and ES-7) in each entry of both the "No Action Alternative" column and the "Proposed Action Alternative" column. Further, each entry should clearly identify that the impact conclusion considered impacts to the entire Project Area, even though impacts to a particular component or components may have driven the analysis for a given resource.	Study Area	Review Table 4-35 for consistency to impacts. Confirmed consistent with Chapter 4.
264	UTRWD	Pg. 4-114, Sec. 4.20, Table 4-35, Soils, Proposed Action Alternative, states: "…Pipeline Alignment at least 384 acres of existing soils would be disturbed." UTRWD Comment: The phrase "at least" should be changed to "approximately."	Editorial	Revised as suggested

265	UTRWD	Pg. 4-114, Sec. 4.20, Table 4-35, Prime Farmland, Proposed Action Alternative, states: "This 384-acre area may be precluded from other uses, with the possible exception of certain non-structural uses such as agriculture and rangeland. There may be a potential loss of prime farmlands…" UTRWD Comment: If the pipeline alignment ROW is restored to agricultural uses following installation, this would constitute an impact but not a loss of prime farmland areas.	Prime Farmlands	Revised as suggested
266	UTRWD	Pg. 4-115, Sec. 4.20 Table 4-35, Surface Water – Water Quality, Proposed Action Alternative. UTRWD Comment: Based on modeling data presented in Tables 4-3 and Table 4-4, pollutant concentrations are essentially the same with and without Lake Ralph Hall. At most, impacts would be negligible.	Water Quality	No change.
267	UTRWD	Pg. 4-117 to 4-118, Sec. 4.20, Table 4-35, Threatened and Endangered Species, Proposed Action Alternative, states: "Potential impacts to mollusks avoided through proposed use of directional drilling or tunneling of major streams. Impacts would be minor." UTRWD Comment: Impacts should be identified as "negligible" instead of "minor." Revise the final two sentences to state, "Potential impacts to mollusks avoided through proposed use of horizontal directional drilling or tunneling of some streams. Impacts would be negligible."	Intensity of Impacts	For the purpose of deciding whether to use horizontal directional drilling (HDD) or open trench construction methods for raw water pipeline installation, directional drilling will be used at stream crossings with standing water below the OHWM at the time of construction in order to avoid and minimize impacts. If a stream does not have standing water below the OHWM, then the applicant will construct the pipeline crossing using open trench construction methods. Upon completion, temporary fill for cofferdams or other construction materials will be removed from the stream, the bed and bank contours below the ordinary high water mark will be restored, and the stream will be stabilized using appropriate post-construction best management practices in accordance with U.S. Army Corps of Engineers section 404 permit and Texas Commission on Environmental Quality section 401 Water Quality Certification and Stormwater Construction General Permit conditions. Any impacts associated with open trench crossings will be temporary in nature. Once construction activities are complete for each crossing, the area will be returned to grade. Appropriate erosion control best management practices will be implemented and monitored in accordance with a Storm Water Pollution Prevention Plan and the TCEQ Section 401 Water Quality Certification conditions issued for the USACE 404 permit.
268	UTRWD	Pg. 4-119, Sec. 4.20, Table 4-35, Climate Change. UTRWD Comment: Under "No Action Alternative," indirect effects should include increased GHG emissions associated with accessing other sources of water supply.	Greenhouse Gas	No change as per USACE direction in ADEIS.
269	UTRWD	Pg. 4-120, Sec. 4.21, para. 2. UTRWD Comment: This paragraph should mention that Lake Ralph Hall will provide the long-term benefit of erosion and sedimentation reduction and channel stabilization.	Sedimentation	No change. Not relevant to this section.
270	UTRWD	Pg. 4-121, Sec. 4.22.2, bullet pt. 1. UTRWD Comment: "WTP" should be replaced with a reference to the connection point with the existing raw water pipeline, as the proposed pipeline will not extend to the WTP.	Editorial	Revised as suggested. Deleted "from the reservoir to the WTP"
271	UTRWD	Pg. 5-2, Sec. 5.0, Table 5-1, Soils, Impacts from the Proposed Action Alternative, states: "…Raw Water Pipeline Alignment at least 384 acres of existing soils would be disturbed." UTRWD Comment: The phrase "at least" should be replaced with "approximately."	Editorial	Revised as suggested

272	UTRWD	Pg. 5-2, Sec. 5.0, Table 5-1, Surface Water – Hydrology, Proposed Mitigation for the Proposed Action Alternative. UTRWD Comment: Information regarding mitigation efforts along the proposed pipeline alignment is listed, but no reference is included as to the proposed ephemeral and intermittent stream enhancement, creation, and restoration plans to compensate for impacts within the proposed reservoir project area. This entry should include the same complete text as is used in Table ES-2 for "Proposed Mitigation" related to "Surface Water –Hydrology," namely: "Restoration of abandoned river channel and aquatic resources; . . . ."	Mitigation-Hydrology	This section has been updated based on the most recent mitigation plan. Coordination regarding the mitigation plan is ongoing.
273	UTRWD	Pg. 5-3, Sec. 5.0, Table 5-1, Biological Resources – Wildlife, Proposed Mitigation for the Proposed Action Alternative. UTRWD Comment: This entry should be revised to state, "All requirements regarding migratory birds, as applicable in Texas, will be met prior to construction."	MBTA	Per USACE, MBTA is an applicant responsibility
274	UTRWD	Pg. 5-5, Sec. 5.2, Public Lands, states: "UTRWD is undertaking efforts and coordinating with the Caddo National Grassland relative to mitigation…" UTRWD Comment: UTRWD is coordinating with the USFS regarding the Caddo National Grasslands land exchange. Revise accordingly.	Public Lands-Caddo National Grasslands	Revised as suggested
275	UTRWD	Pg. 5-6, Sec. 5.4, para. 4, states: "During construction of the Lake Ralph Hall Raw Water Pipeline Alignment at least 384 acres…" UTRWD Comment: The phrase "at least" should be replaced with "approximately."	Editorial	Revised as suggested
276	UTRWD	Pg. 5-5, Sec. 5.4, states: "The pipeline route would be maintained within a 100-ft ROW. This 363-acre area would be precluded from other uses, with the possible exception of certain non-structural uses…" UTRWD Comment: Need to be consistent in area of pipeline alignment stated. Revise to state, "This approximately 384-acre area…" for consistency.	Editorial	Revised as suggested
277	UTRWD	Pg. 5-6, Sec. 5.6, Water Quality, para. 1, states: "Downstream site calculations indicate a slight increase in pollutant concentrations due to decreased flow as a result of Lake Ralph Hall." UTRWD Comment: This statement ties to Sec. 4.6.1.2 and information on Pgs. 4-24 through 4-26. Many of the constituents in Table 4-4 are the same both with and without the lake. The maximum difference is 3.3 percent for TSS. A 3 percent difference is well within the accuracy of the modeling. Recommend revising to state, "Downstream (Table 4-4) site calculations indicate a negligible increase…"	Water Quality	No change.
278	UTRWD	Pg. 5-7, Sec 5.6, Water Quality, para. 2, reads: "Approved engineering and construction best management practices…" UTRWD Comment: Suggest omitting the term "approved engineering," as its meaning is unknown.	Editorial	Revised as suggested
279	UTRWD	Pg. 5-2, Sec. 5.0, Table 5-1, Soils, Impacts from the Proposed Action Alternative. UTRWD Comment: The littoral zone is within the conservation pool. The soils that would be periodically flooded are those above the conservation pool within the reservoir floodplain. Suggest replacing the phrase "littoral zone" with "reservoir flood plain."	Soils	Revised as suggested
280	UTRWD	Pg. 5-2, Sec. 5.0, Table 5-1, Soils, Proposed Mitigation for the Proposed Action Alternative. UTRWD Comment: Should note here that construction will be done in accordance with a TPDES Storm Water Permit, which mandates preparation of a Storm Water Pollution Prevention Plan.	Soils	Revised as suggested

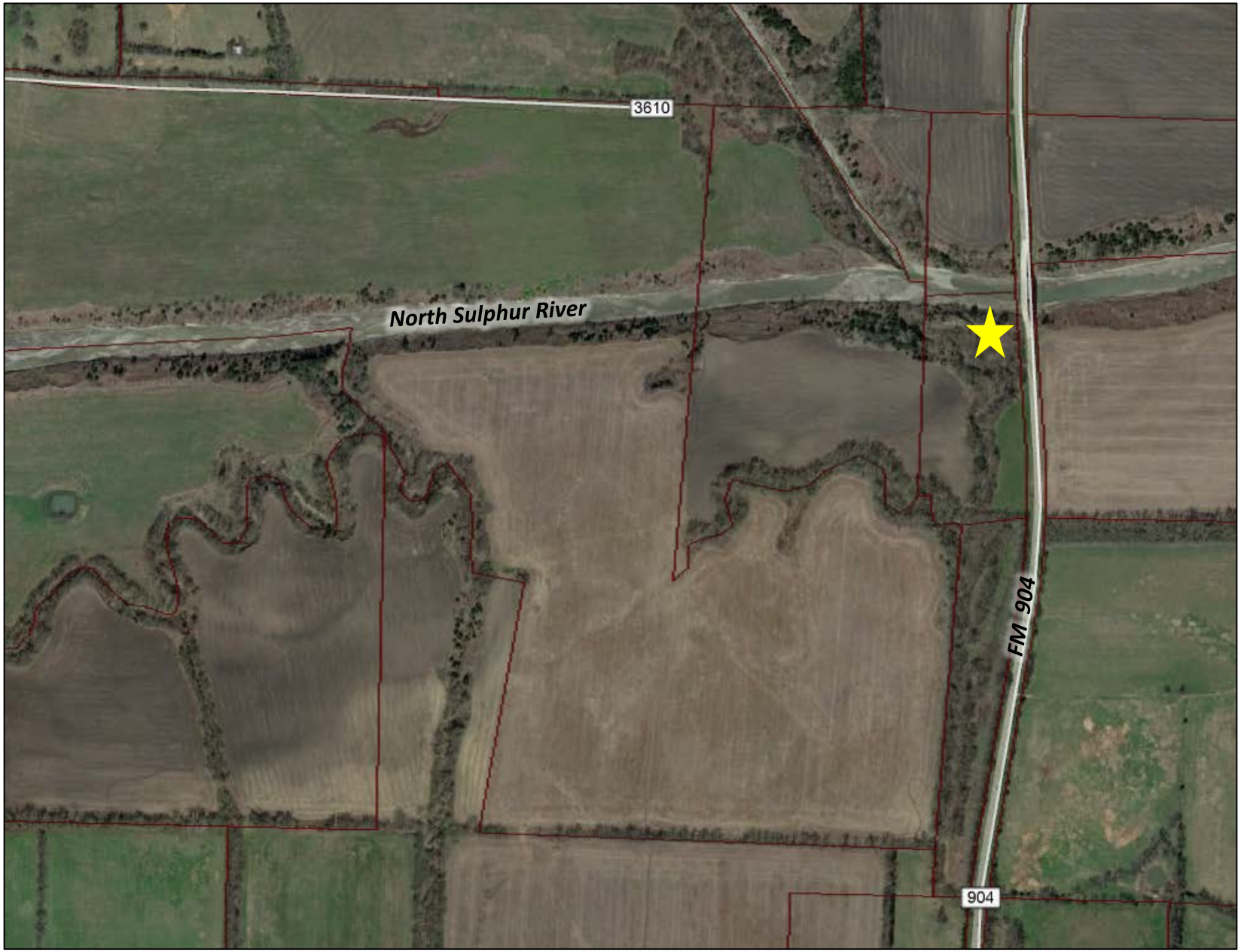
281	UTRWD	Pg. 5-2, Sec. 5.0, Table 5-1, Surface Water - Hydrology, Proposed Mitigation for the Proposed Action Alternative. UTRWD Comment: Should refer to directional drilling of pipeline "at some stream crossings."	Stream impacts	For the purpose of deciding whether to use horizontal directional drilling (HDD) or open trench construction methods for raw water pipeline installation, directional drilling will be used at stream crossings with standing water below the OHWM at the time of construction in order to avoid and minimize impacts. If a stream does not have standing water below the OHWM, then the applicant will construct the pipeline crossing using open trench construction methods. Upon completion, temporary fill for cofferdams or other construction materials will be removed from the stream, the bed and bank contours below the ordinary high water mark will be restored, and the stream will be stabilized using appropriate post-construction best management practices in accordance with U.S. Army Corps of Engineers section 404 permit and Texas Commission on Environmental Quality section 401 Water Quality Certification and Stormwater Construction General Permit conditions. Any impacts associated with open trench crossings will be temporary in nature. Once construction activities are complete for each crossing, the area will be returned to grade. Appropriate erosion control best management practices will be implemented and monitored in accordance with a Storm Water Pollution Prevention Plan and the TCEQ Section 401 Water Quality Certification conditions issued for the USACE 404 permit.
282	UTRWD	Pg. 5-3, Sec. 5.0, Table 5-1, Threatened and Endangered Species, Proposed Mitigation for the Proposed Action Alternative. UTRWD Comment: Should refer to directional drilling of pipeline "at some stream crossings."	Stream Impact/ Directional Drilling	For the purpose of deciding whether to use horizontal directional drilling (HDD) or open trench construction methods for raw water pipeline installation, directional drilling will be used at stream crossings with standing water below the OHWM at the time of construction in order to avoid and minimize impacts. If a stream does not have standing water below the OHWM, then the applicant will construct the pipeline crossing using open trench construction methods. Upon completion, temporary fill for cofferdams or other construction materials will be removed from the stream, the bed and bank contours below the ordinary high water mark will be restored, and the stream will be stabilized using appropriate post-construction best management practices in accordance with U.S. Army Corps of Engineers section 404 permit and Texas Commission on Environmental Quality section 401 Water Quality Certification and Stormwater Construction General Permit conditions. Any impacts associated with open trench crossings will be temporary in nature. Once construction activities are complete for each crossing, the area will be returned to grade. Appropriate erosion control best management practices will be implemented and monitored in accordance with a Storm Water Pollution Prevention Plan and the TCEQ Section 401 Water Quality Certification conditions issued for the USACE 404 permit.
283	UTRWD	Pg. 5-7, Sec. 5.6 Surface Water, Water Quality, para. 1, last sent. UTRWD Comment: The statement "Downstream site calculations indicate a slight increase in pollutant concentrations due to decreased flow…" is an overstated and incorrect conclusion, as the results of the calculations were within the margin of error. Should rephrase to state that "calculations indicate a negligible increase in pollutant concentrations due to decreased flow."	Water Quality	No change.
284	UTRWD	Pg. 5-16, Sec. 5.11, Wildlife, para. 2 and bullet points. UTRWD Comment: Discussion of the MBTA in relation to "required permits" is inappropriate for the reasons discussed in the UTRWD comment on page 4-47, above. Likewise, UTRWD's avoidance measures and BMPs go beyond what is required by law, as incidental takes are not prohibited by the MBTA. See UTRWD Comment 108 [Pg. 4-47, Sec. 4.11.1.2, last para.], above.	MBTA	Per USACE, MBTA is an applicant responsibility

285	UTRWD	UTRWD Comment: The following references should be added, consistent with UTRWD Bohlin, Jeffrey 1993 Interviews With Informants and Avocational Collectors. In Archaeological Survey of Cooper Lake, Delivery Order Number 7, 1989, by David H. Jurney, Jeffrey Bohlin, Sue E. Linder Linsley, S. Christopher Caran, and David R. Pender, Chapter 9. Archaeology Research Program, Southern Methodist University, Dallas. Bousman, C. Britt 2005 North Sulphur River Geoarchaeology In Archaeology and Quaternary Geology at Lake Ralph Hall, Fannin County, Texas, by S. Alan Skinner, C. Britt Bousman, Neely Plumb, Anita P. Wilson, Jesse Todd, and Thomas A. Jennings, pp. 19-35,. Cultural Resources Report 2005-31. AR Consultants, Inc., Dallas. Bousman, C. Britt and S. Alan Skinner 2007 The Search for Late Pleistocene pre-Clovis Archeology in Texas: Problems and Potentials. Bulletin of the Texas Archeological Society 78:37-46. Jennings, Thomas A. 2005 Avocational Archaeology. In Archaeology and Quaternary Geology at Lake Ralph Hall, Fannin County, Texas, by S. Alan Skinner, C. Britt Bousman, Neely Plumb, Anita P. Wilson, Jesse Todd, and Thomas A. Jennings, pp. 10-11,. Cultural Resources Report 2005-31. AR Consultants, Inc., Dallas.	References	See comment/response #180
286	TCA	CONCLUSION In summary, the draft Environmental Impact Statement for Ralph Hall Lake fails to justify issuance of a permit for the proposed reservoir in the following ways: • Use of inflated demand projections based on an unusually large safety factor that is not scientifically justified, • Use of inflated demand projections based on a flawed methodology, which bases projected water use solely on the per capita use in place at the beginning of the planning period with no reduction in demand over time from future savings from water conservation, even from water conservation measures that are mandated the State of Texas, • Use of inflated demand projections based on failure to consider increased run-off due to urbanization as an inevitable source of future supply, • Failure to consider reuse as an Alternative, • Failure to consider conservation as an Alternative, • Failure to consider a combination of reuse and conservation as an Alternative, • Failure to adequately include drought contingency measures in calculating future water use, • Failure to adequately analyze impacts on stream flows, aquatic species, and other environmental impacts. Based on these inaccuracies and omissions in the Draft Environmental Impact Statement, Texas Conservation Alliance urges denial of the permit requested by the Upper Trinity Regional Water District to build Ralph Hall Lake.	Opposition	Comment noted

Appendix Q

Preliminary Ladonia Fossil Park Relocation

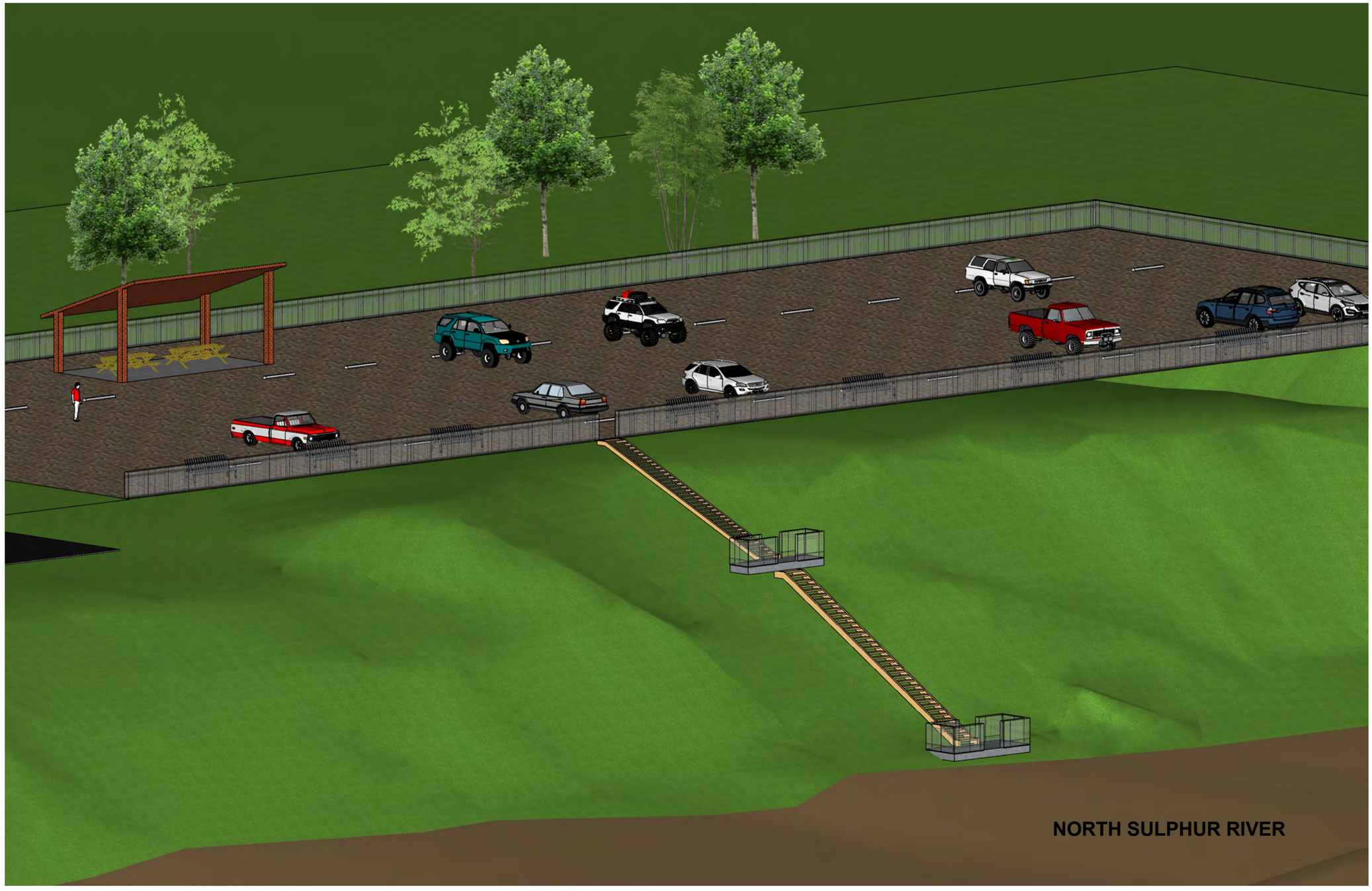
RELOCATED LADONIA FOSSIL PARK



PRELIMINARY - - SUBJECT TO CHANGE

Lake Ralph Hall

UPPER TRINITY
REGIONAL WATER DISTRICT



ECOSYSTEM PLANNING & RESTORATION, LLC

1150 SE Maynard Rd.
Ste 140
Cary, NC 27511

UPPER TRINITY REGIONAL WATER DISTRICT

Ladonia Fossil Park

North Sulphur River

Date
August 2019

DRAFT

PROGRESS DRAWING

This drawing is not intended to be used for contract pricing or fabrication purposes. All content is subject to change

Overview

1" = 20'

1

ECOSYSTEM PLANNING & RESTORATION

ECOSYSTEM PLANNING & RESTORATION, LLC

1150 SE Maynard Rd.
Ste 140
Cary, NC 27511

UPPER TRINITY REGIONAL WATER DISTRICT

Ladonia Fossil Park

North Sulphur River

Date
August 2019

DRAFT

PROGRESS DRAWING

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Park Entrance

1" = 10'

4

ECOSYSTEM PLANNING & RESTORATION