

**APPENDIX X: COMMENT CATEGORIES AND
RESPONSES FOR THE LOWER BOIS D'ARC CREEK
RESERVOIR REVISED DRAFT ENVIRONMENTAL
IMPACT STATEMENT**

**COMMENT CATEGORIES AND RESPONSES
FOR THE
LOWER BOIS D'ARC CREEK RESERVOIR
REVISED DRAFT ENVIRONMENTAL IMPACT STATEMENT**

OCTOBER 25, 2017

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*The **CC:** code in bold at the end of each comment cross-references the comment to the original submittal received by USACE using the Comment Response Matrix found in the Administrative Record for the Final EIS.*

OVERVIEW

The comments presented in this document were received by the U.S. Army Corps of Engineers (USACE) Tulsa District during the public comment period (March 24, 2017 through May 11, 2017) for the Revised Draft Environmental Impact Statement (RDEIS) for the Lower Bois d'Arc Creek Reservoir. The USACE would like to acknowledge the factual and opinion comments provided by reviewers of the RDEIS. The consideration of these comments (as responded to in this document) greatly assisted the USACE and their third party contractor in preparing the Final EIS (FEIS) for publication.

Comment submittals were received from 32 entities including government agencies, the Applicant, non-governmental organizations, and individual members of the public. Each comment submittal was reviewed to identify specific issues raised by the commenter. Each specific issue, or comment, was assigned a comment subject code and was cataloged in a spreadsheet. The spreadsheet, 'All Comments Received on RDEIS,' is included in the administrative record for the FEIS. The spreadsheet includes the name of the commenter, the comment subject code, the complete text of each comment¹, and the location of the original comment submittal in the administrative record. The comments were sorted by subject code in order to facilitate the preparation of responses. This document contains all of the individual comments organized by subject code and the USACE's responses to each comment.

Additionally, it is important to note that section numbering has changed between publication of the RDEIS and finalization of the FEIS in order to improve the readability of the FEIS. There are instances throughout this document where a comment references a particular section number and a different section number is referenced in the response. These cases are not in error and are intentional.

¹ A small number of comments were summarized rather than included verbatim because the comment text was extremely long. Most of the comments summarized included data or references appended to the comment text.

AIR QUALITY

AQ-1. Many of the alternatives listed in the DEIS have not been listed as available alternatives in the revised DEIS were scratched and show a negative impact of CO₂ emissions. This comment addresses that the ash trees of this project attribute to high levels of carbon sequestration and storage. This project still has to have a pump station that uses CO₂ and takes away trees that remove CO₂. Alternatives would basically just have a pump station. So in my opinion this could actually be a greater imminence of CO₂ emissions than other alternatives. I would like to see an independent assessment by the USACE on the overall environmental effects such as CO₂ emissions compared to alternatives that would meet the CWA such as water that is already available in Toledo Bend, Lake O' the Pines, or Wright Patman. **[CC: P9-32]**

Response: As shown in Sections 4.6.3.7 and 4.6.4.7, under Alternatives 1 and 2, initial impoundment of the water in Bois d'Arc Creek would account for approximately 1,018,000 tons and 487,500 tons of CO₂ equivalent emissions, respectively, much of which would be emitted in the first five to ten years after the dam was built. GHG emissions from reservoir inundation account for the GHGs that are currently being removed or sequestered by existing vegetation within the reservoir site, and, for the first 10 years, the GHGs emitted by the biomass that would decompose after inundation as a result of conversion to permanently flooded land.

In 2011, CO₂ emissions were estimated for other alternatives that would utilize water from other, already available water sources (i.e., Toledo Bend and Lake Texoma desalination) (Freese and Nichols 2011b). However, the data were not presented in the EIS because the alternatives do not meet the stated purpose and need of the project, defined in Section 1.5, and were eliminated from further analysis. The GHG inventory of certain representative alternatives was subjected to independent review and scrutiny by the Tulsa District of the USACE, as indicated at the start of Chapter 2 in the RDEIS and FEIS.

AQ-2. Air quality in the suburbs of north Dallas is not pristine, and the potential impact of each alternative on local air pollution must be assessed. Assessment of air quality impacts for each alternative is especially important given that some nearby counties are in "non-attainment" status with NAAQS of the CAA. NTMWD serves 9 counties in whole or part: Collin, Dallas, Denton, Fannin, Hopkins, Hunt, Kaufman, Rains, and Rockwall. Collin County is in non-attainment for lead and ozone, while Denton, Dallas, Kaufman, and Rockwall Counties are in non-attainment for ozone (see footnote in original comment). **[CC: NTMWD3-11]**

Response: Section 4.6 presents the air quality impacts of each alternative analyzed in this FEIS. As shown in Table 4.6-5, the estimated annual emissions for construction activities under Alternative 1 are 1.4 tons and 4.4 tons of carbon monoxide and nitrogen oxides, respectively. The emissions under Alternative 2 (smaller reservoir and dam footprint) and the No Action Alternative (no reservoir

and dam construction) would be less than the Alternative 1 emissions. The emissions from construction activities would be below the *de minimis* threshold of 100 tons per year and would be expected to have a slight impact to the air quality in the region.

ALTERNATIVES

ALT-1. To avoid inconsistency and to ensure that all components of each action alternative are fully analyzed whenever appropriate, NTMWD recommends that USACE define "Alternative 1" and "Alternative 2" early in the FEIS by specifically listing the respective components that are a part of each alternative. That would allow USACE to simply refer to Alt 1 or Alt 2 and ensure that it is consistently addressing full scope of each in its discussions through the document.

[CC: NTMWD1-3]

Response: Alternatives 1 and 2 are defined fully in Chapter 2. Repetitive project description information previously contained in Chapters 3 and 4 of the RDEIS has been deleted to the greatest degree possible in the FEIS. Some information has been retained in Chapters 3 and 4 as required to support the environmental analysis.

ALT-2. NTMWD recommends that USACE remove any references to "connected actions" in the FEIS. The mention of "connected actions" appears to be a remnant of the discussion in the DEIS, which is no longer applicable. **[CC: NTMWD1-4]**

Response: The USACE agrees that the use of the term "connected actions" is no longer applicable. The term has been deleted from all FEIS sections.

ALT-3. The Proposed Action could lead to flooding some lands that are currently outside of the 100-yr floodplain. To address this potential indirect impact, NTMWD is planning to purchase property to the 541 ft msl contour around the proposed reservoir site, allowing NTMWD to limit development and construction within this area, minimizing impacts from any flooding that may occur. However, this should not be considered "flood pool" or "flood storage." Remove these terms from the NEPA document. Any discussion on impacts associated with flooding above the Reservoir conservation pool should only be included in sections of the document specific to flooding. **[CC: NTMWD1-9]**

Response: The terms "flood pool" or "flood storage" when used to describe the operation of the proposed LBCR have been removed from the FEIS. Even areas above the 500-year floodplain at 545 ft. msl, up to which NTMWD will purchase flood easements, could be inundated during extremely rare flood events that might occur once or twice in a millennium. Flooding could theoretically extend all the way to the Probable Maximum Flood elevation, including areas which lie above 545 ft. msl.

ALT-4. Neither "flood pool" nor "flood storage" should be included as part of the description of Alternative 2. **[CC: NTMWD1-11]**

Response: The acreages that would be affected by Alternative 2 have been updated in the FEIS. Please note that the reference to "flood pool" has also been removed from the FEIS. The term "flood storage" is not used anywhere in the document in reference to either Alternative 1 or Alternative 2. Please also see response to comment ALT-3.

ALT-5. Incorporation of a "flood pool" in the RDEIS has resulted in the document incorrectly describing the total footprint acre of Alternative 2. The correct footprint should be 10,409 acres, which includes 9,390 acres for the dam and reservoir, 860 acres for the raw water pipeline, TSR, and WTP, 111 acres associated with relocation of FM 1396, and 48 acres for the 8-mile and 25-mile Lake Texoma pipelines. **[CC: NTMWD1-12]**

Response: The footprint for Alternative 2 has been revised to remove the flood pool and the acreages associated with the WTP and TSR (which are no longer part of this alternative). The total footprint for Alternative 2 is 10,046 acres. These corrected acreages have been incorporated throughout the FEIS. The TSR and WTP are no longer considered part of Alternative 2 (or Alternative 1).

ALT-6. ES-4, No Action Alternative. The description of the No Action Alternative in the RDEIS could be read to incorrectly suggest that NTMWD would not pursue an emergency option if the reservoir is not built. While NTMWD has been unable to identify a viable back-up plan to the reservoir to date, it is important to clarify that NTMWD would have to take emergency actions to continue to provide water supplies to its customers if the Proposed Action is not constructed. NTMWD recommends that the EIS include this text: "NTMWD would not move forward with an alternative water supply project as they do not have a viable back-up plan to the proposed reservoir at this time and would likely have to institute emergency water restrictions and seek emergency interim contracts to address its water supply deficit." **[CC: NTMWD1-22]**

Response: A statement has been inserted into the Executive Summary and Chapter 2 to clarify that the USACE has been advised that NTMWD would not move forward with an alternative water supply project as it does not have a viable back-up plan to the proposed reservoir at this time and would likely have to implement emergency water restrictions and seek emergency interim contracts to address its water supply deficit.

ALT-7. ES-5, Alternatives Dismissed from Detailed Consideration - Due to the subheadings of this discussion, the RDEIS could be read incorrectly to suggest that these alternatives were dismissed from detailed consideration because they do not require a Section 404 permit or are unavailable, when in fact NTMWD understands that USACE dismissed these alternatives from further consideration under NEPA because they fail to meet purpose and need or are not within the "reasonable range" that NEPA contemplates. **[CC: NTMWD1-25]**

Response: The commenter's understanding is correct. The subheadings for Section 2.6, Alternatives Dismissed from Detailed Consideration, were included in the RDEIS in order to comply with the subheadings required for alternatives by the USACE in its Appendix B to Part 325, NEPA Implementation Procedures for the Regulatory Program. The USACE does not believe that either the RDEIS or the FEIS can be read incorrectly based on these subheadings. For each alternative referenced under Section 2.6 in the FEIS, a rationale is provided as to why the alternative does not meet the purpose and need, and is therefore not reasonable. We believe that for NEPA compliance purposes both the RDEIS and the FEIS make it clear to the reader that the USACE has identified two reasonable alternatives and do not include any of the alternatives referenced in Section 2.6. Rather, Section 2.8 states that there are two alternatives that meet the purpose and need and, therefore, these are the two reasonable alternatives, i.e., the Applicant's preferred alternative and a downsized version of the LBCR in combination with blended water from Lake Texoma.

ALT-8. NTMWD recommends that USACE revise Chapter 2 in the Final EIS to more clearly describe the process used for screening potential alternatives under the purpose and need (which, as discussed above, includes certain elements found outside of Section 1.5 in the RDEIS). One way that USACE might better articulate its alternatives screening process in the Final EIS would be to present the screening methodology as components corresponding to each element of the purpose and need. Doing so would enable USACE to more clearly describe its evaluation of potential alternatives and its determination of whether each meets the purpose and need/is reasonable, or should be eliminated for failing to meet a component of the purpose and need. As an example, the following is one way that USACE might set this up in the Final EIS to ensure that all aspects of its screening evaluation have been presented in the analysis. **[CC: NTMWD1-40]**

Response: In the FEIS, the statement of purpose and need and the evaluation of alternatives have been modified and integrated. Four criteria are set forth under purpose and need in Chapter 1. Each alternative referenced in Section 2.6 of the FEIS, including Alternatives 1 and 2 as well as each alternative dismissed from detailed consideration, are then evaluated according to whether they meet each of these four criteria. If any given alternative does not meet all four criteria, it is not considered a "reasonable" alternative and is dropped from further consideration in the FEIS. Rationale for dismissal of alternatives is further detailed in Appendix O. Two alternatives which meet the purpose and need, the aforementioned 1 and 2, are considered reasonable.

ALT-9. Separate from USACE's purpose and need screening under NEPA, NTMWD recommends that USACE use a similar screening process to evaluate practicability when, in the future, USACE performs its 404(b)(1) analysis on the requested permit. With the goal of assisting USACE in that effort and identifying project attributes that would make an alternative practicable to the NTMWD as the Applicant, attached hereto as Attachment B is a verified statement that

identifies and explains certain criteria that would make a project practicable to NTMWD from a technical, logistical, economic or other standpoint. While NTMWD acknowledges that USACE has no obligation to consider these screening criteria, we urge USACE to consider them as part of its process for evaluating the practicability of alternatives in the Final EIS. For your reference, a list of NTMWD's proposed screening criteria (SC) is provided below. A more complete description and the rationale for each criterion is provided in Attachment B. **[CC: NTMWD1-41]**

Response: The USACE appreciates the information provided by NTMWD. FEIS Section 1.3, Section 404 Permit Application Process, outlines the process that the USACE will follow in making a decision regarding NEPA and the 404(b)(1) Guidelines in terms of identifying the least environmentally damaging practicable alternative (LEDPA). As indicated in Section 1.3, the USACE will make a determination regarding the LEDPA in the Record of Decision (ROD). To better clarify the alternatives screening process, the USACE has updated FEIS Appendix O, Alternatives Dismissed from Detailed Consideration. The USACE has also modified the purpose and need statement to better clarify the Applicant's near - and long-term water supply needs.

ALT-10. 2-37, Section 2.3.5, Raw Water Transmission, Storage, and Treatment Facilities - The second paragraph of this section could be incorrectly read to suggest that "treated water transmission facilities that would ultimately provide water to the growing northern section of NTMWD's service area" are part of Alternative 1 and Alternative 2. Such infrastructure should not be included as a component of either in the Final EIS. Like the North WTP, NTMWD intends to develop any transmission facilities it may need irrespective of the reservoir. NTMWD therefore requests that USACE remove any mention of "treated water transmission facilities" from discussions of the action alternatives in the Final EIS. If USACE wants to evaluate potential impacts associated with the possibility of NTMWD building such infrastructure in the future, it might do so in the cumulative impacts analysis. For purposes of that analysis, NTMWD anticipates that any potential effects of treated water transmission/distribution facilities would be similar to those that USACE has identified for the water line components of Alternatives 1 and 2. **[CC: NTMWD1-46]**

Response: The treated water transmission facilities were removed from the descriptions of Alternatives 1 and 2 to make it clear that they are not part of the action alternatives. The treated water distribution lines would be reasonably foreseeable future actions with anticipated negligible to slight impacts, similar to the raw water pipelines evaluated in the FEIS. Treated water distribution lines would be part of the overall development and related utilities infrastructure required as the population of Fannin County increases. The effects of the future growth of Fannin County on utilities are considered in Chapter 5, Cumulative Effects.

ALT-11. 2-40, Section 2.3.6, Reservoir Operation - In the first paragraph of this section the reference to 108 MGD is incorrect and should be revised to 77 MGD. **[CC: NTMWD1-47]**

Response: This reference has been corrected in Section 2.4.6.

ALT-12. 2-41, Section 2.3.6, Reservoir Operation - NTMWD recommends discussing in the second to last paragraph of this section the impact that the smaller capacity of the reservoir under Alternative 2 would have on NTMWD's operational flexibility as well as services in other parts of its water system. Operational flexibility typically includes the ability to divert more water at times, with periodic reductions in diversions to allow the reservoir to refill. Under Alternative 2, blending water with Lake Texoma water would require a minimum of 3: 1 blend ratio. Consequently, a reduction in the authorized diversion of water from the smaller reservoir also reduces the amount of Texoma water that can be blended. Depending upon the amount of reduced diversion, the total supply from Alternative 2 could be substantially reduced. In addition, Alternative 2 has substantially less reserve supplies in storage to withstand extended droughts, which would give NTMWD less certainty, while stressing its other water sources. Overdrafting the reservoir (i.e., diverting more than the yield) is not a prudent operation strategy for the smaller reservoir. NTMWD recommends that the discussion of operations in the Final EIS reflect this distinction between Alternative 1 and Alternative 2. USACE discusses this issue in Chapter 4 of the RDEIS on page 4-45, but NTMWD believes it should be addressed in Chapter 2 as well to provide important context. **[CC: NTMWD1-48]**

Response: The text in Section 2.4.6 has been revised as suggested in the comment to provide additional information about the differences in storage capacity and operational flexibility between Alternatives 1 and 2.

ALT-13. 2-41, Section 2.3.6, Reservoir Operation- NTMWD recommends revising the second sentence in the first full paragraph on this page as follows: "Thus, Alternative 2's water supply would be fully utilized by approximately 2031." There should not be a distinction made between a supply with and without reserves because a critical element of the need for the reservoir is to address a water supply deficit and provide reserve supplies. **[CC: NTMWD1-49]**

Response: The text in Section 2.4.6, Reservoir Operation, has been changed to read: "Under normal reservoir operations, it is anticipated that the full 86,100-AFY firm yield of the downsized LBCR would be fully utilized by approximately 2026 – the year construction on the project is expected to be completed."

ALT-14. 2-42, Section 2.5, Alternatives Dismissed from Detailed Consideration - In line with NTMWD's comments on this issue above, the discussion in this section should more clearly describe how each of these alternatives were dismissed based on failure to meet purpose and need or satisfy NEPA's reasonableness standard. **[CC: NTMWD1-50]**

Response: For each alternative referenced in Section 2.6 of the FEIS, and further detailed in Appendix O, the USACE has provided its rationale as to why these alternatives do not meet the purpose and need, and therefore are not reasonable. The USACE believes that for NEPA compliance purposes, both the

RDEIS and the FEIS make it clear to the reader that the USACE has identified two reasonable alternatives which do not include any of the alternatives referenced in Section 2.6. Rather, Section 2.8 states that there are two alternatives that meet the purpose and need and, therefore, these are the two reasonable alternatives, i.e., the Applicant's preferred alternative and a downsized version of the LBCR in combination with blended water from Lake Texoma.

ALT-15. 2-43, Section 2.5.1, New Groundwater Supplies - Included as Attachment C is additional information regarding why groundwater supplies are not reasonable alternatives because they cannot meet purpose and need. NTMWD recommends that USACE incorporate this information into this section of the Final EIS, and likewise consider it when USACE performs its practicability analysis under the 404(b)(1) Guidelines. **[CC: NTMWD1-51]**

Response: The discussion of groundwater in FEIS Section 2.6.1, Alternatives that Do Not Require a Section 404 Permit, and in Appendix O has been updated to better reflect the conditions of the Ogallala Aquifer in Roberts County and Carrizo-Wilcox Aquifer in Brazos, Freestone, and Anderson counties.

ALT-16. 2-44, Section 2.5.1, Desalination of Lake Texoma Water- Due to the high salinity of Lake Texoma water, desalinization of NTMWD's existing Lake Texoma water rights of 113,000 acre-feet of water per year would produce 16,000 acre-feet per year of brine waste that would require disposal. This would require a disposal system with the capacity of 30 MGD for peak use. Given that large volume of brine, NTMWD would need to have several disposal options available before conducting any desalinization operations. NTMWD has been granted the right to dispose an average of 9.3 MGD (or approximately 10,000 acre-feet per year) of brine waste to the Red River, with a maximum daily amount of 18.6 MGD (NTMWD would need to build a 9-mile and 7-mile pipeline to transport the brine for discharge to the Red River). This is the maximum amount of brine that can be discharged and still meet current stream standards. Thus, assuming that NTMWD could discharge 10,000 acre-feet per year to the Red River, it still would need to secure an option for disposing of the remaining 6,000 acre-feet per year of brine. NTMWD anticipates that it would need to perform that disposal using deep well injection. NTMWD has not completed studies to identify appropriate locations for a disposal well field or determine injection depths, however, because this option cannot meet the purpose and need for the project, and the costs to develop this option within the needed timeframe would be infeasible (\$6.89 per 1,000 gallons). In light of the volume of the brine that would need to be injected for disposal, the activity likely would need to be permitted with TCEQ's Class I UIC General Permit WDWG010000. But that General Permit has a limited 10-year term that expires on December 15, 2019. Moreover, TCEQ has stated that the "General Permit may be amended, revoked, or canceled by the Commission or renewed for additional terms not to exceed ten years each." Due to the need for recurring authorizations to be able to operate a desalinization plant, such an alternative cannot meet the purpose and need. The requirement for recurring permits renders desalinization "unreliable" for purposes of this NEPA analysis. **[CC: NTMWD1-52]**

Response: Additional information about the unreliability of the desalination of Lake Texoma water alternative has been added to Appendix O of the FEIS.

ALT-17. 2-49, Section 2.5.3, George Parkhouse Lake South (Parkhouse 1) Alternative - NTMWD recommends striking the second paragraph of this section because it is improper and confusing to consider whether this alternative is reasonable based on the potential development of the Marvin Nichols Reservoir. As NTMWD understands the analysis, USACE eliminated this alternative because it cannot be implemented before 2035 and therefore does not meet the purpose and need. **[CC: NTMWD1-53]**

Response: The second paragraph under the George Parkhouse Lake South (Parkhouse I) Alternative subsection in Section 2.6.3 in the FEIS has been deleted. The fact that the yield of the Parkhouse I reservoir would be reduced by another reservoir is not relevant to why the alternative does not meet the purpose and need (i.e., it could not be operational by 2025).

ALT-18. 2-50, Section 2.5.3, George Parkhouse Lake North (Parkhouse 2) Alternative - NTMWD recommends striking all but the last sentence of the penultimate paragraph of this section. It is improper and confusing to consider whether this alternative is reasonable based on the potential development of the Marvin Nichols Reservoir and Lake Ralph Hall. As NTMWD understands the analysis, USACE eliminated this alternative because it cannot be implemented before 2035 and cannot supply the required quantity of water. This alternative therefore does not meet the purpose and need. **[CC: NTMWD1-54]**

Response: All but the last sentence of the second to last paragraph under the George Parkhouse Lake South (Parkhouse II) Alternative subsection in Section 2.6.3 of the FEIS has been deleted. The fact that the yield of the Parkhouse II reservoir would be reduced by another reservoir is not relevant to why the alternative does not meet the purpose and need (i.e., it would not be operational by 2025).

ALT-19. 2-51, Section 2.5.3, Lake Jim Chapman Alternative- This reservoir is permitted for 273,000 acre-feet of storage, not 273,000 acre-feet per year water supply. Please revise accordingly. **[CC: NTMWD1-55]**

Response: Section 2.6.3, Lake Jim Chapman Alternative, in the FEIS has been revised with the change suggested in the comment.

ALT-20. 2-52, Section 2.5.3, Reallocation of Storage at Other Reservoirs in the Region – In the last paragraph, unless USACE has supporting authority to cite, NTMWD recommends deleting the sentence: "This is because, as a rule, existing reservoirs are for the most part optimally sized and fully permitted." **[CC: NTMWD1-56]**

Response: The sentence referred to in the comment has been deleted from Section 2.6.3, Reallocation of Storage at Other Reservoirs in the Region, in the FEIS.

ALT-21. 2-52, Section 2.5.3, Blending Lake Texoma Water with New Fresh Water Supplies. This section indicates that NTMWD's preferred use of Lake Texoma water is to blend it with fresh water supplies rather than treating it through a large desalination project. NTMWD recommends refocusing this sentence on the reasonableness of these Lake Texoma alternatives in the context of the purpose and need under this NEPA review. **[CC: NTMWD1-57]**

Response: In the FEIS, the text in Section 2.6.3, Blending Lake Texoma Water with New Freshwater Supplies, has been revised to emphasize the purpose and need rather than environmental concerns and monetary cost in the USACE's evaluation of these alternatives.

ALT-22. 2-54, Section 2.5.3, Toledo Bend Reservoir Alternative - As discussed above, NTMWD recommends revising the description of USACE's screening of this alternative to better reflect its ability to satisfy each element of the purpose and need. **[CC: NTMWD1-58]**

Response: As noted in response to comment ALT-9, the purpose and need statement has been modified to better clarify the Applicant's short- and longer-term water needs. As stated in FEIS Section 2.6.3, Other Alternatives Available to the Applicant, water supplied from Toledo Bend Reservoir to NTMWD would require a contract with the SRA of Texas and SRA of Louisiana and a permit allowing an interbasin transfer of water at this time is only conceptual in nature. Water supplied by Toledo Bend Reservoir would not meet the reliability standard of being solely within the control of NTMWD and would not meet the near-term goal of securing additional water because securing a permit allowing an interbasin transfer, project design and construction, and securing environmental clearances would not be accomplished by 2025.

ALT-23. 2-57, Section 2.5.3, Lake Livingston Alternative - As discussed above, NTMWD recommends revising the description of USACE's screening of this alternative to better reflect its ability to satisfy each element of the purpose and need. **[CC: NTMWD1-59]**

Response: As noted in response to comment ALT-9, the purpose and need statement has been modified to better clarify the Applicant's reasonably foreseeable and longer-term water needs. As stated in FEIS Section 2.6.3, Other Alternatives Available to the Applicant, water supplied by Lake Livingston in the amounts needed to meet NTMWD near- and long-term needs may not be available, rights to the water stored in the lake are not held by NTMWD, a permit requiring an interbasin transfer of water would be required, and at this time is only conceptual in nature. Water supplied by Lake Livingston would not meet the reliability standard of being solely within the control of NTMWD, the near-term or long-term water supply needs, or the goal of securing additional water because

securing a permit allowing an interbasin transfer, project design and construction, and securing environmental clearances would not be accomplished by 2025.

ALT-24. 2-57, Section 2.5.3, Sam Rayburn Reservoir/Lake B.A. Steinhagen Alternative – As discussed above, NTMWD recommends revising the description of USACE's screening of this alternative to better reflect its ability to satisfy each element of the purpose and need. **[CC: NTMWD1-60]**

Response: As noted in response to comment ALT-9, the purpose and need statement has been modified for the FEIS to better clarify the Applicant's near- and longer-term water needs. As stated in FEIS Section 2.6.3, Other Alternatives Available to the Applicant, water supplied by a Sam Rayburn Reservoir/Lake B.A. Steinhagen alternative in the amounts needed to meet NTMWD near- and long-term needs may not be available, rights to the water stored in the lake are not held by NTMWD, a permit requiring an interbasin transfer of water would be required, and at this time is only conceptual in nature. Water supplied by a Sam Rayburn Reservoir/Lake B.A. Steinhagen alternative would not meet the reliability standard of being solely within the control of NTMWD, the near-term or long-term water supply needs, or the near-term goal of securing additional water because securing a permit allowing an interbasin transfer, project design and construction, and securing environmental clearances would not be accomplished by 2025.

ALT-25. 2-58 and 2-59, Section 2.5.4, Comparison of Alternatives, Figures 2.5-1 and 2.5-2 – It appears that USACE mistakenly incorporated the wrong figure in this section. The RDEIS contains a figure that analyzes the costs of the alternatives rather than a figure depicting the timing of the availability of the potential alternatives - which is the subject of the text to which the figure applies. **[CC: NTMWD1-61]**

Response: Figure 2.6-1 in the FEIS was included to provide a clear comparison between the potential alternatives and to show the alternatives that could meet the purpose and need (see Section 1.5). Figure 2.6-2 in the FEIS provides cost information for each alternative so additional comparisons between the alternatives can be made. The timing of the availability of the potential alternatives is presented in Table 2.7-1 in the FEIS.

ALT-26. 2-60, Section 2.5.5, Meeting the Purpose and Need, Table 2.5-3 - The Downsized LBCR without Blending of Lake Texoma Water Alternative in the table should be revised to reflect that it may not be available until 2026. Accordingly, the column with the question "Available by at Least 2025?" should be revised to "No" for this alternative. **[CC: NTMWD1-62]**

Response: Table 2.5-3 in the RDEIS is now Table 2.7-1 in the FEIS, and the change suggested by the comment has been made there.

ALT-27. The RDEIS inconsistently identifies the total project footprint for Alternative 2 in various places of the document, including page 1 of the Abstract and in various places in Chapter 4. As discussed in the overall comment above regarding Characterization of Flood Pool and Total Footprint of the Proposed Action/Alternative 1 and Alternative 2, the correct total footprint area for Alternative 2 is 10,409 acres. **[CC: NTMWD1-87]**

Response: The correct total footprint for Alternative 2 is presented consistently throughout the FEIS.

ALT-28: 0-11, Table 1 - This table presents data not specific to the alternative discussed. NTMWD recommends that only information specific to the potential alternative (desalination of 113,000 acre-feet per year of water from Lake Texoma for a treated water supply of 97,000 acre-feet per year) be included in this section. In addition, the discussion in Appendix O should be reviewed and updated, as needed, to reflect updated information provided in 2016 (see reference Freese and Nichols, 2016b). In particular, NTMWD requests the USACE review the discussion on page 0-12 regarding the quantity of brine disposal. As discussed in NTMWD's comments above on 2-44, Section 2.5.1, Desalination of Lake Texoma Water, desalinization does not meet the purpose and need for this project. **[CC: NTMWD1-145]**

Response: As stated in Table 1 ("Comparison of Lake Texoma Desalination Options"), Appendix O, Section 1.2.1, Options 2 and 3 (each sized at 60 mgd) have been superseded by Option 1 (175 mgd); however, they are included to show the various desalination alternatives that have been considered and how they compare to Option 1. The text throughout Appendix O has been revised in the FEIS to incorporate new information that became available after the RDEIS was published.

ALT-29. Timing of Supply: To be practicable, the project must provide an additional supply of water that is available to NTMWD by specific dates associated with the projected increases in water demands. NTMWD requires an additional, reliable supply of water to meet its near-term needs through 2025 and a portion of its longer-term needs through 2060. The projected additional supply required to do this is 63,951 AF of water per year (AFY) beginning in 2022 and 105,804 AFY by 2025 (see footnote in comment). The additional supply needed by 2060 is projected to grow to 299,004 AFY (see next footnote). Alternatives that are incapable of meeting NTMWD's near-term supply requirements (2022-2025) cannot accomplish NTMWD's objectives and would exacerbate the water supply deficit in NTMWD's service area. **[CC: NTMWD3-1]**

Response: The USACE recognizes NTMWD's distinct near-term and longer-term water supply needs, and as such, the purpose and need statement presented in Section 1.5 of the FEIS has been modified. One criterion of the purpose and need is the ability to supply a meaningful or considerable portion of NTMWD's long-term water needs.

ALT-30. NTMWD has two primary objectives it must accomplish with this project. It must develop a reliable source of additional water supply to meet its near-term customer needs. But it must also generate additional supply to help satisfy its long-term needs through 2060. From 2030-2060, NTMWD's water supply deficit will grow significantly from 157,399 AFY to 299,004 AFY. Because of the extraordinary cost of developing water supply projects, and the time required to obtain necessary permits for those projects, it is imperative for the portion of the long-term supply provided by the project to be significant. A project that only addresses the near-term demand or that provides only marginal additional contribution to address the projected long-term demand is incapable of accomplishing NTMWD's objectives. **[CC: NTMWD3-2]**

Response: Please see response to comment ALT-29 regarding the need for the proposed project to meet a considerable portion of long-term water supply needs.

ALT-31. Because NTMWD can never be certain that such emergency supplies will be available again should it experience additional supply-depleting incidents, it is imperative for this project to represent an altogether new water source. Expanding the supply from a source already in use by NTMWD would put NTMWD at risk of losing two supplies -- the current existing supply and the new additional supply - should that source become fully or partially unavailable in the future. Conversely, a new source would be better isolated from factors that may influence NTMWD's other sources in the future. **[CC: NTMWD3-3]**

Response: As presented in Section 2.6 of the FEIS, the reliability of a new water source was one of the criteria considered when selecting the alternatives to be analyzed in the EIS. The USACE is evaluating the impacts of the alternatives presented in Chapter 2 and will use the alternatives analysis presented in the FEIS to help select the LEDPA in the ROD.

ALT-32. NTMWD does not consider a water supply that is subject to significant competition to be fully available to it and its customers. Accordingly, a water supply that is not exclusive to NTMWD or that is subject to significant competition will not accomplish NTMWD's objectives. **[CC: NTMWD3-4]**

Response: Both reasonable action alternatives analyzed in the FEIS would be exclusive to NTMWD. The factors cited in this comment are part of reliability, which is one of the four criteria in the purpose and need statement.

ALT-33. A water supply will not meet NTMWD's objectives if its period of definite availability is shorter than NTMWD's 2060 planning horizon, or if it is uncertain for other similar reasons outside the control of NTMWD, such as a requirement for legislative approval. **[CC: NTMWD3-5]**

Response: Both reasonable action alternatives analyzed in the FEIS would have availability beyond 2060. The factors cited in this comment are part of reliability, which is one of the four criteria in the purpose and need statement.

ALT-34. To meet NTMWD's objectives and policies, the water supply must be reasonably close to NTMWD's service area and water supply and treatment system, including any new treatment facilities, (collectively referred to as the System) to minimize the need and distance to transport water from the new supply source to treatment and to end users. If the water source is too far away from the System and the service area, it will be impracticable for NTMWD to use it due to increased costs, complexity, and negative impacts tied to transporting the water over long distances. Transporting water incurs significant costs, consumes energy (especially when water must be pumped uphill), and produces air pollution, including GHG emissions. It also increases a project's footprint, increasing the likelihood of potential impacts to protected species and their habitats and affecting a greater number of landowners and communities. Once constructed, pipelines require maintenance and inspection. The longer the pipeline, the greater its upkeep costs, and the greater the risk of service disruptions required to make repairs and conduct routine maintenance. Likewise, the farther the supply must be transported, the greater the project's complexity and technical difficulty. Accordingly, the distance a water source must be transported to NTMWD's System must be taken into consideration when considering whether the water source can satisfy NTMWD's need for the project. **[CC: NTMWD3-6]**

Response: The criteria the USACE used in developing and screening alternatives for detailed consideration are provided in FEIS Section 1.5, Section 2.3 and 2.4 on Alternatives 1 and 2, Section 2.6, Alternatives Dismissed From Detailed Consideration, and in FEIS Appendix O. The alternatives screening analysis considers a range of variables including project costs, air quality emissions, and other environmental effects, although as noted in FEIS Table 2.7-1, Ability of Alternatives Considered to Meet the Purpose and Need, the primary considerations were the timing of the delivery of the needed quantities of water, as well as reliability.

In addition, as noted in FEIS Section 1.5, the USACE will also take into consideration cost, technology, and logistics as part of determining the practicability of a project alternative.

The USACE believes that its analysis of the proposed action is consistent with Section 404(b) (1) guidelines. The USACE reviewed and evaluated over 40 alternatives including the Applicant's proposed action, which is also the Applicant's preferred alternative. The EIS presents the potential environmental impacts of the proposed action and another reasonable alternative, and explains the rationale for dismissal of the other alternatives. The alternatives analysis presented in the EIS is intended to support the USACE's public interest review and Section 404(b) (1) guidelines evaluation. The USACE will identify the LEDPA for this Section 404 permit application in the ROD for this FEIS.

ALT-35. A low-quality water source increases the cost and complexity unnecessarily, particularly for NTMWD's water supplies system-wide, if practicable alternatives exist that would provide a higher quality supply of water. **[CC: NTMWD3-7]**

Response: As presented in the response to comment ALT-34 and in Section 1.5, the cost and complexity of developing a new water source are factors considered when determining the practicability of an alternative. The USACE is evaluating the impacts of the alternatives presented in Chapter 2 and will use the alternatives analysis presented in the FEIS to support the LEDPA in the ROD.

ALT-36. A wholesale treated water provider, NTMWD provides water to customers pursuant to contracts with terms negotiated and agreed to by both the wholesale customer and NTMWD, including the customer's obligations to pay for such water. While NTMWD is not advocating necessary selection of a lowest-cost option, costs should be evaluated in absolute terms and in relation to the marginal value yielded. These costs of developing this additional supply of water will be included in subsequent rates for NTMWD's customers, and customers will be obligated to pay the rates that incorporate these costs pursuant to their contracts with NTMWD. Based on NTMWD's policies, NTMWD has concluded that this project should be selected, in part, on how cost-effective the project is. **[CC: NTMWD3-8]**

Response: As presented in Section 2.6 of the FEIS, the cost of developing a new water source was one of the criteria considered when selecting the alternatives to be analyzed in the EIS. The USACE is evaluating the impacts of the alternatives presented in Chapter 2 and will use the alternatives analysis presented in the FEIS to help select the LEDPA in the ROD.

ALT-37. NTMWD does not consider an alternative to be feasible if it requires development of new technologies, requires reliance of existing technologies at an unproven scale or in a new way, or presents considerable logistical hurdles, especially if other alternatives are available that do not present such challenges. Developing the new water supply by using existing technologies in proven ways and on a proven scale presents the greatest likelihood that NTMWD will be able to develop the needed water supply on time and on budget. **[CC: NTMWD3-9]**

Response: Please see responses to comments ALT-33 through ALT-36. Neither of the two alternatives assessed in detail in the FEIS requires new technologies.

ALT-38. It is important to consider the number of landowners directly affected, the degree of local municipal support, and other impacts to landowners and communities. The number of communities that must bear impacts during construction of the alternative should also be considered. **[CC: NTMWD3-10]**

Response: Thank you for your comment. The USACE has met with individual landowners to best understand the difficult situation which, unfortunately, would cause some to lose all or part of their land. Impacts to landowners and the local community (including municipal services) are discussed in Section 4.13.2.4, under Impacts to Homes and Social Landscape, and throughout Section

4.13.2.5. Additionally, impacts to minority and low-income populations during construction from traffic delays, noise disturbances, and community cohesion are discussed in detail in Section 4.14.2.

ALT-41. The Revised Draft Environmental Impact Statement (RDEIS) identifies several groundwater development projects as potential alternatives to the proposed Lower Bois d'Arc Creek Reservoir (LBCR) project. These alternatives include: 1) Roberts County Ogallala Aquifer, 2) Brazos County Carrizo-Wilcox Aquifer, 3) Freestone and Anderson County Carrizo-Wilcox Aquifer, and 4) Other Local Groundwater. Each of these alternatives was dismissed for various reasons. To support the RDEIS in analyzing these alternatives in the context of the purpose and need for the project, an overview of groundwater development in Texas is presented herein, and specific supporting data is provided for the Roberts County Ogallala Aquifer and Brazos County Carrizo-Wilcox Aquifer alternatives." [CC: *NTMWD4-1*]

Response: Section 1.5 of the FEIS was revised to clearly present the purpose and need, and Section 2.6 and Appendix O were revised to clearly present the reasons why the groundwater alternatives considered for a future water source were dismissed from further analysis.

ALT-42. "As shown in Table 1, the amount of water that could be permitted under the current MAG value declines over time for Roberts County and is about the same for Hemphill County. This is due in part on expected pumping within the respective county and the DFC designated for each county. The total county groundwater availability could support a large-scale groundwater development project, but there would be little groundwater remaining for unknown future uses and existing uses beyond 2060." [CC: *NTMWD4-2*]

Response: Section 1.5 of the FEIS was revised to clearly present the purpose and need and Section 2.6 has been revised to clearly present the reasons why the alternatives considered for a future water source were dismissed from further analysis. The USACE accepts that there is not enough groundwater to reliably provide for NTMWD's long-term needs (to 2060 and beyond), as well as those that may develop in and around Roberts County.

ALT-43. Unlike many other aquifers, the Ogallala Aquifer is a non-renewable resource. There is little recharge that occurs to the aquifer in this area and water moves very slowly through the aquifer. Therefore, pumpage of groundwater from the Ogallala represents a permanent loss of this water source. Permitting nearly all of the available groundwater in the county for export to other areas is not a judicious practice. As previously discussed, the GCDs are tasked with protecting the groundwater resources within its district for current and future use. While Table 1 shows the available supply in 2060, if this water is exported from the region, there may not be sufficient supplies to meet local demands beyond 2060. This poses some uncertainty on whether 200,000 acre-feet per year or a smaller amount can be permitted. Within the current structure for groundwater permits, the certainty of this supply is subject to permit renewals and changes in DFCs and corresponding MAG values. Based on these uncertainties in groundwater management, the long-term reliability of the Roberts County Ogallala Aquifer is

low to moderate. Previous studies indicate the water is available but the regulatory framework does not confirm these amounts. NTMWD requires a firm, reliable supply. Even with regulatory management of this aquifer, the aquifer is subject to recharge and pumpage from other users, both within the GCD and adjacent areas. This water supply does not provide the reliability necessary, nor the regulatory certainty required, to meet the purpose and need for the LBCR over the long term. **[CC: NTMWD4-3]**

Response: As stated in Section 2.6.1.1 of the FEIS, Mesa Water sold their Ogallala Aquifer water rights to the Canadian River Municipal Water Authority in 2011, and the aquifer is no longer available to NTMWD. Because NTMWD would not be able to utilize this aquifer as a water source, it does not meet the purpose and need as presented in Section 1.5 of the FEIS and, therefore, was not analyzed in this EIS. Some additional information was added to the groundwater section regarding the reliability criterion (specifically, that groundwater withdrawal permits are not perpetual).

The Ogallala Aquifer has an extremely low natural recharge rate and is generally considered a non-renewable resource, or fossil groundwater. Pumping water from the Ogallala amounts to mining groundwater. Therefore it cannot be considered reliable in the context of the purpose and need for this project.

ALT-44. "The cost estimate assumes the groundwater would be delivered to Lavon Lake, and then diverted for treatment at NTMWD's existing or future treatment plant. Project costs included the well fields, groundwater rights, ancillary facilities and the transmission system to Lavon Lake. The capital cost of the infrastructure improvements is approximately \$3.2 billion. The annual cost includes debt service, operation of the well field and transmission system. The unit cost for Roberts County Ogallala Aquifer groundwater is \$4.22 per thousand gallons." **[CC: NTMWD4-4]**

Response: As stated in Section 2.6.1.1 of the FEIS, Mesa Water sold their Ogallala Aquifer water rights to the Canadian River Municipal Water Authority in 2011, and the aquifer is no longer available to NTMWD. Because NTMWD would not be able to utilize this aquifer as a water source, and because of declining future availability, it does not meet the purpose and need (in particular, the reliability criterion) as presented in Section 1.5 of the FEIS and, therefore, was not analyzed further in this EIS.

ALT-45. "Water from the Ogallala Aquifer in Roberts County is generally fresh water with TDS levels at approximately 400 mg/L or slightly less. While it is documented that TDS levels tend to increase with depth in the Ogallala, studies conducted as part of the regional water planning process did not identify a direct correlation between decreased water quality with expanded pumping (FNI, 2006). Further study would be needed to assess these impacts. However, over a 50-year operating period, it is not unreasonable to assume TDS levels may increase and potentially exceed the 500 mg/L threshold that NTMWD uses for delivered water. Further study

also would be needed to confirm any potential additional impacts to Lavon Lake water quality."
[CC: NTMWD4-5]

Response: Thank you for the additional information on water quality in the Ogallala Aquifer, which further confirms the appropriateness of eliminating this alternative from further review in the EIS. Please also see responses to comments ALT-43 and ALT-44.

Inclusion of a given alternative in the Region C and State Water Plans as a recommended or alternate strategy for NTMWD does not take into account timing, quantity, and reliability criteria that factor into purpose and need. Likewise, it cannot be inferred that such inclusion necessarily means that a given project is a reasonable alternative to the proposed action for the purposes of NEPA.

ALT-46. The construction of a groundwater project such as described above could be implemented within 18 to 25 years. This time frame includes negotiations with current groundwater right holders, water testing, design and construction of the infrastructure. Mesa Water, Inc. sold its interests in groundwater in Roberts and Hemphill County to the Canadian River Municipal Water Authority (CRMWA) in July 2011, and those water rights are no longer available to NTMWD. If NTMWD were to pursue this alternative, NTMWD would need to enter new groundwater purchase agreements. Based on the public response to the Mesa Water, Inc. proposal, a large export permit application would likely be protested and could be tied-up in court for years. This alternative includes one or more new well fields, wellfield collection lines, and a 323-mile transmission pipeline to Lavon Lake. The development of a cross-state pipeline requires considerable coordination with landowners, local entities and the resource agencies. Due to the complexities of this project, the planning and design is expected to take 8 to 10 years, and construction would take another 10 to 15 years, depending upon the sequencing required for the project. Some factors that affect timing of the project include: • Obtaining the necessary groundwater rights and associated permits to secure sufficient supplies and transport to NTMWD's service area is expected to take several years. Since groundwater is a property right, NTMWD would need to negotiate with multiple landowners. The local desire to protect the groundwater for future local use may inhibit such negotiations. • NTMWD would need to obtain a bed and banks permit to place the groundwater in Lavon Lake. This would include water quality testing of the groundwater and modeling of compatibility in the lake. • Construction of the well field and a transmission system would require right of way acquisitions, environmental studies, and a Section 404 permit for the stream and wetland crossings of the pipeline and related infrastructure. For this alternative, the field studies and permitting could take approximately 6 to 10 years, depending upon route studies, right of access to private property for the field surveys, and other factors. If NTMWD were to pursue this alternative, it potentially could be constructed by 2035. If there are legal challenges to this project, the timeframe would be extended. **[CC: NTMWD4-6]**

Response: Thank you for the additional information, which further confirms the propriety of dismissing groundwater alternatives from further review in the EIS. Please also see responses to comments ALT-43, ALT-44, and ALT-45.

ALT-47. Development of new groundwater could not provide new supply needed by 2025. It is probable that the project, if permitted, could not be completed until 2035 or later. Therefore, new groundwater development of the Ogallala Aquifer in Roberts County does not meet purpose and need. **[CC: NTMWD4-7]**

Response: The USACE concurs with this comment. Mesa Water had been interested in selling groundwater from the Ogallala Aquifer in Roberts County to water suppliers in north Texas. Mesa Water sold their rights to the Canadian River Municipal Water Authority on June 23, 2011. With the completion of this sale, this water supply alternative is no longer available to NTMWD and, therefore, does not meet any of the purpose and need criteria of having a reliable medium- and long-term water supply by 2025. Furthermore, even if the Roberts County water were available for purchase, the Ogallala Aquifer is not a renewable resource, and therefore is not a reliable, long-term water supply. Thus, it fails the criterion of reliability in particular.

ALT-48. This potential alternative does not meet NTMWD's needs for long-term reliability. Supply amounts can change based on changes in regulatory rules, permits are term-limited (not perpetual, one to five year terms), and the water supply is subject to competition from other users. **[CC: NTMWD4-8]**

Response: Please see response to comment ALT-44. Additionally, this groundwater alternative would not meet the reliability criterion under purpose and need for the reasons stated in the comment.

ALT-49. Unit costs for groundwater are about \$4.22 per 1,000 gallons. This is higher than other raw water costs. **[CC: NTMWD4-9]**

Response: Thank you for the additional information on costs for groundwater from the Ogallala Aquifer. This alternative was rejected for detailed consideration because it did not meet the reliability criterion of purpose and need. Please also see response to comment ALT-44.

ALT-50. There is uncertainty whether the quantities as specified in this alternative can be obtained through willing sellers, and then permitted for export outside of the GCD. **[CC: NTMWD4-10]**

Response: Please see response to comment ALT-44. This uncertainty means this alternative fails the reliability criterion of purpose and need. Please also see responses to comments ALT-43 and ALT-45.

ALT-51. Environmental impacts associated with the pipeline would require multiple stream crossings, but likely could be routed to avoid and/or minimize environmentally sensitive areas. **[CC: NTMWD4-11]**

Response: Thank you for this additional information. Please see response to comment ALT-44.

ALT-52. A large groundwater development project could impact the water quality of the aquifer and affect other users. **[CC: NTMWD4-12]**

Response: Please see response to comment ALT-44. In addition, these potential impacts may compromise the reliability of the Ogallala Aquifer in Roberts County as a water source.

ALT-53. NTMWD would need to obtain a bed and banks permit to place the groundwater in Lavon Lake. **[CC: NTMWD4-13]**

Response: This alternative is neither reasonable nor available and was dismissed from detailed consideration in Section 2.6.1.1 of the FEIS. It was considered unreasonable especially because it did not meet the reliability criterion of purpose and need. Please see response to comment ALT-47.

ALT-54. Given the non-renewable nature of the Ogallala, exporting large quantities of water from this aquifer to NTMWD would have significant impacts on the communities that solely rely on this aquifer as their water supply now and in the future. **[CC: NTMWD4-14]**

Response: Thank you for this additional information on the non-renewable nature of the Ogallala Aquifer, which further confirms the appropriateness of dismissing this alternative from detailed consideration in the EIS.

ALT-55. As shown in Table 2, approximately 17,000 acre-feet per year of groundwater from the Carrizo-Wilcox Aquifer within the four-county area could be permitted under the current MAG value. This is considerably less than the proposed project amount of 100,000 acre-feet per year and represents only 16 percent of the required need by 2025. **[CC: NTMWD4-15]**

Response: The Carrizo-Wilcox Aquifer covers a large area of east, central, and south Texas, including Brazos County. Brazos County is about 150 miles from the NTMWD service area. Because of this distance over which a pipeline would have to be built and operated, including pumping costs, this alternative is a relatively expensive source of supply for NTMWD. Moreover, MAG values in this aquifer are smaller than previous estimates of availability, and the water supply potentially available for export from the Carrizo-Wilcox Aquifer in Brazos County is thus reduced. Overall, the Carrizo-Wilcox groundwater alternative is not considered a viable alternative because it cannot supply enough water to meet the near- or long-term water supply criteria of the purpose and need statement.

ALT-56. As previously discussed, permitting nearly all the available groundwater in the county for export to other areas is not a judicious practice. Under current regulations, the DFCs and associated MAG estimates would need to be amended to permit more than the 17,000 acre-feet per year shown to be available. The amount that could be permitted above the 17,000 acre-feet per year is unknown. Based on these uncertainties in groundwater management, the long-term reliability of the Carrizo-Wilcox Aquifer is low to moderate. While previous studies may have indicated the water is available, the regulatory framework does not recognize these amounts. Also, competition for this water has resulted in less water being available today. NTMWD requires a firm, reliable supply. Even with regulatory management of this aquifer, the aquifer is subject to pumpage from other users, both within the applicable GCDs and adjacent areas. If a permit is issued to NTMWD by the Brazos Valley GCD, it is valid for five years. After which, the permit would require renewal. The GCD can also revoke a permit if there is unacceptable drawdown or interference with adjacent wells. Considering the lack of permanency of groundwater permits, the reliability of a groundwater supply authorized under the GCD's jurisdiction cannot be considered as a firm, reliable supply. This water supply source does not provide the reliability necessary, nor the regulatory certainty required, to meet the purpose and need for the LBCR over the long term. **[CC: NTMWD4-16]**

Response: Thank you for the additional information on the Carrizo-Wilcox Aquifer. As stated in Section 2.6.1.1 of the FEIS, this aquifer is not a reliable source of water for NTMWD because of uncertain future availability. It does not meet the purpose and need as presented in Section 1.5 and, therefore, was not analyzed in this EIS.

ALT-57. The Brazos County Carrizo-Wilcox Aquifer strategy assumes that the water could be delivered directly to NTMWD's treated water distribution system. The only water treatment assumed is chlorination. This strategy did not consider possible impaired water quality or potential compatibility issues with existing treated water supplies. Project costs included the well fields, groundwater rights, ancillary facilities and the transmission system to NTMWD's service area. The capital cost of the infrastructure improvements is approximately \$985 million. If the groundwater is impaired (i.e., TDS levels are greater than 500 mg/L), the costs would be higher. **[CC: NTMWD4-17]**

Response: Please see response to comment ALT-56.

ALT-58. Water from the Carrizo-Wilcox Aquifer in Brazos County ranges from fresh to slightly brackish water with TDS levels at approximately <500 mg/L to 1,000 mg/L (TWDB, 2009). Data collected from Brazos County indicate higher levels of TDS than some of the surrounding counties (see Figure 2). Based on these levels, the groundwater would likely need to be blended with other fresh water supplies or treated to remove some of the dissolved solids. If the groundwater is placed in Lavon Lake, further study would be needed to assess the potential impacts to Lavon Lake. **[CC: NTMWD4-18]**

Response: Please see response to comment ALT-56.

ALT-59. The construction of groundwater project such as described above could be implemented within 15 to 20 years. This time frame includes negotiations with current groundwater right holders, water testing, design and construction of the infrastructure. It would also require modifications to the DFCs and MAG values to permit a groundwater project of this size. This alternative includes one or more new well fields, wellfield collection lines, and a 165-mile transmission pipeline. The development of a cross-state pipeline requires considerable coordination with landowners, local entities and the resource agencies. Due to the complexities of this project, the planning and design is expected to take 8 to 10 years, and construction would take another 7 to 10 years, depending upon whether advanced treatment is also required for the water. Some factors that affect timing of the project include: • Obtaining the necessary groundwater rights and associated permits to secure sufficient supplies and transport to NTMWD's service area is expected to take several years. Since groundwater is a property right, NTMWD would need to negotiate with multiple landowners. The local interest in selling Brazos County groundwater to the Metroplex has subsided. This may be due in part to the agreement with the San Antonio Water Authority for groundwater from Burleson County. • Construction of the well field and a transmission system would require right of way acquisitions, environmental studies, and a Section 404 permit for the stream and wetland crossings of the pipeline and related infrastructure. For this alternative, the field studies and permitting could take approximately 4 to 6 years, depending upon route studies, right of access to private property for the field surveys, and other factors. If NTMWD were to pursue this alternative, it potentially could be constructed by 2032. If there are legal challenges to this project, the timeframe would be extended. **[CC: NTMWD4-19]**

Response: Please see response to comment ALT-56. Thank you for providing this additional information on the Carrizo-Wilcox Aquifer, which further confirms the appropriateness of eliminating this alternative from further review.

ALT-60. Development of new groundwater could not provide 105,804 acre-feet per year of water by 2025. The quantity of water that can be permitted is 5,100 acre-feet per year from Brazos County and about 17,000 acre-feet per year from the four counties (Robertson, Burleson, Milam and Brazos). This is substantially less than the needed amount and less than the proposed amount for this alternative. **[CC: NTMWD4-20]**

Response: Please see response to comment ALT-56. Thank you for providing this additional information on the Carrizo-Wilcox Aquifer, which further confirms the appropriateness of eliminating this alternative from further review.

ALT-61. It is probable that the project could not be completed until 2032 or later. Therefore, new groundwater development of the Carrizo-Wilcox Aquifer in Brazos County does not meet purpose and need. **[CC: NTMWD4-21]**

Response: The USACE concurs with this comment. Please see response to comment ALT-55. Thank you for providing this additional information on the Carrizo-Wilcox Aquifer, which further confirms the appropriateness of eliminating this alternative from further review.

ALT-62. This potential alternative does not meet NTMWD's needs for long-term reliability. Supply amounts can change based on changes in regulatory rules, permits are term-limited (not perpetual, one to five year terms), and the water supply is subject to competition from other users. **[CC: NTMWD4-22]**

Response: Please see response to comment ALT-56. Thank you for providing this additional information on the Carrizo-Wilcox Aquifer, which further confirms the appropriateness of eliminating this alternative from further review.

ALT-63. Unit costs for groundwater are about \$4.60 per 1,000 gallons. This is higher than other alternative water costs. **[CC: NTMWD4-23]**

Response: Please see response to comment ALT-56. Thank you for providing this additional information on the Carrizo-Wilcox Aquifer, which further confirms the appropriateness of removing this alternative from further review in the EIS.

ALT-64. There is high uncertainty whether the quantities as specified in this alternative can be obtained through willing sellers, and then permitted for export outside of the GCD. **[CC: NTMWD4-24]**

Response: Please see response to comment ALT-56. Thank you for providing this additional information on the Carrizo-Wilcox Aquifer, which further confirms the appropriateness of dismissing this alternative from more detailed consideration in the EIS.

ALT-65. The water quality of the groundwater may be slightly brackish, which would require blending with fresh water or advanced treatment to provide the required quality of water to NTMWD's customers. **[CC: NTMWD4-25]**

Response: Thank you for providing this additional information about the Carrizo-Wilcox Aquifer. Please see response to comment ALT-56.

ALT-66. Environmental impacts associated with the pipeline would require multiple stream crossings, but likely could be routed to avoid and/or minimize environmentally sensitive areas. **[CC: NTMWD4-26]**

Response: Thank you for providing this additional information about the Carrizo-Wilcox Aquifer. Please see response to comment ALT-56.

ALT-67. A large groundwater development project could further impact the water quality of the aquifer and affect other users. This project could also affect base flows of local streams and surface water availability. **[CC: NTMWD4-27]**

Response: Thank you for providing this additional information about the Carrizo-Wilcox Aquifer. Please see response to comment ALT-56.

ALT-68. The GMA and GCDs would need to amend the DFCs and MAGs for the affected counties. **[CC: NTMWD4-28]**

Response: Thank you for providing this additional information about the Carrizo-Wilcox Aquifer. Please see response to comment ALT-56.

ALT-69. The application on which this RDEIS is based is deficient in providing adequate information for the analysis required, because it fails to analyze practicable alternatives, and combinations of alternatives, and fails to provide a sufficiently thorough analysis of alternatives to determine the Least Environmentally Damaging Practicable Alternative (LEDPA). **[CC: NGOs-2]**

Response: The responsibility for providing a sufficiently thorough analysis of alternatives to determine the LEDPA is the USACE's responsibility and not the role of the permit application or Applicant. Although the above comment does not cite or assert any specific alternative that the USACE wrongfully dismissed, for other comments that allege a specific alternative that was wrongfully dismissed, the USACE provides the reasons for dismissal, including appropriate references to the text of the FEIS.

In response to the commenter's assertion that there is a failure to assess a combination of alternatives, Alternative 2 is in fact a combination of alternatives (blending water from Bois d'Arc Creek with water from Lake Texoma), as are other blending alternatives evaluated in Chapter 2.

The EIS fully analyzed all combination alternatives that have been identified and the commenter does not identify any specific combination alternative not evaluated.

ALT-70. An adequate public interest review would show that a balancing of all the actual beneficial and detrimental factors relevant to the proposal requires denial of the application. There are practicable alternatives which have not been adequately assessed that are less damaging to the aquatic environment than the Alternative 1 or Alternative 2. **[CC: NGOs-4]**

Response: The comment does not identify an alternative that has been inadequately assessed or inappropriately dismissed. For comments that cite a specific alternative that was wrongfully dismissed, the USACE provides its reasons for dismissing the alternative, including appropriate references to the

text of the FEIS. No reasonable alternative was dismissed from consideration; to be considered reasonable, an alternative has to be able to meet all four criteria of the purpose and need. The public interest review is adequate because it has fairly and impartially assessed the ability of a wide range of diverse alternatives for meeting the Applicant's purpose and need.

ALT-71. In truth, there are numerous alternatives which would provide NTMWD with an adequate future water supply, including some which do not require a permit from the USACE. If USACE bases its decision solely on Alternative 1 or Alternative 2, it will have ignored alternatives that are practicable and less environmentally damaging than Alternative 1 and Alternative 2, which have been dismissed based on an arbitrary time frame that fails to account for readily available water. *[CC: NGOs-16]*

Response: Section 2.6 of the FEIS presents alternatives that were considered and dismissed from further analysis because they would not meet the purpose and need as presented in Section 1.5 of the FEIS. The USACE is fully evaluating the environmental impacts of two of the alternatives (1 and 2) presented in Chapter 2 and will use the alternatives analysis presented in the FEIS to help select the LEDPA in the ROD.

Alternatives were dismissed if they could not meet the purpose and need for the project. One component of the purpose and need is when the water is needed. This need is based on the projected water demands (shown in Table 1.1-1) and water supplies currently available to the Applicant. The timing of the need is not arbitrary. Readily available water was considered in the alternatives analysis. The transport of these supplies to NTMWD service area could not be completed within the time frame of the purpose and need.

The USACE believes that its analysis of the proposed action is consistent with Section 404(b) (1) guidelines. The USACE reviewed and evaluated over 40 alternatives including the Applicant's proposed action, which is also the Applicant's preferred alternative. The EIS presents the potential environmental impacts of the proposed action and another reasonable alternative, and explains the rationale for dismissal of the other alternatives. The alternatives analysis presented in the EIS is intended to support the USACE's public interest review and Section 404(b) (1) guidelines evaluation. The USACE will identify LEDPA for this Section 404 permit application in the ROD for this FEIS.

ALT-72. Practicable alternatives that are less damaging to the aquatic environment do in fact exist. The alternatives analysis in the first DEIS, released in 2015, was flawed and did not support a decision to grant the application. The Applicant failed to adequately consider numerous reasonable alternatives, which were commented on by Texas Conservation Alliance, Natural Resources Defense Council, Audubon Texas, Ward Timber, Ltd., and Ward Timber Holdings during the comment period for that DEIS. Those alternatives should be given in-depth re-consideration in the light of the supply and demand figures discussed above. Without this

analysis, the RDEIS fails to meet the standards legally incumbent on the USACE to comply with relevant statutes and rules governing NEPA, and the permit should be denied. **[CC: NGOs-17]**

Response: None of the many alternatives cited by the commenters in the 2015 DEIS was in fact reasonable, that is, would meet all four criteria of purpose and need: near-term quantity, timing, reliability, and meaningful contribution to long-term need. Because none were considered reasonable, all were dismissed from detailed consideration in the EIS.

ALT-73. The above discussion describes two ways that NTMWD's Lake Texoma water right could be firmed up – trading Texoma water with other entities and using variable pumping rates while blending. In addition, there is substantial evidence that partial desalination of water from Lake Texoma is in fact a cost-effective option. NTMWD's consultant has raised concerns about brine disposal and about the size of a plant necessary to make all of NTMWD's water right available by desalination. Desalination facilities are inherently modular, and the initial phases of such a project could be small. As proof of concept, the cities of Sherman and Denison have been using desalinated water from Lake Texoma for decades. Concerns about brine disposal were discussed in the HDR study cited above and it was shown that the brine could readily be disposed of in the Red River above Lake Texoma. **[CC: NGOs-18]**

Response: Trading Lake Texoma water with other regional wholesale water suppliers does not meet the reliability criterion of purpose and need because of its attendant uncertainties, such as negotiating agreements with other parties and the expiration date on any such agreement.

The use of variable pumping rates while blending Lake Texoma with other lower-TDS supplies would not more fully utilize NTMWD's existing permitted water supplies. The Texoma pump station presently contains seven constant-speed pumps: two 6100 HP pumps with 125 MGD combined capacity, two 4000 HP pumps with 90 MGD combined capacity, and three smaller pumps used by GTUA to supply the Sherman WTP and Panda Energy when NTMWD is not pumping to the Howe Balancing Reservoir. There are no variable frequency drives installed at the Lake Texoma Pump Station. NTMWD does not currently have the capability to vary the pumping frequency (i.e., pumping rates) with salinity levels in Lake Texoma at the pump station.

Water from the Texoma pump station is delivered to the Texoma Balancing Reservoir near Howe, Texas. From there the water is transported by gravity to the Wylie WTP. NTMWD has the capability to vary the flow from the Balancing Reservoir using a system of valves at the WTP. This allows NTMWD to match the blended supply with the demand over time. The existing blending facility is designed for a 3 to 1 blend ratio, and the existing pipeline to the Wylie WTP has a maximum capacity of 120 MGD. Adding variable pumps to the Texoma Pump Station would not change the operations of the system since NTMWD already varies the amount of water received from Texoma. Even if operations were modified and additional infrastructure was constructed to deliver greater

quantities of water from Texoma, the amount of supply is still limited by the required blend ratio during drought and the available supply from freshwater sources.

With regard to brine disposal, please see response to comment ALT-31-2015.

Desalination of water supplied by Lake Texoma is discussed as a potential water supply alternative in FEIS Section 2.6.1, Alternatives that Do Not Require a Section 404 Permit. The assessment concluded that desalination of water from Lake Texoma would not meet be able to meet the water supply needs as summarized in the purpose and need statement. This source would not meet the 2025 water supply operating deficit; nor would it supply a considerable portion of the long-term water supply need. This included consideration of an inland location of the size needed to meet the estimated near-term and long-term water supply needs.

Desalination also results in considerable cost, technological challenges, and regulatory hurdles. However, it should be stressed that the USACE dismissed no alternatives from more detailed consideration – including Texoma desalination – on the basis of cost. Cost was not one of the four purpose and need criteria identified in Section 1.5. Please also see the response to comment ALT-140.

A desalination operation sized to meet both the near-term and long-term need indicated in the purpose and need would result in a substantial quantity of brine that would require disposal. As an example, the discharge of brine to the Red River would most likely result in adverse water quality impacts and as such be strongly opposed by existing water users downstream of the point of discharge. It is also unlikely that brine in the quantities produced by a desalination plant could be disposed reliably through groundwater injection. The main problem with such injection is that the permits are only for 10 years; there is no assurance of the permit being reauthorized, which entails uncertainty and unreliability.

ALT-74. NTMWD's conservation planning relies on the Region C Water Plan and on the Best Management Practices Guide, developed by the Water Conservation Implementation Task Force in 2004. The Task Force stated clearly in developing the guide that the practices included were voluntary practices that might be used in a specific case. Use of voluntary practices indicates room for increased conservation not assessed in the RDEIS. **[CC: NGOs-21]**

Response: The USACE's approach in considering conservation as an alternative to the project is summarized in Section 2.6.1.3 of the FEIS. The NTMWD conservation plan and the model plan for its member cities and customers were developed specifically by and for NTMWD. The components in the NTMWD conservation plan are not voluntary. Each member city and customer adopts its own conservation plan, which includes specific actions by the city. These actions are not voluntary.

NTMWD has taken conservation into consideration in its long-term water supply planning process. The state of Texas, through TCEQ, requires that an Applicant for an interbasin transfer achieve the highest practicable level of conservation before issuing a permit allowing an interbasin transfer. TCEQ has made the determination that the NTMWD has achieved the highest practicable level of conservation by authorizing NTMWD to conduct an interbasin transfer. As shown in shown in Table 1.1-1, Summary of NTMWD Water Supply Demands for 2020 to 2060 (AFY), conservation was taken into consideration during development of the long-term demand estimates. The table indicates that conservation is expected to increase through 2060. It is anticipated that the Applicant will continue to work with its members to develop model water and drought contingency plans and other conservation programs, as it has done in the past with other member cities. Finally, NTMWD is required by TCEQ regulations to update its water conservation and drought contingency plans every five years.

ALT-75. A district court judge in Texas reversed and remanded approval of the permit for an interbasin transfer of water from another proposed reservoir in Fannin County, Lake Ralph Hall, because the Applicant had not demonstrated compliance with the “highest practicable” provision. The DEIS lacks analysis to determine whether NTMWD’s conservation plan meets this standard. **[CC: NGOs-22]**

Response: Please see response to comment ALT-74. TCEQ has made a determination that the NTMWD has achieved the highest practicable level of conservation by authorizing NTMWD to conduct an interbasin transfer. Contrary to the commenters’ assertion, it is also the USACE’s understanding that the Texas Court of Appeals recently reaffirmed that TCEQ has the authority to make a determination that a water rights Applicant is achieving the highest practicable level of water conservation within their jurisdiction (UTRWD, 2017). TCEQ utilized similar reasoning and basis for the interbasin transfer for the proposed LBCR as they used for Lake Ralph Hall (TCEQ, 2013).

ALT-76. The RDEIS fails to adequately consider conservation as a potential source of supply, focusing primarily on the reduction in demand that implementation of mandated conservation measures will bring. There are many voluntary conservation actions that can be taken in addition to water-efficient appliances and plumbing fixtures. Indeed, NTMWD has been and plans to implement some of them. **[CC: NGOs-23]**

Response: Please see response to comment ALT-74 regarding how conservation was addressed in the RDEIS and FEIS.

ALT-77. Projecting a per capita water use of 171 GPCD for 2060 indicates clearly that additional water conservation would be a practicable alternative for supply some of NTMWD’s future demand. The potential for that additional conservation to substitute rather than complement NTMWD’s water strategies should have been evaluated in the RDEIS. The alternative of

conservation in combination with other alternatives should also have been evaluated in the RDEIS. These omissions are further indication of the failure of the RDEIS to do a thorough alternatives review. **[CC: NGOs-24]**

Response: Based on the USACE's independent review of NTMWD's water demand and need projections, including projected water conservation and reuse, the USACE has concluded that NTMWD's numbers are accurate. Per capita water use is unique to each water user, a function of its particular residential, commercial, institutional and transient (non-resident) composition. The NTMWD system per capita use of 171 GPCD in 2060 represents a 22 percent reduction in per capita water use from the high of 218 GPCD in 2000. As noted above, as part of its interbasin transfer permit analysis, TCEQ has determined that NTMWD has met the highest practicable level of conservation.

Expected demand reduction due to conservation measures was assessed in the EIS and incorporated into the need calculation. Conservation was not considered an alternative since NTMWD is already actively implementing conservation and will continue to do so in the decades ahead. Water conservation and reuse are not considered alongside structural alternatives to the proposed action in Chapter 2 but are considered in the context of the purpose and need discussion in Chapter 1.

The USACE believes this is the correct approach because the best available information shows that the Applicant has achieved the highest practicable level of water conservation already. Municipal conservation is an integral and important part of the NTMWD strategy, but it is not sufficient to offset the increased water demand associated with projected new population growth. Accordingly, any additional conservation would still be incapable of meeting the Purpose and Need as set forth in Section 1.5 of the FEIS. The EIS does include additional municipal conservation measures which will provide approximately 22,000 AFY by the year 2060 (Table 1.1-1 in the FEIS). NTMWD will continue to implement its water conservation plan to ensure that it continues to achieve this level of conservation, including through subsequent updates to its conservation plan every five years.

The NTMWD coordinates closely with its members in the development of model water conservation and drought contingency plans. All member cities have adopted the required components in NTMWD's model plans. Several member cities have adopted additional measures, where possible.

ALT-78. In discussing the potential of conservation as a water management strategy for North Texas Municipal Water District, it is important to make the distinction between consumptive and non-consumptive uses of water. Because a significant portion of NTMWD'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. Since NTMWD supplies only small amounts for consumptive use by industry or for steam electric generating, the significant potential for water conservation in the NTMWD service area is for landscape watering, primarily of lawns. The large population increase that is a major element of NTMWD'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 (both in the NTMWD service area and in other places) have been shown to lead to additional reductions in water use. If NTMWD's population projections are correct, the population of its service area will more than double by 2060. 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 increases the likelihood that future per capita consumptive water use will be less. The current consumptive use, which can be roughly estimated at up to 150,000 AFY (50% of the highest annual usage), would not be expected to double, even if the population doubles. Therefore, future consumptive use will be less than 300,000 AFY. The TCA table of supply and demand above shows that the firm yield available in 2060, and available to meet consumptive need, would be more than 350,000 AFY. Emphasizing landscape irrigation in future conservation programs would ensure that existing firm yield would be adequate to meet the demand for consumptive uses. **[CC: NGOs-25]**

Response: The USACE has independently reviewed both NTMWD's and TCA's supply and demand figures and has determined that NTMWD's figures are reasonable and accurate. The USACE believes that the RDEIS and FEIS accurately reflect the amount of reuse available to NTMWD. What the comment calls "non-consumptive" water use is basically indoor water use that is returned to a sewer system. Over time, this use is expected to decline on a per capita basis, rather than increase. New growth brings new low water use fixtures and appliances, and new sewer piping that will have lower infiltration/inflow into the collection system and wastewater treatment facility. Since much of NTMWD's future demands are growth related, the per capita wastewater availability for reuse may decrease over time rather than increase as stated in the comment.

NTMWD's service area is predominantly suburban, with some rural communities. The projected water demands assume that expansion of growth to the rural communities would follow previous growth characteristics of suburban type development. While yard size in rural areas may decrease, outdoor water use may increase as automatic sprinkler systems are installed to irrigate greater portions of the lot. For a few rural communities, increases in per capita water use were considered in the demand projections. Many factors besides residential water use must be considered in developing water demand projections.

ALT-79. As described above, there are a number of alternatives, including multiple options for developing water from Lake Texoma, that are practicable and should have been analyzed in the DEIS and RDEIS. Without that analysis, and without an adequate analysis of combinations of

alternatives, the RDEIS is not sufficient to determine the Least Environmentally Damaging Practicable Alternative, or to meet the standards set out for preparation of an EIS. **[CC: NGOs-26]**

Response: The USACE has evaluated all alternatives that have been identified, including those associated with developing water from Lake Texoma. No new alternatives that were not analyzed have been brought to its attention. None of the alternatives involving Lake Texoma, other than its water being blended with LBCR water (Alternative 2 analyzed in the RDEIS and FEIS), are reasonable; that is, they would not meet purpose and need. Please also see response to comment ALT-71.

ALT-80. Based on the analysis of supply, demand, and practicable alternatives above, Texas Conservation Alliance, Natural Resources Defense Council, Audubon Texas, Caddo Lake Institute, Ward Timber, Ltd, and Ward Timber Holdings strongly assert that the Least Environmentally Damaging Practicable Alternative would result in selection of the No Action Alternative. **[CC: NGOs-27]**

Response: The alternatives analysis presented in the EIS is intended to support the USACE's public interest review and Section 404(b) (1) guidelines evaluation. The USACE will identify the LEDPA for this Section 404 permit application in the ROD for this FEIS.

ALT-81. There are a number of alternatives that would be less damaging than either Alternative 1 or Alternative 2. Given the (inappropriate) statement by the USACE that it will only choose between Alternative 1 and Alternative 2, however, these comments would be incomplete without comment on the difference in impact of Alternative 1 and Alternative 2. When comparing Alternative 1 and Alternative 2, there can be no question that Alternative 2 is a less environmentally damaging option than Alternative 1. The amount of land inundated would be substantially less, the linear stream footage inundated would be less, fewer wetlands would be impacted, less habitat would be lost or degraded, the number of people displaced would be fewer, the amount of cropland lost would be less, and the cost only 12% higher during amortization and less than 7% higher after amortization. The primary consideration noted in the DEIS for selecting Alternative 1 over Alternative 2 is the assertion that Alternative 2 would not be completed in time to meet the NTMWD's projected demands for 2025. As shown above, this assertion is based on an inaccurate counting of supply and bogus projections of demand for 2020 and 2025, and is therefore is not an appropriate basis for decision. **[CC: NGOs-28]**

Response: The USACE considered a wide range of water supply options as part of the alternatives development and screening process. This process, including the other alternatives considered and dismissed from detailed evaluation is explained in the FEIS in Section 2.6. Additional details on the alternatives development and screening process is provided in Appendix O, Alternatives Dismissed From Detailed Consideration.

Please see response to comments PUR-15, PUR-17, and PUR-35, which provide additional information on the NTMWD water supply planning process. The methodology used in the EIS was reviewed and approved by the TWDB, as well as the USACE, and was determined to be consistent with the standard practice used for state water planning (TWDB, 2016b).

ALT-82. No federal action is required at this time to meet the stated purpose of meeting NTMWD's 2025 needs, making the No Action Alternative also the Least Environmentally Damaging Practicable Alternative. As the Least Environmentally Damaging Practicable Alternative, the No Action Alternative is also the only alternative appropriate to approve. **[CC: NGOs-29]**

Response: The USACE appreciates the submission of statements opposing the proposed action and will consider the spectrum of public opinion in its final decision on this project. The alternatives analysis presented in the EIS is intended to support the USACE's public interest review and Section 404(b) (1) guidelines evaluation. The USACE will identify the LEDPA for this Section 404 permit application in the ROD for this FEIS.

ALT-83. An unbiased independent review of the alternatives would find solutions to NTMWD's future water supply demands that avoid the need for building a new reservoir. An analysis of NTMWD's supply and demand reveals:...That the RDEIS minimizes the potential for blending water from Lake Texoma with other water supplies by exaggerating the salinity of Lake Texoma, ignoring opportunities for trading water, and using blending rates that are higher than necessary. **[CC: NGOs-34]**

Response: It is common practice for the USACE to require applicants applying for Department of the Army authorization to furnish environmental information necessary for the preparation of an EIS. The USACE has a responsibility to independently evaluate the information submitted by an applicant and shall be responsible for its accuracy. The intent of the agency responsibility under NEPA is that acceptable work submitted by an applicant not be redone, but that it is verified by the USACE [40 CFR 1506.5(a)]. For the proposed LBCR project, the applicant (NTMWD) and their consultant (FNI) were requested by the USACE to provide information that was then used by the USACE to help prepare the EIS.

The USACE selected Solv LLC (formerly Mangi Environmental) as a third-party contractor to help prepare the EIS pursuant to the requirements of 40 CFR 1506.5(c). Solv LLC and its subcontractors have assisted the USACE in preparing the DEIS, RDEIS, and FEIS. To help ensure that the preparation of the EIS was conducted in an objective manner, Solv was required to execute a disclosure statement prepared by the USACE verifying that the firm has no financial or other interest in the outcome of the project.

The EIS contractor and the USACE independently reviewed a suite of alternatives, including combination of alternatives in the RDEIS. The two alternatives that met the screening criteria for purpose and need are Alternative 1 (LBCR) and Alternative 2 (smaller LBCR with blending of Texoma water).

Lake Texoma salinity levels are not exaggerated in the EIS, leading to the assumption of higher blending rates than are necessary. Salinity rates do vary over time, depending upon quantities and sources of inflow. Historical levels of total dissolved solids (TDS) in Lake Texoma from 2001 to 2016 (TCEQ, 2017) show TDS levels ranging from less than 500 mg/L to over 1,300 mg/L. The median value is 1,015 mg/L.

Higher salinity levels typically occur during drier periods, as evaporative losses and little fresh water inflows tend to increase salinity levels. It is precisely during these times that NTMWD would need to rely on Texoma water to meet its demands. Therefore, planning for the TDS levels during drought, when the Texoma water is really needed, is a prudent planning approach and not an overly cautious approach to planning as implied by the comment.

The commenter indicates that Texoma could supply 150,000 AFY with no new supplies for blending. The sources of existing fresh water supply available to NTMWD in 2020 for blending are approximately 274,500 AFY. This includes reuse supplies from the Wilson Creek WWTP and East Fork Raw Water Supply Project, and 40,000 AFY from the Upper Sabine supplies (the remaining Upper Sabine supply is used locally). To use 150,000 AFY of water from Lake Texoma, without advanced treatment, the blend ratio would be 1.8:1. This blend ratio would exceed the federal TDS secondary drinking water standard (500 mg/L) and does not meet the needs of NTMWD's customers. Also, as more reuse water is used for blending, the TDS concentrations of the fresh water supply is expected to increase, further affecting the blend ratio and resulting blended water quality.

NTMWD has several customers with water quality needs that require the water to have TDS levels less than 500 mg/L (e.g., electronic industries and medical facilities). NTMWD has tried varying the blend ratio of these sources while maintaining the water quality criteria, and found that a 4:1 blend ratio (4 parts Lavon Lake to 1 part Texoma) is required during dry periods. During wet periods, NTMWD can blend Lake Texoma water at a 3:1 ratio and meet the 500 mg/L standard. The Lake Texoma blend ratio used by NTMWD is based on actual NTMWD operations. For prudent planning, water supply is based on the supply available during drought, and TDS concentrations of Texoma water during drought are approximately 1,100 mg/L or higher and must be blended at a 4:1 ratio.

The commenter also assert that blending ratio could be as high as 1:1 (i.e., more Texoma water to fresh water) when the TDS in Lake Texoma is below 800 mg/L

and the blend source water is below 200 mg/L. TDS concentrations in Lake Texoma are below 800 mg/L only during wet periods. This occurs about 18 percent of the time over the historical record, and not when water from Lake Texoma is needed the most. Moreover, water quality considerations include more than TDS concentrations alone. Other considerations, such as chlorides, must also be balanced in the blending process. Again, while higher blend ratios (more Texoma water to fresh water) may be possible at times, this supply cannot be relied on during drought. NTMWD is responsibly planning for reliable supplies and is not being overly cautious.

Yet another consideration for NTMWD in its operations of its water and wastewater systems is the relationship between the water quality of the treated water and the water quality of the wastewater return flows. Higher TDS levels in the treated water supply results in higher TDS levels in the wastewater return flows. Discharge of the return flows back into Lavon Lake can violate TCEQ discharge standards and increase TDS levels in Lavon Lake (and subsequently in NTMWD's treated water). This operation can impact both the source water and the wastewater treatment facilities. Blending additional Texoma water could result in the inability of existing wastewater treatment plants to meet discharge limits.

ALT-84. An unbiased independent review of the alternatives would find solutions to NTMWD's future water supply demands that avoid the need for building a new reservoir. An analysis of NTMWD's supply and demand reveals:...That a thorough and accurate analysis of current supply, reasonable demand, and available alternatives would show that neither version of Lower Bois d'Arc is the Least Environmental Damaging Practicable Alternative. **[CC: NGOs-35]**

Response: Please see response to comment ALT-71.

ALT-85. The reservoir yield for Alt #1 (120,665 AFY) is greater than the immediate projected need. The reservoir yield for Alt #2 (86,100 AFY) is 71% of Alt #1 reservoir yield, but Alt #2 reservoir footprint is only 50% of the Alt #1 reservoir footprint. The reservoir yield for Alt #2 (86,100 AFY) meets 82% of the immediate projected need. The reservoir yield for Alt #2 plus the planned water transmission from Lake Texoma (28,700 AFY) exceeds the immediate projected need by approximately 10,000 AFY. **[CC: P13-3]**

Response: The purpose and need for the project (Section 1.5) states that NTMWD needs an additional 105,804 AFY by 2025 as well as a water source that can meet a meaningful portion of the long-term water need through 2060. Under drought conditions, both Alternatives 1 and 2 would be fully utilized by 2026 (see Reservoir Operation Plan, Appendix D).

The estimated water supply that would be provided by Alternatives 1 and 2 is summarized in FEIS Chapter 2, Alternatives Including the Proposed Action. The firm yield from both Alternatives 1 and 2 would be greater than the predicted NTMWD near-term need (deficit plus recommended reserve supply), which as

just noted, is expected to reach 105,804 AFY by 2025. However, meeting this short-term water supply deficit is not the only need for a new water supply project. As described in the purpose and need statement included in FEIS Chapter 1, Introduction, other water supply needs include meeting a portion of NTMWD's long-term supply needs and enhancing reliability.

ALT-86. First, I find it disturbing that all alternatives to this project have been dropped from consideration, other than the smaller reservoir to be constructed at the same location. Why NOT consider existing water sources, which are still in the NTMWD's water plan? According to the Clean Water Act, should there be a less damaging alternative, that alternative must be given priority over a project that will cause greater damage to the environment. Three large existing reservoirs can be identified within a radius that would be feasible to supply water to the area NTMWD serves. These are Toledo Bend, Wright Patman, and Lake O' the Pines. Two of these three are listed in NTMWD's plan through 2060. **[CC: P14-1]**

Response: Over 40 alternatives were identified and evaluated in the RDEIS, including purchasing water from each of the three lakes identified by the commenter (see Appendix O). None of the suggested alternatives (Toledo Bend, Wright Patman, and Lake O' the Pines) met the purpose and need for the project. Section 2.6 of the FEIS presents numerous and diverse other alternatives that were also considered and dismissed from further analysis because they would not meet the purpose and need as presented in Section 1.5 of the FEIS.

The alternatives analysis presented in the EIS is intended to support the USACE's public interest review and Section 404(b) (1) guidelines evaluation. The USACE will identify the LEDPA for this Section 404 permit application in the ROD. The flow chart shown in Figure 1.3-1 depicts this process.

ALT-87. Considering the apparent reasoning behind excluding the alternatives brings one to the conclusion that this project is about the financial gain of NTMWD, rather than the scarcity of water sources. **[CC: P14-3]**

Response: The USACE disagrees with the claim that NTMWD would gain financially from the construction of a reservoir on Bois 'Arc Creek. NTMWD, as a non-profit, public entity, does not financially benefit from developing water supplies. The inability of existing water supplies to meet NTMWD's growing demand for water as a result of rapid growth within its service area is clearly established in Chapters 1 and 2 and Appendices N and O of the RDEIS and the FEIS. Please also see response to comment ALT-71.

ALT-88. NTMWD knew from the start that they were knowingly and blatantly ignoring the Clean Water Act when they proposed constructing the LBCR. They elected to pursue the bird in the bush instead of capitalizing on the 3 birds in hand. That being, Lake Texoma, Toledo Bend and Wright Patman, all of which would cause less environmental damage, because the laying of a pipeline will heal itself in a matter of years. **[CC: P17-1]**

Response: See response to comment ALT-86. NTMWD submitted an application for a Department of the Army Permit under Section 404 of the CWA on June 3, 2008. Upon review, the USACE determined that issuance of such a permit may have a significant impact on the quality of the human environment and, therefore, required the preparation of an EIS. The USACE has spent nine years and conducted many studies on this proposed action in an effort to comply with the CWA.

Section 2.6 of the FEIS presents alternatives that were considered and dismissed from further analysis because they would not meet the purpose and need as presented in Section 1.5 of the FEIS. The Toledo Bend, Wright Patman, and Lake Texoma blending and desalination alternatives are included in this discussion. The alternatives analysis presented in the EIS is intended to support the USACE's public interest review and Section 404(b) (1) guidelines evaluation. The USACE will identify the LEDPA for this Section 404 permit application in the ROD for this FEIS.

ALT-89. If the three aforementioned reservoirs are not practical alternatives, then why are they on NTMWD State Water Plan through 2060? Lake Texoma, Toledo Bend and Wright Patman should have been listed as practical alternatives in the Revised Draft Environmental Impact Statement (RDEIS). Using time to implement is not a valid reason to drop them from the RDEIS because if NTMWD had started on these projects back in 2000 they would have water in Wylie by now. Unacceptable environmental impacts for Lake Texoma, Toledo Bend and Wright Patman is incorrect because the data published by the Water Development Board shows Lake Texoma and Toledo Bend to have medium low environmental impacts, low impacts to agriculture, low to medium low on other natural resources and medium low on third party impacts. The Water Development Board lists the LBCR to have medium high environmental impacts, high agricultural impacts, medium other natural resources and medium third party impacts. **[CC: P17-3]**

Response: The Texas State Water Plan illustrates a path forward for developing water supplies to meet an entity's water needs. The proposed LBCR is a recommended strategy for NTMWD in 2020. Blending Lake Texoma water with LBCR water is recommended in the SWP in 2040 after the proposed LBCR were constructed and in operation. The Texoma source cannot be utilized until a new freshwater source is developed. Purchasing and transporting water from Wright Patman and Toledo Bend are recommended for implementation in 2060. Both of these strategies are developed as joint strategies for water users in the DFW Metroplex.

The RDEIS evaluated Texoma, Wright Patman, and Toledo Bend as potential alternatives to the proposed action (LBCR) and found that these strategies cannot meet the purpose and need for the project; specifically, they could not be operational by 2025 or they would not supply enough water. Therefore, those alternatives were not evaluated in this EIS. Section 2.6 of the FEIS, provides

additional information on why these alternatives were not considered for further analysis.

The Toledo Bend, Wright Patman, and Lake Texoma alternatives are included in State Water Plan for NTMWD because they could be implemented to provide additional water to NTMWD's service district in the more distant future.

ALT-90. I don't understand why NTMWD thinks that they need more water to blend with Lake Texoma water. According to Table 3.3-8, Chapter 3 page 3-40, the water near the dam is all below the levels set by TECQ as shown in Table 3.3-7, Chapter 3 page 3-39, which are found in Volume I RDEIS. **[CC: P17-4]**

Response: The water quality standards for Bois d'Arc Creek shown in Table 3.4-7 are for ambient water quality; they are not drinking water quality standards, which have lower TDS concentrations. TCEQ's ambient water quality standard for TDS in Bois d'Arc Creek is 1,100 mg/L, but in fact the creek's average TDS levels are typically much lower than that, below the 500 mg/L objective for TDS drinking water standards.

The median value of Lake Texoma water is 1,015 mg/L. Higher salinity levels typically occur during drier periods, as evaporative losses and little fresh water inflows tend to increase salinity levels. It is during these times that NTMWD would need to rely on Texoma water to meet its demands. Therefore, planning for the TDS levels during drought, when the Texoma water is really needed, is a prudent planning approach and not an overly cautious approach to planning as implied by the comment.

The blending ratios predicted between the LBCR and Lake Texoma are founded on sound science. For a more detailed explanation, please see response to comment PUR-14.

ALT-91. By blending the water from Cooper, Lavon and Texoma, thus giving NTMWD the water that is needed immediately. This would allow NTMWD, starting in 2018 to bring Toledo Bend and Wright Patman online. **[CC: P17-7]**

Response: The water from Lakes Cooper, Lavon, and Texoma is already blended at the Wylie WTP to the maximum extent it can be, and thus these supplies are already included in the calculation of projected water need for NTMWD. The only way to more fully utilize additional Lake Texoma water, to which NTMWD is already entitled by permit, is to increase the volume of fresh water available to blend with it.

Not only are these existing supplies already calculated in the need, but the alternatives cited do not meet the timing criterion of purpose and need even if started in 2018.

All existing supplies of NTMWD are considered in the development of the projected water need for NTMWD. These include supplies from Jim Chapman Lake (Cooper), and Lakes Texoma and Lavon. Water from Toledo Bend and/or Wright Patman could not be delivered until 2034 and 2040, respectively.

ALT-92. NTMWD needs to utilize the existing reservoirs before they are silted in and save the LBCR site for the future so it will service the people for a longer period. Why destroy this unique wetland, hardwood bottom land now when there are practical alternatives on the NTMWD water plan. **[CC: P17-8]**

Response: The USACE considered other alternatives as part of the alternatives development and screening process. This process, including a discussion of alternatives considered and dismissed from detailed evaluation, is explained in FEIS Section 2.6, Alternatives Dismissed From Detailed Consideration. Additional details on the alternatives development and screening process is provided in Appendix O, Alternatives Dismissed From Detailed Consideration.

NTMWD's water supply planning process takes into consideration the long-term yield of their water supply facilities. Their existing reservoirs, like all natural and artificial water bodies everywhere, do slowly fill in with sediments at a predictable rate. As described in Appendix N, NTMWD is conducting and will continue to conduct dredging operations at existing reservoirs to maintain their capacity and function as dictated by technical and economic considerations. However, given the increasing water demand and need that NTMWD faces, these actions alone cannot preclude the need for new water supplies.

ALT-93. In the Executive Summary, page ES-5, under paragraph, Other Alternatives Available to the Applicant, they list the Upper Bois d' Arc Creek Reservoir, Lake Texoma, Toledo Bend Reservoir and Wright Patman Lake as not being carried forward for detailed consideration in the EIS because of the inability to meet purpose and need, unacceptable environmental impacts, poor water quality, reliability, cost, and/or institutional constraints. None of the previous statement is true. As I stated earlier The Texas State Water Plan shows Lake Texoma, Toledo Bend Reservoir and Wright Patman Lake to have less environmental impacts than the LBCR and will be far more reliable water sources than the LBCR. **[CC: P17-10]**

Response: The Texas State Water Plan may indeed show that the Lake Texoma, Toledo Bend Reservoir, and Wright Patman Lake alternatives have fewer environmental impacts than Alternatives 1 and 2, but none of them meets all four criteria of the purpose and need for the proposed action (Section 1.5 in the FEIS), namely near-term water supply, timing, reliability, and meaningful share of long-term supply. Also, see the response to comment ALT-89.

ALT-94. Even if the proposed LBCR is not constructed the close proximity to the Dallas-Ft. Worth Metroplex is going to change Fannin County as a whole. A No Action Alternative would be the best for Fannin County. **[CC: P17-26]**

Response: The USACE appreciates the submission of statements opposing the proposed action and will consider the spectrum of public opinion in its final decision on this project.

The USACE acknowledges that Fannin County will grow and change significantly in the coming decades as a result of growth in the DFW Metroplex, which is expected to extend and expand into the county regardless of whether the proposed LBCR is ever constructed. This growth and its potential environmental effects are discussed in Chapter 5 of the EIS on cumulative impacts. Indeed, the ongoing and anticipated growth of the Metroplex is a primary reason for the projected increase in water demand and the looming supply shortage. The USACE continues to consider the No Action Alternative along with the two action alternatives (1 and 2) as part of its permitting decision.

ALT-95. There is a major discrepancy in the total cost of the proposed LBCR per NTMWD web site and the RDEIS. RDEIS, Appendix O-Alternatives Dismissed from Detailed Consideration, page 0-18, Table 2. Comparison of Estimated Costs for Full-sized and Smaller LBCRs, list the full sized proposed LBCR to have a total cost of \$585,563,000.00. Exhibit A, a copy of NTMWD Projects, states on page 2, Quick facts: Estimated cost: \$1.2 billion (2016 dollars). This is a difference of \$617,437,000.00. This difference will cause a huge disparity in the true cost per acre foot (AF). **[CC: P17-31]**

Response: The costs presented in Appendix O are for the development of raw water with delivery to the North WTP. Only the Texoma desalination strategy includes treatment cost. The costs were developed using the protocols and guidelines specified in the *2017 State Water Plan*. Costs are reported in September 2013 dollars. The costs reported by NTMWD (\$1.2 billion) include the WTP and treated water transmission system. These costs, as noted by the commenter, are in 2016 dollars. The additional cost for the WTP and treated water transmission system would be required for all alternatives (except for the Texoma desalination alternative).

ALT-96. NTMWD is planning to build a water treatment plant in Leonard, Texas, but Leonard is not a customer of NTMWD and there is no plan for a pipeline to distribute treated water. If and when the distribution plan is done for the treated water the cost of it will raise the cost per 1,000 gallons of water from the proposed LBCR, thus making the water more expensive than the practical alternatives. **[CC: P17-36]**

Response: As indicated in FEIS Chapter 2, Alternatives Including the Proposed Action, the proposed Leonard Water Treatment Plant (also called the North Water Treatment Plant) is not an element of the proposed action. NTMWD has indicated that the water treatment plant will be constructed regardless of the ultimate decision regarding LBCR and would be initially used to treat water conveyed from Lakes Jim Chapman and Texoma if neither Alternative 1 nor 2 is built. Although the WTP has independent utility from the proposed LBCR project,

the RDEIS incorrectly included them in its discussions of the proposed action. The USACE has corrected that in the FEIS, and the impacts of constructing the plant are now evaluated as part of the No Action Alternative. Water treated at the Leonard Water Treatment Plant would be distributed to NTMWD customers through existing and new water delivery infrastructure. Please also see response to comment ALT-95. Figure 2.6-2 in the FEIS also compares the cost of LBCR with a sampling of other alternatives; it is in fact one of the least costly.

ALT-97. The land owners in the “footprint” who stand to lose more than any other entity involved, should not have to give up their private property for a project that is illegal according to the CWA as long as other less environmentally damaging alternatives exist and we believe that they do. **[CC: P18-1]**

Response: The comment does not identify an alternative that has been inappropriately dismissed or has gone unconsidered. For comments that cite a specific alternative that was wrongfully dismissed, the USACE provides its reasons for dismissing the alternative, including appropriate references to the text of the FEIS. Any additional alternatives that a commenter has identified have been addressed similarly. The USACE will not select a project that is illegal according to the Clean Water Act Section 404 provisions.

ALT-98. The most sensible alternatives and the ones with the least environmental impacts were not even listed or were eliminated by time or cost considerations and time should not be a factor since the Applicant wasted time, in our opinion to enhance the chance of getting the desired outcome permitted. **[CC: P18-2]**

Response: Alternatives were eliminated not on the basis of cost, but because they did not meet the criteria of the purpose and need identified in Section 1.5, including timing. The USACE disagrees that the Applicant wasted time in submitting the permit application and supporting information. NTMWD submitted its application for a Department of the Army Permit under Section 404 of the CWA on June 3, 2008. Upon review, the USACE determined that issuance of such a permit may have a significant impact on the quality of the human environment and, therefore, required the preparation of an EIS. The USACE has spent nine years and conducted many studies on this proposed action in an effort to comply with the CWA. NTMWD has been responsive to all requests from the USACE for studies and information needed by the USACE for its analysis of the permit and preparation of the EIS.

Section 2.6 of the FEIS presents alternatives that were considered and dismissed from further analysis because they would not meet the purpose and need, including the timing criterion (i.e., availability by 2025) as presented in Section 1.5 of the FEIS.

ALT-99. Since the Applicant is now in such a hurry to get the water, the Applicant should obey the CWA and rush to do the right thing and get the existing supplies connected because the

right thing for the USACE and EPA to do is to apply the rules of the CWA and NEPA and DENY the permit since it is not the alternative with the least environmental impacts. **[CC: P18-4]**

Response: The USACE will appropriately apply the rules of the CWA and NEPA. The Applicant followed the processes of the CWA and NEPA. Connecting existing supplies is considered in the alternatives analysis. The USACE will evaluate the LEDPA through the 404(b)(1) analysis, which will be published with the ROD.

ALT-100. The only alternative action presented by the RDEIS was designed to be eliminated so that the Proposed Action would be the only action left. We have presented different alternative actions that should have been considered in depth that have less environmental impacts and potentially lower costs than the Proposed Action for NTMWD. **[CC: P18-5]**

Response: The comment does not identify an alternative that has been inappropriately dismissed or has gone unconsidered. For those comments that do assert that a specific alternative was wrongfully dismissed, the USACE has provided its reasons for dismissing the alternative, to include appropriate references to the text of the FEIS. Any additional alternatives that are identified have been addressed similarly. None of the alternatives suggested by the commenter – such as Lake Texoma blending and/or desalination and Gulf of Mexico desalination – would meet all four of the interrelated criteria of the purpose and need identified in Section 1.5 of the FEIS: near-term water supply, timing, reliability, and meaningful contribution to long-term water supply.

ALT-101. The RDEIS has an added action (Alternative 2) but dismisses all other alternative actions. **[CC: P18-10]**

Response: The commenter is correct that the USACE analyzed an additional alternative in the RDEIS in response to comments received on the DEIS. The RDEIS also described alternatives considered by the USACE but not carried forward for analysis because they did not meet the purpose and need, were not reasonable, or were not viable.

ALT-102. Why is a new reservoir the only alternative mentioned as the solution to a growing population and water supply need in the executive summary and indeed the entire RDEIS? **[CC: P18-13]**

Response: Following CWA and NEPA requirements, the USACE considered many alternatives, but the others were dismissed along with an explanation of why they were dismissed. To have its environmental impacts analyzed more thoroughly in Chapter 4 of the EIS, an alternative would have to meet all four criteria of purpose and need: near-term supply, timing, reliability, and meaningful contribution to long-term supply (see Section 1.5 of the FEIS).

ALT-103. Why were connections to existing water supplies identified in the past and current State Water Plan not also considered, alone or in combinations as in the Alternative 2, as the least environmentally damaging alternatives? [CC: P18-14]

Response: A number of these types of alternatives, including all that were specifically identified to the USACE in comments, were considered in Chapter 2 and Appendix O of the RDEIS (and in the FEIS), but none met all four of the interrelated criteria of the purpose and need identified in Section 1.5 of the FEIS: near-term water supply, timing, reliability, and meaningful contribution to long-term water supply.

Connections to existing water sources were considered in the alternatives analysis. The EIS contractor and the USACE independently reviewed a range of alternatives, including combinations of alternatives, in the RDEIS. The two alternatives that met the screening criteria for purpose and need are Alternative 1 (LBCR) and Alternative 2 (smaller LBCR with blending of Texoma water).

The LEDPA will be evaluated as part of the Section 404(b)(1) analysis and will be published with the ROD.

ALT-104. The smaller LBCR was dismissed in the alternative actions of the DEIS. Why was it brought back in the RDEIS? It requires just as much land as the larger LBCR so it will cost about the same for even less water and will provide less recreational opportunities leaving Fannin County with even less benefit to help make up the lost tax base. This alternative, we believe was only included to force the decision toward building the full size reservoir which is the Applicant's choice. [CC: P18-19]

Response: The smaller LBCR was dismissed in the DEIS and RDEIS as a stand-alone project because it cannot meet the purpose and need for the project (its supply is insufficient). In the RDEIS, the smaller LBCR was included as part of a combination strategy (Alternative 2) that can meet the purpose and need for the project. Thus, Alternative 2 was carried through the NEPA evaluation in the RDEIS; that is, its more detailed environmental consequences were examined in Chapter 4 alongside those of Alternative 1 and the No Action Alternative. The practicality of this alternative will be evaluated as part of the 404(b)(1) analysis by the USACE, which will be published with the ROD.

ALT-105. The RDEIS states that the Applicant does not have a viable back up plan to the proposed reservoir but NTMWD had plans in 2005 to meet water demand with no new reservoirs (Exhibit A) by following Region C Water Planning Group Recommendations of conservation, reuse, Texoma Authorization, Patman Authorization, Toledo Bend phase I, Toledo Bend phase II, Toledo Bend DLS, Patman system, Livingston, Rayburn and Oklahoma water. These plans should have been the first pursued and they could have been a long way toward having them online at the present if they had actively pursued them instead of trying to go around the CWA and build a new reservoir. [CC: P18-20]

Response: The proposed LBCR was a recommended strategy for NTMWD in the *2001 Region C Water Plan* and the *2006 Region C Water Plan*. In the 2006 Water Plan, the proposed LBCR was recommended to be online by 2020. This recommendation has not changed in subsequent regional water plans. A plan for NTMWD with no new reservoirs has never been approved by the Region C Water Planning Group. In the *2006 Region C Water Plan*, and subsequent plans, Marvin Nichols Reservoir was also recommended for development.

FEIS Section 2.6, Alternatives Dismissed From Detailed Consideration, and FEIS Appendix O, Alternatives Dismissed From Detailed Consideration, provide an overview of the NEPA alternatives development, screening process, and the reasons that the two action alternatives were brought forward for detailed consideration in the FEIS. The USACE believes that the alternatives development and screening process was conducted in an objective fashion, and the alternatives brought forward for detailed evaluation best meet the water supply needs articulated in the purpose and need statement. The USACE cannot comment on plans prior to the application. The Applicant's plans in 2005 are no longer relevant to this EIS, however. The various reservoir and other alternatives cited above were included in the alternatives analysis and failed to meet one or more of the purpose and need screening criteria.

ALT-106. One alternative would be to only desalinate enough to blend a portion of desalinated water with a portion of treated Texoma water to lower the TDS of the blend just enough to meet State Drinking Water Standards. This option would minimize the amount of power required, minimize the amount of highly saline effluent that would need disposal and maximize the use of all of NTMWD water rights in Lake Texoma at the minimum cost. Since NTMWD has 184,000 AFY water rights and only uses 77,000 AFY, this alternative would add 107,000 AFY to the amount of available water and this is more than the stated need of 105,804 AFY. The cost of water for this alternative should be compared to the cost of treated water since the desalinated portion of the blend is essentially treated water. The RDEIS compares its cost to the cost of raw water from LBCR which is not a fair comparison. The time frame should be soon enough if NTMWD jumps on this alternative right away. The environmental impacts would be low especially if the effluent can be disposed as hydraulic fracturing fluid for use in treating oil wells thus freeing up using fresh water as frac fluid. The saline makes the water denser so that it is easier to develop the downhole pressures needed for a frack job and the water already in petroleum wells is already saline so the TDS should not be a problem in this use. This alternative would buy time to develop the Cooper Lake-Wright Patman System and or the pipeline to Toledo Bend. This alternative certainly needs to be studied in detail before summarily dismissing it. **[CC: P18-27]**

Response: The amount of Texoma water that is available to NTMWD for desalination is 113,000 AFY. The remaining supply is already being blended with NTMWD's other sources.

The Texoma desalination alternative does assume that a portion of the Texoma supply is treated by reverse osmosis and then blended back with conventionally treated water. The finished blend ratio is assumed at two parts desalinated water to one part non-desalinated water. This is based on the expected TDS levels of the desalinated water and existing TDS levels of Texoma.

The desalination process results in a brine discharge waste stream that is estimated at 20 percent of the inflow water. This results in a loss of 16,000 AFY. The supply available from a Texoma desalination project would be 97,000 AFY. This quantity does not meet the 2025 need of 105,804 AFY.

The FEIS will note that the cost for the Texoma desalination alternative is for treated water, and not comparable to raw water costs.

The Texoma desalination/blending alternative was not dismissed due to cost; it was dismissed because it did not meet the quantity of water and the timeframe specified in the purpose and need.

ALT-107. Gulf of Mexico seawater desalination should follow the example of the US Navy and utilize nuclear power to desalinate and pump fresh water. This alternative would have less carbon pollution than using fossil fuels and the technology has been tested in US Navy ships and submarines for many years and may be less costly since one plant could possibly supply all of NTMWD's needs forever. **[CC: P18-28]**

Response: Desalination of water originating from the Gulf of Mexico was considered as part of the alternatives development and screening process and was not carried forward for detailed consideration in the EIS because it would not meet the short-term or long-term water supply criteria, primarily as a result of the great distance between the source and the destination for the water. Please see response to comment ALT-73.

The source of electrical power is outside the control of NTMWD. Power would be needed both at the desalination site for reverse osmosis and at a pump station along the lengthy transmission route. NTMWD would have to rely on the available power suppliers at the point of need.

ALT-108. Another option is to only desalinate and pump enough fresh water to blend with Texoma water and supply any additional need NTMWD ever has in the future. Since desalinated water is essentially treated water with very low TDS, not much of it would be required to blend down the TDS of most any water source and the cost comparison with other alternatives is only fair if compared to treated water, not raw water. This is a reasonable alternative to the proposed action even though it has higher initial costs and probably would take longer to come online but it does have an unlimited source and solves the problem for a very long time with minimal environmental impacts on land. This alternative also needs an in depth study. **[CC: P18-29]**

Response: Please see responses to comments ALT-73 and ALT-108 regarding the consideration of desalination as a water supply option. As noted in the comment, desalination is not expected to meet the short-term water supply needs as a result of a number of obstacles, including opposition by current water rights holders, challenges in disposing of brine, and unknown operational costs that would be driven by the brine disposal method(s) selected.

ALT-109. Another alternative is to simply price water with a progressive rate as use increases. **[CC: P18-30]**

Response: Retail water rates are set by the member city and customer. The Conservation Plans adopted by the member cities include increasing block rate structures.

ALT-110. The Lake o' the Pines supply is still feasible and workable or it would not still be on the 2016 Region C Water Plan. The 87,900 AFY could be blended with the unused Texoma water right to meet the need with no environmental impacts. A 120 mile pipeline would not have to be built because NTMWD could extend the pipeline from Cooper Lake to Lake O' the Pines, reducing the length of pipeline that would have to be built to about 60 miles. This shouldn't cost nearly as much as building an entire reservoir and a 35 mile large diameter and 14 mile smaller diameter pipeline. The new pipeline could then be extended to Wright Patman and Toledo Bend Reservoirs in the future. This alternative also needs an in depth study before being casually dismissed. **[CC: P18-31]**

Response: As noted in response to comment ALT-9, the purpose and need statement has been modified to better clarify the Applicant's shorter- and longer-term water needs. As indicated FEIS Section 2.6.3, Other Alternatives Available to the Applicant, and Appendix O, Section 2.2, water supplied from Lake o' the Pines would require a contract with NTMWD and other Cypress River Basin water rights holders with excess supplies. The owner of the water supply would not commit to selling the water to NTMWD. While the *2016 Region C Water Plan* lists Lake O' the Pines as an alternative strategy for NTMWD, water supplied by Lake O' the Pines would not meet the reliability standard of being solely within the control of NTMWD and would not meet the short-term goal of securing additional water because completing the design, constructing a project, and securing environmental clearances would not be accomplished by 2025.

Moreover, there is not sufficient capacity in the Jim Chapman (Lake Cooper) pipeline to transport the additional supply. The pipeline is currently used to transport water from Jim Chapman Lake to NTMWD, UTRWD, and Irving.

ALT-111. The Lake Lavon and Cooper Lake supplies could be increased by just raising the flood pools slightly and could be combined with dredging to create an additional 10,000 AFY each and blend this water and the existing supplies from these reservoirs with the Texoma unused water

rights to get the desired need of 105,804 AFY total at any TDS below State Water Standards (1000mg/L max). This alternative meets the need with a minimal conversion of flood pool to conservation pool and uses existing infrastructure to reduce costs. **[CC: P18-32]**

Response: The USACE is not aware that Lake Lavon or Cooper Lake (Jim Chapman Lake) water supplies could be increased by simply raising the flood pools and dredging each reservoir. Increasing the capacity of either reservoir and making changes to currently authorized flood control operations would most likely require complex and time consuming environmental compliance and permitting challenges. The USACE does not believe such changes could be implemented to meet the water supply short fall enumerated in the purpose and need.

Reallocation of more than 50,000 AF of storage in a federal lake requires Congressional authorization and detailed studies, which cannot be completed within the time frame for the purpose and need. Moreover, the total amount of water provided by the reallocation, with blending of water from Lake Texoma, would be 40,000 AFY, which does not meet the quantity of water specified in the purpose and need.

Furthermore, raising the flood pools would not add to water supply; only raising the conservation pools would.

ALT-112. NTMWD does not need any additional water because they already have 107,000 AFY unused water rights in Lake Texoma (184,000-77,000=107,000) and this is more than the stated need (105,804 AFY) by itself but they would have to choose to use all of their water from Lavon and Cooper to blend to a TDS of 780 mg/L. **[CC: P18-33]**

Response: See response to comment PUR-14. The amount of water that could be produced by blending fresh water with water from Lake Texoma is determined by the quality of water (TDS levels) in Lake Texoma and the availability of water for blending. These factors can vary from year to year based on water supply conditions (i.e., wet, normal, dry, etc.). For water supply planning purposes, the current amount of water supply available to NTMWD for blending is approximately 274,500 AFY. Blending this fresh water with the 150,000 AFY from Lake Texoma (in the commenter's table on p. 3 of their comments) would, on average, result in water exceeding the 500 mg/L objective, since the median value of TDS in Lake Texoma is 1,015 mg/L. (Please see response to comment ALT-116 regarding the quality of water delivered to NTMWD customers, which is of higher quality than TDS of 780 mg/L.) This water supply would be substantially reduced during drought conditions when Texoma's TDS levels could be an estimated 1,100 mg/L or higher, requiring a blending ratio of 4:1 to meet the 500 mg/L objective.

ALT-113. The USACE and EPA should not grant a 404 permit for the proposed action when the Applicant has more unused water available than the stated need simply because the Applicant

chooses to blend to a slightly lower TDS especially when the higher TDS blend is still well within the State Drinking Water Standards. This alternative will certainly add enough capacity to allow NTMWD time and by not pursuing LBCR free up enough money to extend the existing Cooper Lake pipeline and secure additional water from Lake O' the Pines and Toledo Bend Reservoir.

[CC: P18-34]

Response: Please see response to comment ALT-116. The federal drinking water secondary standard for TDS is 500 mg/L. NTMWD strives to meet this standard for its treated water supplies. NTMWD has customers that require water quality of this level or better.

As noted in the response to comment ALT-110, the Chapman pipeline is fully utilized and cannot accommodate additional supplies from other water sources.

NTMWD does not have surplus low-TDS water in its existing water supply system to blend with the available but unused high-TDS Texoma water under permit to meet the anticipated need of 105,804 AFY by 2025. A new low-TDS water supply is required, such as Alternative 2, which would enable the use of an additional 28,700 AFY of water from Lake Texoma for a total new supply of 114,800 AFY.

ALT-114. The RDEIS states that piping water from Toledo Bend Reservoir has much lower environmental impacts and certainly more than meets the need and has higher cost but would only be available by 2030 which is 5 years past the stated time frame. It may cost more initially but the latest cost figures for the proposed action have risen to \$1.3 billion so it may not be more costly. Toledo Bend Reservoir would supply a very large amount of water for a very long time and the cost of the connecting pipeline would have to be spread over many years and a lot of water, just like the cost of the proposed action. The connecting pipeline does not have to be a complete new line from Toledo Bend Reservoir to Leonard and Wylie, Texas. The existing pipeline to Cooper Lake could be extended to Lake O' the Pines and connected there to supply water before 2030 and then extended to Toledo Bend Reservoir. This alternative would have less environmental impacts, could be in place in the stated time and with the extension to Toledo Bend would satisfy the Applicant's need well past 2060. If the Lake O' the Pines portion is a problem, NTMWD could blend the Texoma water to a higher TDS with the Lavon and Cooper water to use more of the Texoma supply for 5 years and once connected to Toledo Bend the blend could return to the lower 500 mg/L TDS. This alternative is costly but is probably the best investment because it solves all of NTMWD's supply problems for the longest time with low environmental impacts in the stated time frame. The cost of constructing the pipeline will never be as cheap in the future as it is right now because as time goes on, more and more infrastructure and more homes and businesses will have to be negotiated around or through. This alternative really needs detailed study and is a much better choice than the proposed action since it supplies more water and does not inundate Bois d' Arc Creek basin. **[CC: P18-35]**

Response: The commenter is correct that a pipeline from the existing Toledo Bend Reservoir would have fewer environmental impacts in the short- and long-

term, especially on aquatic and terrestrial habitats. However, its long-term energy use and greenhouse gas emissions would be greater. Aside from its environmental impacts, Toledo Bend is not considered a reasonable alternative at this juncture because it would not meet the timing and possibly the reliability criteria of the purpose and need statement. Use of this water by NTMWD would require a contract with the SRA and an interbasin water right transfer to move the water from the Sabine River Basin to the Trinity River Basin. Due to the scale of the Toledo Bend pipeline alternative and its current conceptual status, planning, development, and implementation of this alternative would take an estimated 15 to 20 years. Thus, the earliest water from Toledo Bend could be made available is by 2034 (Kiel and Thornton, 2017b). The various uncertainties and complexities compromise its reliability.

Due to the requirements of NTMWD customers, the water quality cannot exceed 500 mg/L. NTMWD cannot provide water with high TDS levels for a period of 5 to 10 years. This proposed stopgap measure is not feasible.

The impracticability of using water from Lake O' the Pines as a stopgap measure is discussed in FEIS Section 2.6.2 and Appendix O, Section 2.2.

See response to ALT-95 regarding the costs of the alternatives. For long transmission systems, much of the cost is associated with the electricity required to transport the water. Over time, the capital costs of the project will be paid, but the operating costs will continue to increase as electricity costs increase.

ALT-115. The RDEIS states that operating Wright Patman and Cooper Lake as a system is on the State Water Plan and meets the stated need with low environmental impacts since both reservoirs already exist and more of the Texoma water right could be utilized in the interim by blending to a higher TDS to have the necessary time for implementation. There is absolutely no good reason to dismiss this alternative and justify permitting the proposed action. **[CC: P18-36]**

Response: While suitable and desirable in some respects, this alternative would not meet the reliability criterion of the purpose and need. This statement is supported in Section 2.6.3.2 of the FEIS.

The development of a Wright Patman – Jim Chapman project cannot be completed until 2040. Therefore, this does not meet the purpose and need for the project.

As stated in the response to comment ALT-116, NTMWD cannot provide water with high TDS levels for an extended period. This proposed stop gap measure does not meet purpose and need.

ALT-116. Page 5 of the Executive Summary of the DEIS published in 2015 states “Water from Lake Texoma is relatively high in naturally-occurring dissolved salts and must be blended with

water from other lower-salinity sources to make it potable. At present, there are no readily available fresh water supplies in the amount needed to blend with the new water supply from Lake Texoma, and existing supplies are insufficient to provide a blended water of acceptable quality for municipal use. Therefore, the blended alternative cannot be implemented without also implementing another water supply to provide new fresh water to the NTMWD." This statement is very simply a bald faced lie. The blended water does not have to be blended to the point that the TDS is as low as 500 mg/L to be "of acceptable quality for municipal use." **[CC: P18-37]**

Response: The USACE does not concur. TDS levels in Lake Texoma vary over time depending on the quantity, quality, and timing of inflow. According to the TCEQ (2017), between 2001 and 2016, TDS levels in Lake Texoma ranged from less than 500mg/L to 1,300 mg/L. The 500 mg/L represents the federal TDS secondary drinking water standard and is a water quality delivery objective for NTMWD and helps drive the District's water supply planning program. In addition, since many of the NTMWD customers (medical care facilities, electronics industries, etc.) require water of even higher quality than the 500mg/L standard, these requirements also help establish NTMWDs water supply objectives.

ALT-117. Many of the alternatives were rejected because they would be difficult or impossible to complete before NTMWD estimates they will need the additional water. This is incredulous because NTMWD has already wasted at least 12 years trying to build a reservoir that is in violation of the existing laws, the Clean Water Act and the National Environmental Policy Act. **[CC: P18-38]**

Response: The USACE disagrees with the suggestion that the Applicant either wasted time or has violated any law, including the CWA and NEPA, in pursuing this project. Both the CWA and NEPA require the USACE to identify and study multiple alternatives, which has been done in the CWA and NEPA processes followed for this project. A number of alternatives were considered in Chapter 2 and Appendix O; these alternatives were subjected to a screening process to determine if they meet the criteria of the purpose and need set forth in Section 1.5. The environmental effects of two alternatives that met these criteria were studied in depth.

Given the large amount of time and funds that it takes to pursue just one or two alternatives from concept to permitting, construction, and implementation, it would not be logical or prudent to attempt to simultaneously analyze the environmental impacts of multiple potential alternatives to the same extent and depth as Alternatives 1 and 2.

ALT-118. There were only 2 alternatives left to choose from and they were basically the same, after all of the sensible alternatives were summarily dismissed for cost, time or amount

reasons. These alternatives were presented in a manner that appears to be designed to be dismissed. **[CC: P18-46]**

Response: The USACE disagrees with the thrust of the comment. All identified alternatives were evaluated against the purpose and need discussed in Section 1.5, and any alternatives that could not meet the purpose and need criteria were dismissed from further consideration.

The comment does not identify an alternative that has been inappropriately dismissed. For comments that cite a specific alternative that was wrongfully dismissed, the USACE has provided its reasons for dismissing the alternative, including appropriate references to the text of the FEIS.

ALT-119. The No Action Alternative, as will be shown below, is clearly the Least Environmentally Damaging Practicable Alternative (LEPDA). **[CC: NGOs-6]**

Response: The USACE appreciates the submission of statements opposing the proposed action and will consider the spectrum of public opinion in its final decision on this project. The USACE will determine the LEDPA through the 404b(1) analysis, which will be completed with the ROD.

ALT-120. Hinging the decision on meeting demands claimed for 2025 creates a bias that leads to dismissal of reasonable practicable alternatives that could meet NTMWD's future demands without building Lower Bois d'Arc Creek Reservoir or taking any federal action at this time **[CC: NGOs-14]**

Response: The year 2025 is not an arbitrary date. As stated in the RDEIS and the FEIS, 2025 is the year when projected water demands and needs sharply begin to exceed available supplies, limiting the ability of NTMWD officials to make ends meet through emergency and interim measures such as compulsory conservation and interim contracts with other wholesale water providers in the region. The USACE therefore has determined that including the 2025 in-service date as a criterion in the Purpose and Need statement is appropriate and a crucial aspect of the alternatives evaluation.

The timing specified in the purpose and need for the project is a critical component for NTMWD to meet the water demands of its member cities and customers. The needs analysis shows that NTMWD will need additional supplies prior to 2025.

ALT-121. I do not see the additional action alternatives listed in the Public Notice that I received. If this alternative of a smaller reservoir with supplemental water from Lake Texoma is a viable option being considered, I would like to state my preference for this option. **[CC: P4-1]**

Response: The USACE appreciates the submission of statements supporting or opposing one or more alternatives and will consider the spectrum of public opinion in its final decision on this project.

ALT-122. NTMWD does not actually need 105,804 AFY of water in 2025 to meet its demands. This number includes an arbitrary and indefensible “recommended reserve supply” of 47,110 AF in 2025. And applying the 2016 Regional Water Plan demand calculation, NTMWD actually has a supply surplus in 2025 after taking into account conservation. If a small demand does exist, NTMWD could bridge this gap with alternative strategies until larger additional supplies, such as the Toledo Bend Reservoir, became available in 2030. It is difficult to imagine that there are no practicable alternatives that would entail NTMWD obtaining sufficient supplies, if needed, by 2025. More importantly, these bridge strategies would not entail the destruction of thousands of acres of aquatic resources. **[CC: P7-48]**

Response: The year 2025 is not arbitrary, contrary to the comment’s assertion. In claiming that NTMWD will actually have a surplus in 2025, the commenter is incorrectly mixing numbers from two different projection methodologies: the 2013 CIP and the 2016 Region C Water Plan. Using the numbers from the 2016 Region C Water Plan alone (Table 5C.7), the need (demand minus supply) in 2025 would be somewhere between 30,540 AFY (the need shown for 2020) and 103,975 AFY (the need shown for 2030). Assuming steady growth in this period and interpolating, NTMWD’s need in 2025 would be in the vicinity of 67,000 AFY on this basis. (According to the CIP projections, the “supply deficit” in 2015 would be 58,694 AFY; including the recommended reserve supply, which the USACE believes represents prudent planning, gives a total need of 105,804 AFY.) The documented need for water in 2025 is shown by two different methodologies.

The reserve supply is a critical component for a reliable water supply and represents prudent water supply planning. This is because circumstances beyond the water provider’s control can affect water supplies. This includes droughts worse than the drought of record, as well as impairments to a water source. In 2009, Lake Texoma was unavailable to NTMWD for five years due to the presence of zebra mussels. At the time, Lake Texoma represented 28% of NTMWD’s supplies. This abrupt and unexpected loss of a major water source created considerable hardships for NTMWD’s customers. NTMWD was able to negotiate short-term, stopgap measures, but there is no guarantee that such measures would be available in the future should a water source suddenly become unavailable.

The *2016 Region C Water Plan* acknowledges that the demand projections developed by the TWDB for some entities are too low and do not represent drought demands. The RDEIS independently evaluated the projected demands for NTMWD. These projections were reviewed by the TWDB, which concurred with the approach used in developing the demands in the EIS (letter from TWDB to Martin Rochelle; TCEQ, 2016a).

Using the water demand projections developed for the RDEIS, NTMWD will need 105,804 AFY of supply by 2025.

ALT-123. As in the original DEIS, NTMWD considers each alternative as a single alternative that must fully meet the project purpose. In doing so, NTMWD fails to include combinations of alternatives and/or combinations of other water management strategies that could cumulatively meet their future water demands. This strategy simply does not make sense given that the project purpose is to obtain a quantity of water sufficient to meet these needs. If two or three alternatives can be combined to satisfy the demand, and the combination of these alternatives is reasonable, practicable, and results in less adverse impact to the aquatic ecosystem, then that combination alternative strategy would be required under the 404(b)(1) Guidelines. The Applicant should be required to more thoroughly analyze combinations of potential alternatives that would cumulatively satisfy its demands. **[CC: P7-49]**

Response: Contrary to the commenter's assertion, Alternative 2 represents a combination alternative that includes water from both Bois d'Arc Creek and Lake Texoma. The EIS contractor and USACE independently reviewed a range of alternatives, including combinations of alternatives in the RDEIS. The two alternatives that met the screening criteria for purpose and need are Alternative 1 (LBCR) and Alternative 2 (smaller LBCR with blending of Texoma water).

ALT-124. In the RDEIS, NTMWD does not include the consequences of the "no action" alternative on the basis that NTMWD "does not have a viable back-up option to the proposed reservoir. **[CC: P7-50]**

Response: This comment is unclear. The environmental consequences of the No Action Alternative are evaluated in Chapter 4 of both the RDEIS and the FEIS. Furthermore, the USACE and the independent EIS contractor developed the RDEIS, not the Applicant. The FEIS was modified to indicate that NTMWD would undertake additional measures to secure additional water for its customers.

ALT-125. The USACE has the authority to deny the permit under the 404(b)(1) Guidelines for a number of reasons, any one of which is possible for this permit application. Presumably, NTMWD would more seriously seek out available alternatives, including those recommended in the State Water Plan or the Region C Water Plan, and would bridge the gap until these alternatives are available with other water management strategies. NTMWD should be required to delineate the most practicable combination or combinations of alternatives that would meet their needed demands (less the recommended surplus supply) until other alternatives became available in 2030. **[CC: P7-51]**

Response: The USACE and EIS contractor have identified the alternatives to the proposed project. The projected need for the project includes the reserve supply. During this review and development of alternatives, there were no strategies or

combination of strategies that could meet the purpose and need for the project that were not carried through the NEPA process.

The assertion that additional, unconsidered, interim alternatives are available to supply adequate water until 2030 – alternatives which are truly reasonable or practicable, individually or in combination – is erroneous.

The USACE believes that its analysis of the proposed action is consistent with Section 404(b) (1) guidelines. The USACE reviewed and evaluated over 40 alternatives including the Applicant's proposed action, which is also the Applicant's preferred alternative. The EIS presents the potential environmental impacts of the proposed action and another reasonable alternative which meets purpose and need, and explains the rationale for dismissal of the other alternatives. The alternatives analysis presented in the EIS is intended to support the USACE's public interest review and Section 404(b) (1) guidelines evaluation. The USACE will identify the LEDPA for this Section 404 permit application in the ROD for this FEIS.

ALT-126. Assuming that NTMWD does in fact already have sufficient supplies to meet its demand in 2025, then they simply need some combination of new sources to meet demand in 2030 and moving forward. The above list suggests that there are practicable alternatives that would meet this future demand without the need for the Lower Bois d'Arc reservoir. **[CC: P7-52]**

Response: The initial assumption of this comment is incorrect: NTMWD does not have sufficient existing supplies to meet its needs in 2025. This is shown clearly in Table 5C.7 in the *2016 Region C Water Plan* and Table 1.1-1 in the FEIS. See response to comment ALT-125.

ALT-127. Additional available sources exist to meet NTMWD's near- and mid-term needs, suggesting that the proposed action is not the least environmentally damaging alternative available to NTMWD to meet their water supply needs. **[CC: P7-53]**

Response: Existing water sources were considered in the alternatives analysis. The two alternatives that could meet the purpose and need for the project are the proposed LBCR (Alternative 1) and the smaller LBCR with blending water from Texoma (Alternative 2). No other existing water source could be developed within the timeframe to meet the purpose and need.

ALT-128. NTMWD analyzes the Toledo Bend Reservoir alternative in the RDEIS. This alternative is a practicable alternative that would have significantly less adverse impact on the aquatic ecosystem, does not have other significant environmental consequences, is sufficient to meet NTMWD's needs in 2030, and is currently available and capable of being pursued. Under the 404(b)(1) Guidelines, the existence of this alternative could be the basis for denial of this permit. **[CC: P7-54]**

Response: The alternative of a pipeline conveying water from Toledo Bend is analyzed in Section 2.6, Alternatives Dismissed from Detailed Consideration, and Appendix O of the FEIS. Development of water supplies from Toledo Bend Reservoir would require a state water right permit and the construction of a transmission system over 100 miles long. Based on the latest information available, it is estimated that this project could not be completed prior to 2034. This does meet the purpose and need.

ALT-129. NTMWD rejects this alternative because of the higher capital costs, greater long-term energy usage, and higher long-term operating costs. Additionally, NTMWD notes that the water could not be supplied by 2025 to meet the purpose and need. These conclusions are not reasonable. **[CC: P7-55]**

Response: The USACE disagrees with this comment. The Toledo Bend alternative is not considered reasonable in the context of this EIS because it could not meet the timing or reliability criteria of the purpose and need as stated in Chapter 1. Toledo Bend Reservoir has an enormous amount of water that may be available for NTMWD in the future, but its inability to provide the needed water supply by 2025, and its unreliability, resulted in the elimination of Toledo Bend from further consideration under this EIS.

ALT-130. First, throughout its alternatives analysis, NTMWD makes the assumption that any alternative that contains a higher cost is somehow not practicable. This assumption is not consistent with USACE guidance. The standard under the 404(b)(1) Guidelines is whether a practicable alternative exists that would have less adverse impact on the aquatic ecosystem. An alternative is “practicable” if it is “available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.”⁴⁴ Toledo Bend Reservoir is available. It is also capable of being done after taking into consideration cost. In fact, every indication suggests that NTMWD will in fact pursue this supply strategy in the future. It is not clear how cost precludes this alternative in the near-term if NTMWD intends to pursue it in thirty years, when costs will presumably be higher. Finally, USACE guidance is clear that “[t]he mere fact that an alternative may cost somewhat more does not necessarily mean it is not practicable.” **[CC: P7-56]**

Response: Please see response to comment ALT-9 regarding the USACE process for making a determination regarding the practicability of an alternative and response to comment ALT-22 regarding why a Toledo Bend Reservoir option would not meet the ‘reasonably foreseeable’ or reliability criteria. The USACE has not yet conducted its LEDPA analysis, which will be performed as part of the preparation of the ROD. The alternatives analysis in the RDEIS reflects the USACE’s evaluation of each alternative against the purpose and need statement in Section 1.5 of the FEIS.

ALT-131. The smaller reservoir project (Alternative #2) is a practicable alternative that would have less adverse impact on the aquatic ecosystem. Therefore, even if a 404 permit is issued to the Applicant here, it should be for the downsized LBCR with blending. **[CC: P7-57]**

Response: The evaluation of the LEDPA will be conducted by the USACE during the 404(b)(1) analysis, which will be published with the ROD. The steps the USACE will follow when making that determination are provided in FEIS Section 1.3, Section 404 Permit Application Process.

ALT-132. After considering Alternative 2 in some detail, NTMWD simply dismisses it from consideration because it would not supply the requisite AFY of water by 2025. This conclusion is completely unreasonable and further evidence that the purpose and need statement has been narrowly crafted to exclude all other alternatives. **[CC: P7-58]**

Response: The RDEIS was developed by the USACE and the independent EIS contractor, not by NTMWD. Decisions on the inclusion or dismissal of an alternative were made by the USACE. Alternative 2 is not dismissed in the RDEIS. It is carried forward throughout the document.

ALT-133. First, NTMWD is simply relying on a single study stating that the project will be complete by 2026 and not by 2025. This single year difference somehow justifies excluded a practicable alternative that will supply water exceeding NTMWD's own demand calculation (including reserve) and somehow justifies the destruction of an additional 8,000 additional acres, including 1,500 additional acres of forested wetlands, an additional 600 acres of emergent wetlands, and 22 acres of additional shrub wetlands. Further, a study in 2015 concluded that water could be available from the smaller reservoir by 2022 and that the TCEQ's technical review of the project could be delayed one year; another 2015 study concluded that water could be available from the smaller LBCR in 2025. In light of the different conclusions in these studies and the small amount of time difference between the narrow project need date and the projected completion of the alternative, NTMWD's conclusion must be rejected. **[CC: P7-59]**

Response: Please see responses to comments ALT-127 and ALT-132.

ALT-134. Second, NTMWD states that the delay is due to project design modifications, amendments to the water rights application to TCEQ, TCEQ's technical review, and for changes to the proposed project mitigation. But NTMWD could act to expedite these purported delays. For example, NTMWD could simply adopt the proposed mitigation plan that has been developed for Alternative 1 for Alternative 2. Additional study may be required on the impact site, but adopting the revised mitigation plan would allow the mitigation ratios to be immediately adjusted upward, creating additional lift and better satisfying USACE guidelines on mitigation plans. **[CC: P7-60]**

Response: The comment states that the proposed mitigation plan could apply to both Alternative 1 and Alternative 2, and it incorrectly asserts that the plan

applies only to Alternative 1. In fact, the mitigation plan was developed for Alternative 1, but could be modified to cover Alternative 2 if the USACE decides to permit that alternative. The mitigation plan has not resulted in the USACE eliminating Alternative 2 from consideration. Rather, Alternative 2 has been carried forward for detailed review, proving that it is still under consideration.

Please see response to comment ALT-131 regarding the USACE's NEPA and CWA decision making process for the project. The proposed compensatory mitigation plan was prepared to offset the anticipated environmental impacts of the proposed LBCR and has gone through numerous reviews by the USACE, EPA, USFWS, TPWD, and other responsible regulatory agencies. Making revisions to the mitigation plan would most likely result in additional agency review and approval. This is especially true, since the mitigation plan is required by the LBCR water right permit issued by TCEQ. Also, please note that the mitigation plan is a proposal from the Applicant and has not been approved as written.

ALT-135. Finally, we request clarification about how the proposed size of the downsized LBCR was calculated. The 120,665 AFY firm yield beginning around 2025 significantly exceeds NTMWD's actual need. Assuming that the "recommended reserve supply" is untenable under the Section 404(b)(1) Guidelines, NTMWD only has a supply deficit, by their own calculation, of 58,694 AF in 2025. **[CC: P7-62]**

Response: The USACE disagrees and the premise of the comment the recommended reserve supply being "untenable" is factually incorrect. The reserve supply is part of the purpose and need for the project and is not separate and/or optional. It is feasible to include a reserve supply as part of the project's need under the Section 404(b)(1) guidelines and the final decision made as part of ROD.

As discussed in FEIS Section 2.4, Alternative 2 – Downsized LBCR With Blending, the firm water yield of a downsized reservoir is estimated to total 86,100 AFY. When combined with Lake Texoma water at a blending ratio of 3:1, this would result in a reliable supply of 114,800 AFY. Presumably, Alternative 2 would meet the near-term water supply needs and contribute to meeting longer-term water supply needs as well. The conservation pool elevation for the smaller LBCR was chosen to provide a reasonably different project from the proposed action.

ALT-136. We request that further study be undertaken to determine if the downsized LBCR project alternative can be further reduced in size and impact. Under the 404(b)(1) Guidelines, if a practicable alternative exists that would have less adverse impact on the aquatic ecosystem, then the impact with higher impacts cannot be permitted. It stands to reason that a project could be studied, developed, and implemented that would have less adverse impact on the aquatic ecosystem. This smaller project need only supply 60,000 AFY beginning around 2025 to meet NTMWD's own stated supply deficit. If no further study of a smaller alternative is

undertaken, we request an explanation for why the decision to take no further action has been made. **[CC: P7-63]**

Response: As indicated in FEIS Section 1.5, Purpose and Need, the estimated NTMWD water supply deficit would reach approximately 59,000 AFY by 2025. However, the water supply need by 2025 would total 105,804 AFY with the balance representing a portion of NTMWD's annual reserve requirement. A project supplying a total of 60,000 AFY would neither meet the enumerated near-term water supply or long-term water supply requirements.

Please see responses to comments ALT-9 and ALT-131 regarding the USACE decision making process for the proposed LBCR project.

ALT-137. The 2016 Region C Water Plan identifies planned supplies for NTMWD that include the following for 2020: removal of Chapman silt barrier (3,620 AF); dredge Lake Lavon (7,959 AF); and additional measure to access full Lavon yield (14,461 AF). Please clarify whether these strategies have been studied, implemented, or will be implemented by 2020. **[CC: P7-64]**

Response: Each of these options has been studied by NTMWD and has been or will be implemented by 2020. The removal of the silt barrier at Jim Chapman and the dredging of Lavon Lake have been completed and the supplies associated with these projects are included in the needs analysis in Chapter 1 of the RDEIS. NTMWD has not yet undertaken additional measures to access the full Lavon yield since the reservoir is full at the present time. At such time as NTMWD is in a drought and access to the full pool in Lake Lavon is needed, NTMWD would implement measures to access all stored water as authorized by NTMWD's water rights permit.

ALT-138. The DEIS identified a number of water management strategies as planned and potential future supplies, suggesting that some of these strategies would be utilized to meet future need. Specifically, the DEIS provided for (1) additional Lake Texoma (blend with new supplies) providing 69,200 AF beginning in 2030; (2) Marvin Nichols providing 87,400 AF beginning in 2030; (3) Toledo Bend Phase 1 providing 100,000 AF beginning in 2050; (4) a substantial increase from Wilson Creek Reuse beginning in 2030; (5) a substantial increase in supply from East Fork Reuse beginning in 2040. Please clarify whether these water management strategies are still planned and/or potential supplies for NTMWD, what year NTMWD intends to begin utilizing these strategies, and the number of AF that each will provide to NTMWD. **[CC: P7-65]**

Response: All of the strategies cited in the comment from the DEIS and RDEIS are also included in the Region C water plans (2011 and 2016). NTMWD considers each of these as possible sources of water supply for its members and customers in the future, but some pose more challenges and uncertainty than others, and are therefore less probable. NTMWD fully intends to blend water from Lake Texoma with new fresh water supplies. The 2016 Region C Water

Plan shows this strategy beginning in 2040. Because these actions are all more than a decade into the future, the specific timing and supply amounts are subject to change.

ALT-139. The RDEIS states that Texoma water is now piped directly to the NTMWD Wylie WTP, where it is blended at a ratio of 4:1 with water from other sources. (RDEIS at 2-52.) We have seen NTMWD presentations stating that a 3:1 blend is possible under some circumstances; this 3:1 blend would create more water supply, presumably without additional delay. Please clarify whether a 3:1 ratio is practicable, under what circumstances, and how many additional AF this could create in 2020, 2025, and 2030. **[CC: P7-66]**

Response: The blend ratio is highly dependent on the particular source(s) of water to be blended, as well as the time of year and whether or not the region is in a wet or a dry cycle. See response to comment ALT-83 for a more detailed discussion of this topic. In sum, NTMWD attempts to use as much water as possible under its existing permit rights at Lake Texoma, but must not blend so much Texoma water that it is unable to meet the 500 mg/L drinking water standard for TDS.

As noted in other responses, NTMWD has several customers with water quality needs that require the water to have TDS levels less than 500 mg/L (e.g., the electronic industries and medical facilities). NTMWD has tried varying the blend ratio of these sources while maintaining the water quality criteria, and found that a 4:1 blend ratio (4 parts Lavon Lake to 1 part Texoma) is required during dry periods. During wet periods, NTMWD can blend Lake Texoma water at a 3:1 ratio and meet the 500 mg/L standard. The Lake Texoma blend ratio used by NTMWD is based on actual NTMWD operations. For prudent planning, water supply is based on the supply available during drought, and TDS concentrations of Texoma water during drought are approximately 1,100 mg/L or higher and must be blended at a 4:1 ratio.

Therefore, it is not practicable to count on more water (additional AFY) from Lake Texoma by changing the blend ratio from 4:1 to 3:1.

ALT-140. The RDEIS rejects a number of practicable alternatives on the basis of a relatively minor cost increase, without actually demonstrating that these alternatives are not “practicable” from a cost standpoint. Under USACE guidance, the fact that an alternative may “cost somewhat more” does not mean it is necessarily not practicable. NTMWD should be required to identify and sufficiently justify when a particular cost is not practicable. **[CC: P7-67]**

Response: In the RDEIS and FEIS, no alternatives are rejected on the basis of cost. All alternatives considered and dismissed in Chapter 2 were eliminated from further consideration because they do not meet one or more criteria in the purpose and need statement presented in Section 1.5, none of which has to do with cost. However, cost is one of the factors considered in the USACE’s

eventual LEDPA determination, which the USACE will perform in conjunction with preparation of the ROD.

ALT-141. NTMWD's calculations of project and unit costs for the full-sized LBCR action and the smaller LBCR action use 2011 figures adjusted to 2013 dollars. NTMWD must update these costs to more accurately reflect the actual costs of these projects. The 2016 Region C Plan, for example, has the cost of the full-sized LBCR as \$1.55 per 1,000 gallons (compared with NTMWD's calculation of \$1.31). **[CC: P7-68]**

Response: The USACE believes the project costs presented in the EIS are adequate for purposes of comparing costs between the alternatives in the context of the NEPA assessment and when assessing the economic considerations as part of the Section 404 permitting process. Project cost was identified for each alternative discussed in FEIS Appendix O, Alternatives Dismissed From Detailed Consideration, to ensure that all available information is presented. However, no alternatives were dismissed on the basis of cost; rather, alternatives that could not meet the criteria of the purpose and need were not carried forward for more detailed analysis of environmental effects in Chapter 4 of the EIS.

ALT-142. For the reasons identified above—the inflated demand in 2025, the availability of near-term sources that could bridge the gap if any supply deficit exists, the availability of multiple practicable alternatives in the mid-term that have less adverse impact—the Applicant has failed to meet its burden of demonstrating that the proposed action is the LEDPA. **[CC: P7-69]**

Response: Regarding demand in 2025, please see response to comment ALT-122. The USACE, not the Applicant, decides what the LEDPA is in any given case. In the present case, the USACE has opted to make its LEDPA determination in the ROD, so no determination has yet been made.

ALT-143. If the FEIS contains a substantially similar alternatives analysis, we respectfully request that the EPA exercise its oversight role and veto the LEDPA determination due to the availability of another LEDPA; federal regulations state that if another LEDPA is available, then this is adequate basis for a determination that unacceptable adverse environmental effects will result. **[CC: P7-71]**

Response: The EPA has been involved as a cooperating agency throughout the NEPA process and will act appropriately, in keeping with its legislative mandate to protect the environment.

ALT-144. I have concern that there has not been sufficient study regarding the most efficient way to obtain water. There are many sources for water that would have less of an environmental impact other than the proposed LBCR. There are existing sources of water in the

NTMWD plan that could be utilized before any reservoir should be constructed. These sources are existing reservoirs that NTMWD plans on obtaining water from in the future. **[CC: P8-2]**

Response: All potential sources of water in Texas and even Oklahoma have been exhaustively studied for years, including existing reservoirs. There are some sources, primarily existing water supply reservoirs, which would likely have somewhat less impact than the proposed action if they could meet the purpose and need described in Chapter 1. However, each of these alternatives has one or more shortcomings that preclude it from meeting all four criteria of the purpose and need, that is, not enough water, and/or not quickly enough, and/or not dependable or reliable enough. See Section 1.5, Purpose and Need, and Section 2.6, Alternatives Dismissed from Detailed Consideration, and Appendix O, Alternatives Dismissed from Detailed Consideration, in the FEIS.

In sum, the alternatives analysis identified two alternatives that met the purpose and need for the project. Other potential water sources were evaluated as part of the alternative analysis. These sources could not be developed within the time frame specified, and thus do not meet the purpose and need.

ALT-145. There is also a potential water source in the Trinity River. Currently, the city of Houston owns water rights to the Trinity River. Would it be possible to make a deal with the city of Houston to obtain water from the Trinity River? NTMWD could “pool” the money that it has for its entire water plan and build the city of Houston a desalinization plant. This could be done in exchange for water rights to the Trinity River. The Trinity River would supply all of the water needs on NTMWD’s plan and no reservoirs would need to be built. This would have the least environmental impact. Has this been studied? Can it be studied before the LBCR would be permitted? Could I receive a copy of the study? **[CC: P8-5]**

Response: The USACE recognizes that there are numerous combinations and variations of concepts when developing water supply programs and projects. Although not specific to the commenter’s proposal, the USACE did consider securing water from Lake Livingston as an alternative through the alternatives screening process (FEIS Appendix O, Alternatives Dismissed From Detailed Consideration). This would have required NTMWD to enter into an agreement with the Trinity River Authority and/or the City of Houston because both hold rights to water within Lake Livingston. This alternative was screened from further consideration partially because of uncertainties regarding entering into water contracts with the TRA and or City of Houston. The commenter’s proposal would most likely face the same obstacles that would make it unlikely the proposal could be placed on-line in time to meet the 2025 water supply shortfall and would not fully meet the long-term reliability criterion.

However, this discussion is mostly hypothetical. In reality there is little to no available water for new water rights in the Trinity River Basin in North Texas. The City of Houston’s water rights are in Lake Livingston. This water is to serve the future needs of Houston, and Houston fully intends to use this water to meet

its customers' demands. Houston has expressed no interest in trading its water rights for future desalinated water.

ALT-146. Another potential water source is Lake Texoma. NTMWD currently uses water from Lake Texoma but they are limited to the amount they can use because of the salinity of the water. A desalinization plant could be built to make more water available. Desalinization of water is expensive, but at the low salinity of the water in Lake Texoma, it is not as expensive as what NTMWD would state. Can this be accurately studied? **[CC: P8-6]**

Response: The commenter is correct in regards to NTMWD's use of water from Lake Texoma and its limitation on use of this water as a result of salinity issues. As discussed in FEIS Section 2.6, Alternatives Dismissed from Detailed Consideration, and Appendix O, Alternatives Dismissed from Detailed Consideration, desalination of water originating from Lake Texoma and the Gulf of Mexico was considered as part of the alternatives development process but not carried forward as project alternatives. One of the primary concerns with desalination of water from Lake Texoma in the quantities needed to meet NTMWD's reasonably foreseeable and long-term water supply needs is the disposal of brine. Discharge of brine into the Red River would be expected to face substantial opposition from other water rights holders and require recurring underground injection permits, which have no more than a 10-year term (and therefor reduce the reliability of this alternative).

ALT-147. Water conservation is also an issue that has not been fully implemented. NTMWD does restrict water usage when there is a drought, however, it does not seem to be as efficient as stated. **[CC: P8-7]**

Response: NTMWD's conservation program began in the 1990s with the publication of its first Water Conservation Plan (WCP) in 1997; the current WCP is dated April 2014. Conservation will continue to be an increasing part of NTMWD's water management strategies in the future. Please see Section 10B of Appendix N for more detail.

The state of Texas has recognized that NTMWD has achieved the "highest practicable levels of conservation" required for granting the state interbasin transfer permit for LBCR on June 26, 2015. Achieving the "highest practicable levels of conservation" is a requirement for obtaining an interbasin transfer permit in the state of Texas. Please also see responses to comments ALT-74 and ALT-77.

ALT-148. The failure to explore alternative sources of useable water is a violation of the clean water act. NTMWD states that there is not enough time to explore other options and only lists a smaller reservoir on the same site as an option. Time is not an excuse to disregard the clean water act. The project exploration was started around 2000. If the law were followed, there was and still is adequate time. **[CC: P8-8]**

Response: Please see response to comment ALT-144. Neither NTMWD nor the USACE are disregarding the Clean Water Act; rather, they are following it to the letter.

The RDEIS identified about 40 different alternatives for consideration. The Section 404 application was filed in 2008. The USACE and NTMWD have followed all laws associated with the CWA and NEPA.

The commenter has not identified a strategy for consideration that could meet the purpose and need for the project.

ALT-149. NTMWD then discounts the option of a smaller reservoir saying that it would not qualify for a Section 404 permit. This could not be true. The smaller reservoir would have less shallow, stagnant water which is a concern with the larger reservoir and the grade of the land. The smaller alternative would eliminate a large portion of shallow water so why is it already discounted as a viable alternative? The site of the dam is the same for either reservoir. **[CC: P8-9]**

Response: The USACE does not concur with this comment. Shallow, stagnant water is not a concern for the larger reservoir (Alternative 1). A smaller reservoir (along with blending with water from Lake Texoma, i.e., Alternative 2) is a viable, reasonable alternative, which is why it was included in both the RDEIS and the FEIS.

As a standalone project, the smaller reservoir (without blending) does not provide sufficient water supplies to meet the purpose and need. Thus, the RDEIS developed a combination alternative (Alternative 2) that includes the smaller reservoir with blending of Texoma water. This alternative is carried through the NEPA process.

ALT-150. Why is conservation not practiced more? I know if this project is built it will raise water rates. Why not raise them now and see if water consumption goes down? **[CC: P9-12]**

Response: Please see response to comment ALT-147. Among other steps to promote water conservation, NTMWD's member cities and customers have instituted increased block rates.

ALT-151. You can find many lists of alternatives that NTMWD does not want to implement. Largely they say in the DEIS this is due to time. This is not an excuse. They could have put their time in on other alternatives back in 2008 when they started this one. There are several ways to extend their 2020 deadline to 2030 and possibly 2040. I have seen charts that show water supply could last until the mid-2030s if tapped. Why is this not been done? This should be done first before new reservoirs are constructed. Their excuse for not using alternatives due to time should not be allowed. If started today, they would have plenty of time for pipeline

construction to Toledo Bend, Wright Patman, or Lake O' the Pines. Estimates are they could be done by 2030. **[CC: P9-14]**

Response: The comment states that in the EIS, "they" – referring to the NTMWD – do not want to implement certain alternatives. The USACE prepared the EIS, not NTMWD.

Under drought of record conditions, NTMWD will need additional water supplies by 2020. It is estimated that the Toledo Bend Alternative would not be available until 2034, and thus it does not meet the timing criterion for purpose and need. The Toledo Bend timeline for water rights permitting and design and construction of the pipeline, pump stations and related transmission infrastructure would be similar to development of the Wright Patman alternative discussed in the RDEIS, although development of the Wright Patman alternative would likely take even longer because it requires congressional authorization (Kiel and Thornton, 2017b).

The alternatives development and screening process described in Appendix O, Alternatives Dismissed From Detailed Consideration, considered a wide range of factors to help determine if an option should be brought forward for detailed consideration in the EIS. Being able to meet the expected 2025 water supply deficit was one, but not the only factor considered during the screening process.

As stated in FEIS Section 2.6.3, Other Alternatives Available to the Applicant, water supplied from the three Lake Wright Patman options (raise the flood pool, purchase water from City of Texarkana, and combine operations of Lake Wright Patman and Jim Chapman Lake) could not be completed in time to meet the 2025 water supply deficit, would require a contract with the City of Texarkana, which conflicts with the desire for greater water supply reliability, would not yield enough water to meet the 2025 water supply deficit, or require cooperation of a number of willing sellers.

Please see responses to comments ALT-22 and ALT-110 regarding why a Toledo Bend alternative and a Lake O' the Pines alternative were not considered in detail in the EIS.

ALT-152. ...they have to have water by 2025 because they are losing a huge portion of their water rights to Tawakoni. But in truth they have the right to extend those water rights for 2-10year contracts so they will be able to have this water until 2045. Why did they leave this out of the revised DEIS? **[CC: P9-15]**

Response: As noted in the FEIS purpose and need statement, reliability is an important element in NTMWD's water supply program. NTMWD has indicated that there is no guarantee that the owners of water rights through which NTMWD has existing contracts will renew contracts to meet NTMWD's near- or long-term water supply needs. Absent a guarantee that those contracts will be renewed,

such an alternative cannot meet the reliability criterion of the purpose and need statement in Section 1.5.

ALT-153. Also ground water sources could be used almost immediately with low cost to give a buffer for pipeline construction time. Why is this not being done? **[CC: P9-16]**

Response: Acquiring access to enough groundwater to provide an appreciable amount of water, enough to make a difference, would be neither an inexpensive nor a swift process. See Section 2.6.1.1, New Groundwater Supplies, and Appendix O in the FEIS. Also, there is little available groundwater in the North Texas area. Groundwater was evaluated as an alternative and was dismissed because it could not meet the purpose and need for the project. Groundwater fails to meet all four purpose and need criteria: near-term supply, long-term supply, timing, and reliability.

ALT-154. Pipelines are much less damaging than dams. In this project there are pipelines that would have to build also. Why not build 3 pipelines from existing water supplies before dam construction could be permitted? This is a clear violation of the Clean Water Act. Pipeline construction needs to start as soon as possible. This could be done if NTMWD would use their resources for pipelines. I believe it is the obligation of the USACE to help with alternative construction plans, so that time is never any issue for alternatives that meet the CWA and NEPA requirements. **[CC: P9-17]**

Response: Acquiring water from existing reservoirs with available water via new pipelines is not as straightforward as the commenter makes it out to be. Development of pipelines also must follow the CWA. Long transmission systems take approximately a decade or more to permit, design, and construct. This does not include the time necessary to reach agreements with the water supply owner or new water right permits.

In many instances, as described for a number of alternatives in Appendix O of the RDEIS and FEIS, it would take a number of years, often estimated at a decade or more, to receive all the permissions, obtain the needed permits, undertake the necessary negotiations, obtain easements, and implement the pipeline project. NTMWD is very familiar with pipelines and has built and manages hundreds of miles of them in its system; furthermore, pipelines would need to be constructed in every alternative considered in this EIS. In the future, whatever the USACE's decision on the current permit application, NTMWD may consider and evaluate constructing new pipelines to existing reservoirs with available water. However, none of the alternatives consisting of new pipelines from existing reservoirs is capable of meeting the purpose and need (either the timing or quantity of water needed) of the proposed action identified in this EIS.

It is not the USACE's obligation to assist with alternative construction plans. Under the CWA and NEPA, it is the USACE's obligation to evaluate the proposed

project and issue a ROD. The USACE will follow all laws and regulations required for the Section 404 permit.

ALT-155. There are many other alternatives and combination of alternatives that could be implemented in plenty of time. Why not mix Lake Texoma water with ground water? Why not dredge exiting water sources and use it to blend? Other cities such as Wichita Falls are looking at ground water. Why would NTMWD not use it? Why not use Aquifer Storage and Recovery methods? Why is a desalination of Texoma not being looked at more? Does Sherman/Denison use desalination from Lake Texoma? If they do not, then why can't NTMWD use it? There are so many alternatives and yet according to the revised DEIS there is only one. This is a major problem and once again violates the Clean Water Act. All alternatives need to be studied in depth and used because they can be less damaging to aquatic environment. **[CC: P9-18]**

Response: Groundwater and desalinization of Texoma water were evaluated in the alternatives analysis and were found to not meet the purpose and need on one or more grounds. Groundwater water quality is not conducive to blending with Texoma water.

Aquifer Storage and Recovery (ASR) was not considered because ASR requires excess surface water that can be treated and stored underground. It does not produce new water. NTMWD does not have excess surface water to store in this manner.

The alternatives that met the four purpose and need screening criteria for the project were studied in detail in the RDEIS.

The USACE recognizes that there are numerous combinations and variations of ideas when developing water supply programs and projects. Blending of Lake Texoma water with water supplied from a smaller LBCR is described in Alternative 2 included in the RDEIS and FEIS.

ALT-156. According to the revised DEIS cost are listed from many years ago. I have seen new cost estimates that are much higher for LBCR. In Attachment 6, you can see their cost estimate from the revised DEIS. The cost estimates were putting LBCR at \$585,563,000. In Attachment 7, you can see that the cost NTMWD has estimated to be \$1.2 Billion. Why is this being left out? I'm sure the cost will only go up from there. Why are the costs for the pipelines to the treatment plant and to the final customer not listed in the revised DEIS? Freeze and Nichols apparently put out bids for mitigation to the sum of ~\$74 Million. Where is this listed in the revised DEIS? I believe that this is a part of the project cost that has been left off. If this were added to the cost of LBCR, the cost would be comparable to other alternative projects. Alternative cost will be much cheaper than LBCR if calculated with the real numbers provided by NTMWD. I believe if LBCR includes their missing pipelines and used today's money value for comparison that some of the alternatives would be very close if not cheaper. **[CC: P9-19]**

Response: See response to comment ALT-95. As noted in FEIS Chapter 2, Alternatives Including the Proposed Action, the North Water Treatment Plant (also known as the Leonard Treatment Plant) is not considered an element of Alternatives 1 or 2. The Applicant has indicated that the WTP would be constructed and operated regardless of the USACE granting a CWA permit for the proposed LBCR. For similar reasons, distribution lines transporting treated water from the plant are not part of the proposed action. As such, the cost of these the water treatment plant and treated water pipelines extending to members and customers in the NTMWD service area are not considered project costs.

The estimated cost to construct Alternatives 1 and 2 are provided in Tables 4.13-3 and 4.13-15 of the FEIS, respectively. The costs included in these tables include the costs of mitigation and constructing raw water pipelines to the water treatment plant. The cost estimates are for comparative purposes. All alternatives were evaluated with the same cost assumptions.

In any event, while the cost of each alternative has been identified in an effort to include all available information, cost is not one of the four criteria included in the purpose and need statement and it has not been used to exclude any alternative from further consideration

ALT-157. Another problem is that the CWA and NEPA require a range of alternatives or combinations of alternatives. The revised DEIS only lists three options: the LBCR, the smaller version LBCR, or No Action. This is hardly a range of alternatives or a combination of alternatives. This is a violation of NEPA. I would ask the Corps to do an independent assessment on all the possible alternatives or a range of these alternatives that would meet the NEPA rules and regulations. The revised DEIS fails to consider alternatives or a combination of alternatives. It is the obligation of the USACE to study this. **[CC: P9-20]**

Response: Please see the response to comment ALT-86. The DEIS, RDEIS, and FEIS all consider over 40 alternatives in total. These include all reasonable alternatives that have been identified by commenters at every stage of the NEPA process. All but two of these alternatives fail to meet all the criteria of the purpose and need. The USACE and its contractors performed an independent assessment of the viability of these alternatives and combinations of alternatives.

ALT-158. The 404(b)(1) requires depth analysis on all possible alternatives. This has not been done in the revised DEIS. No alternatives have been studied in depth but have been ruled out mainly due to time. Once again there are steps to extend their time on water supply such as ground water blending with Texoma, dredging, even raising water levels for Lake Lavon, Jim Chapman (Cooper Lake), and Tawakoni. Can the USACE raise water levels so that time can be extended? The revised DEIS fails to adequately address why this is not a possible alternative. I would like to see an independent assessment to determine if this is a valuable alternative. **[CC: P9-21]**

Response: The 404(b)(1) analysis will take place not in the FEIS but in the ROD. NTMWD will be investigating all possible emergency and interim steps that may be needed to keep its growing member and customer base supplied with water until it is able to more permanently secure an increase in the water supplied to its system from new sources. Typically, the USACE cannot amend the management of its own reservoirs (Lavon and Chapman) without an act of Congress. Thus, these alternatives are not reliable and cannot be considered reasonable under NEPA given the unavoidable uncertainties associated with any congressional action.

Lake Tawakoni is used exclusively for water supply and does not have dedicated flood storage. It is surrounded by developed land (homes and businesses) that would be inundated and would have to be purchased and removed if the water conservation pool were to be raised. This would almost certainly generate intense public opposition to raising the conservation pool water level to increase water supply storage, which in turn means Tawakoni is not a reliable or reasonable alternative.

ALT-159. In the revised DEIS there are statements that they won't be able to get as much water out of Tawakoni after the year 2025. This is a loaded statement. They can renew their contracts for two more 10-year period contracts for this water. They are failing to address this future water supply. I would like to see more information on why they are leaving water supplies out of the revised DEIS. What do they have to hide? This is very dishonest. They may be holding more out of the revised DEIS than we are unaware of. The revised DEIS fails to see all contracts in full for future water supply, and should show more information on the actual water they have contracts on. This shows how they can skew their results for future water supplies. **[CC: P9-22]**

Response: Based on its independent review, the USACE believes that all relevant information has been taken into consideration in determining water supply and demand.

NTMWD's contract with the Sabine River Authority (SRA) for Upper Sabine Basin Supplies, including Lake Tawakoni, is an interim water supply contract pursuant to which NTMWD's rights to certain quantities of water are expressly subordinate to the right of SRA's existing customers identified in the contract. SRA has indicated that during times of drought NTMWD supplies may be reduced to ensure SRA is fully capable of supplying its existing customers with contractual water supplies.

Subject to such subordination, the contract provides that SRA expects the available water supply quantities to be not less than 40,000 AFY in years 1 to 5, 30,000 AFY in years 6 to 10, 20,000 AFY in years 11 to 15, and 10,000 AFY in years 16 to 20. The contract does have an option for SRA to increase the supplies available to NTMWD if additional water is available to SRA, but there

are no guarantees that such additional water will be available. The contract also contemplates the possibility of two 10-year extensions. However, the quantity of water, cost, and fees would be renegotiated at the time of the extensions, rendering those possible extensions far from certain.

Adding to that uncertainty, SRA has been unwilling to discuss any conditions for renegotiations. Given this, the interim nature of the current contract and its subordination provision (which would almost certainly be included in the contract extensions), and the unreliability of the water supply, prudent water supply planning precludes NTMWD from considering this additional supply to be available to NTMWD after 2025.

ALT-160. In Attachment 1, I have several questions that pertain to the revised DEIS. USACE is supposed to have LEDPA. Where is it? This is a significant project that impacts a large hardwood bottom and a major wetland habitat that the lead agency (USACE) should list more alternatives that could be more environmentally friendly. The CWA 404 b1 guidelines require a depth analysis on all alternatives. Where is that? The revised DEIS fails to consider depth analysis on other alternatives. In Attachment 1. Section 1a. It states a decision maker must consider all alternatives. Why are all the alternatives listed in the first DEIS draft no longer available for this project? In Section 1b it states a full spectrum of alternatives and a range of alternatives depends on the nature or the proposal and the Facts In Each Case. Where are all the facts with alternatives that have been taken out or not listed? In Section 4b it states that if the agency has a preferred alternative, it must be labeled or identified. What are the USACE's alternatives that could be listed? In Section 6B the agency is encouraged to identify preferable alternatives. This must be identified in ROD. Where would I be able to find this? In Section 14b, if the lead agency leaves out a significant issue and expertise of agency, the EIS may be found inadequate. In the bottom paragraph EPA during their first comments said there were other alternatives that could be implemented and are environmentally friendly. The alternatives have been left out in the revised DEIS. I would like to see an independent assessment of less environmentally affected projects such as pipelines or other projects that were recommended in the first DEIS. This needs to be done to meet the CWA and NEPA requirements. In Section 17a talks about conflicts of interest in preparing documents such as a DEIS to avoid conflicts of Interest if the preparer would benefit from the project. This is easy to see that the engineering firm, Freeze and Nichols, stands to profit from this project. They prepare the DEIS and then profit from its construction. That alone should disqualify Freeze and Nichols from being able to perform this DEIS. The USACE should not allow this under the NEPA process. **[CC: P9-25]**

Response: The USACE will make its LEDPA determination in the ROD at the conclusion of the NEPA process and just prior to its permit decision. In the EIS, the USACE has considered a range of reasonable alternatives and over 40 other alternatives that ultimately were deemed by the USACE not to meet purpose and need for the proposed action, which is for a reliable new source of water that can provide a given quantity by 2025 and a meaningful share of all projected long-term water needs (to 2060). Some of the additional alternatives evaluated in Chapter 2 would have fewer overall environmental impacts than the proposed

action; however, these would not meet the purpose and need criteria, thus they were dismissed from further examining and comparing their environmental impacts in great detail.

It is common practice for the USACE to require applicants applying for Department of the Army authorization to furnish environmental information necessary for the preparation of an EIS. The USACE has a responsibility to independently evaluate the information submitted by an applicant and shall be responsible for its accuracy. The intent of the agency responsibility under NEPA is that acceptable work submitted by an applicant not be redone, but that it is verified by the USACE [40 CFR 1506.5(a)]. For the LBCR project, the applicant (NTMWD) and their consultant (FNI) were requested by the USACE to provide information that was then used by the USACE to help prepare the EIS.

The USACE selected Solv LLC (formerly Mangi Environmental) as a third-party contractor to help prepare the EIS pursuant to the requirements of 40 CFR 1506.5(c). Solv LLC and its subcontractors have assisted the USACE in preparing the DEIS, RDEIS, and FEIS. To help ensure that the preparation of the EIS was conducted in an objective manner, Solv was required to execute a disclosure statement prepared by the USACE verifying that the firm has no financial or other interest in the outcome of the project.

ALT-161. There are many practical alternatives to this project that can be done to extend time for pipeline construction such as well water mixed with Texoma water or temporarily raising water levels in Lake Lavon, Tawakoni, Lake Cooper, etc. In Section a-2, alternatives that are not owned by the Applicant could be obtained to fulfill basic purpose and may be considered. Section a-3 is associated with a discharge site, which is purposed for special aquatic site: wetlands, forested wetlands, etc. Other alternatives should be performed by USACE. In Section a-4, NEPA may or may not be adequate. For a CWA 404 permit it states that alternatives get an in-depth review? Where are the in-depth reviews for the other alternatives? **[CC: P9-26]**

Response: The criteria the USACE used in developing and screening alternatives for detailed consideration in the EIS, as well as reviews of all alternatives, are provided in the FEIS, Section 1.5, Purpose and Need, Section 2.6, Alternatives Dismissed From Detailed Consideration, and in FEIS Appendix O, Alternatives Dismissed from Detailed Consideration. The alternatives screening analysis considered whether the over 40 alternatives under review were capable of meeting the four purpose and need criteria: near-term water supply, timing, reliability, and long-term water supply. Alternatives not owned by and under the control of NTMWD usually did not meet the reliability criterion, because of the inherent uncertainty and risk of having entities with other interests and responsibilities not making available the water that is needed.

ALT-162. The impacted environment would not be severely damaged if pipelines were constructed instead of a long-term lake project. Natural Landscapes and ecosystems will all be

severely compromised and should not be allowed when other alternatives that are not mentioned in the revised DEIS are available. **[CC: P9-28]**

Response: The FEIS discloses the environmental resources that would be affected if Alternatives 1 or 2 were constructed as well as if the No Action Alternative was selected. The USACE will take these effects into consideration when making a decision regarding issuing a CWA Section 404 permit. As an element of the NEPA compliance process, the USACE conducted an alternatives screening process that evaluated other options, some of which included constructing pipelines to other water sources. The USACE concluded that the action alternatives brought forward for detailed consideration in the EIS met the purpose and need for the project, whereas other options with longer pipelines did not. The alternatives screening process employed by the USACE is provided in FEIS Chapter 2 and Appendix O.

ALT-163. During the first DEIS, the comment made by the EPA sums up many of my comments above. Attachment 4 states the alternatives for a decision to be made or preferred action alternative and a no-action alternative. What has changed? It states that EPA believes the DEIS analysis does not demonstrate compliance with guidelines due to no independent evaluation of need for the proposal by the lead agency, Tulsa District COE, a lack of meaningful analyses of alternatives (40 CFR 230.10(a)), a lack of meaningful analysis regarding the potential for the proposed action to cause or contribute to significant degradation of waters of the U.S., specifically in light of direct, secondary, and cumulative effects (40 CFR 230.10(c)). How has this changed in the revised DEIS? In their first comment, it states that the DEIS fails to substantially describe an array of alternatives so that an informed decision can be made. How has this been changed in the revised DEIS? Comment 2 of the attachment asks about reuse projects as alternatives. Why are these not listed as possible alternatives? Comment 3 asks about the rational dismissal of project alternatives. There are not enough reasons related to the environmental impacts. How has this been changed in the revised DEIS? **[CC: P9-29]**

Response: To help address EPA's and others' concerns regarding the number of alternatives considered in the DEIS, the USACE added a second alternative composed of a smaller LBCR combined with water diverted from Lake Texoma. For full disclosure purposes, and to address overall stakeholder feedback received on the DEIS, the USACE opted to recirculate the revised DEIS (RDEIS) for agency and public review and comment. Enough information was obtained on this new alternative (Alternative 2) to compare its impacts with those of Alternative 1 (the proposed action), and those relative impacts were disclosed in the RDEIS.

As stated in Chapters 1 and 2 and Appendices N and O of the EIS, NTMWD is fully committed to water reuse, but there are practical and physical limitations to reuse amounts. Under Texas water law, return flows automatically become state water once the water is returned to a stream or lake. This means that return flows are subject to use by existing water right holders unless the state grants a

reuse permit. NTMWD is not permitted to use its own return flows without a reuse permit. Its historically discharged return flows are relied upon by the other water rights holders, which receive these return flows into their permitted water supplies.

NTMWD holds reuse permits for the return flows from its Wilson Creek WWTP (64 MGD) and return flows from 16 WWTPs associated with the East Fork Raw Water Supply Project. Return flows generated at other facilities or new facilities would require a reuse permit to use the water. Often there are stipulations and low flow and bypass requirements in the reuse permits that restrict the amount of water that can be diverted for beneficial use. There is also the technical practicability of capturing all the return flows at the diversion point. This is the case for the NTMWD reuse permit for the East Fork Raw Water Supply Project.

In sum, without development of new water supplies, no more water from reuse will be available to NTMWD than that already indicated in the water demand and supply projections shown in Appendix N (Table1).

The alternatives screening process followed by the USACE is described in FEIS Appendix O, Alternatives Dismissed From Detailed Consideration. The USACE considered alternatives that do not require a Section 404 permit, alternatives that were considered unavailable to the Applicant, and alternatives that were available to the Applicant. As summarized in FEIS Table 2.7-1, the USACE considered over 40 potential alternatives during this comprehensive screening process. The USACE also recognizes that there are many different combinations and variations of water supply options, but believes that the alternatives discussed in FEIS Appendix O have the best chance of meeting the water supply goals outlined in the purpose and need statement presented in Section 1.5.

ALT-164. In the section listed as alternatives considered in the DEIS, how can all of those alternatives just be scratched? The list was provided by USACE. This seems to be scratched because the Applicant wants to own water and not buy water. This is no excuse to violate the CWA and NEPA. The USACE should consider this in their decision making process. Later in that same section, it lists potential alternatives. Why have these been scratched from the revised DEIS. The USACE should consider these alternatives. **[CC: P9-33]**

Response: The alternatives considered in Chapter 2 but dismissed from more detailed analysis did not meet all of the four purpose and need criteria listed in Section 1.5 of the FEIS. None were dismissed arbitrarily.

ALT-165. The smaller Bois d'Arc Creek is listed as an alternative to the larger Bois d'Arc Creek reservoir. While this is an alternative, it appears to be disqualified by the revised DEIS. Has the USACE dismissed it for any reason prior to the revised DEIS? This smaller reservoir would meet their 2025 water needs and be more environmentally friendly. It would take a smaller amount of land, require less mitigation, and be better for the wetlands. It might even reduce possible

flooding issues. However, it would still not eliminate the flooding issues or meet the requirements of the CWA because there are other water sources available. **[CC: P9-36]**

Response: Neither Alternative 1 or Alternative 2 would increase flooding upstream of Hwy 82.

Both Alternative 1 (proposed project) and Alternative 2 (smaller LBCR with blending of Texoma water) were evaluated in detail. Neither alternative was dismissed.

Alternative 2, consisting of a smaller LBCR in combination with water diverted from Texoma Reservoir, was added to the RDEIS. The USACE has not made a decision on which alternative will be selected. That decision will be made as part of the ROD, expected to be published later in 2017.

ALT-166. I believe water levels should be raised in other lakes or groundwater utilized to mix with Texoma water. Maybe even a combination of both so that there is time to build pipelines to the existing reservoirs from which water can be taken. **[CC: P9-37]**

Response: As discussed in Chapter 2 and Appendix O for several of the alternatives, the water level of existing reservoirs cannot easily be raised. Reservoirs and their dams were sized to hold a certain amount of water; this cannot be readily increased, but requires substantial study and multiple approvals and permits, even if it is technically feasible. In some instances, congressional approval would be required. Many existing lakes are already surrounded by development which would be adversely impacted by any decision to raise water levels. Communities downstream could be exposed to higher flooding risks. All of these issues compromise the reliability of such alternatives, meaning that they do not meet the fundamental purpose and need of the project.

Groundwater sources are generally unavailable at an adequate scale and take time for development. No groundwater sources meet purpose and need. Please see responses to comments ALT-42 through ALT-50 for additional information.

ALT-167. Also the water from Bois d'Arc MUD has higher salt contents than Texoma, but NTMWD is not considering it for an alternative source unless it is blended. The water is there, a pipeline is in place, and all of the permitted water is not being used! **[CC: P9-42]**

Response: NTMWD has existing but unused water rights to Lake Texoma water that cannot be used currently because of Texoma water's high TDS levels and insufficient supplies of much lower-TDS water in NTMWD's system with which to blend Texoma water. Please see responses to comments ALT-83, ALT-90, ALT-106, ALT-112, and PUR-14 for additional information.

ALT-168. Another comment for thought would be to save the very few lake sites available as the last possible avenue. If you think about it, lakes are just temporary solutions. They have a

supply-able life for around 50 years before they begin to fill in with sediment. Current water supplies that can be tapped need to be tapped as soon as possible before supplies dwindle down. I would think it would in the best interest of the people to use water that is available and only build reservoirs when there are truly no other options. Once it is constructed, you can't go back. All farmland, ecosystems, and the environment change forever. This is a vital problem that needs to be addressed. If lake building starts again, at some point there will be no other options. That is why it is important to save the last remaining sites as the last possible sources for water. **[CC: P9-45]**

Response: Over 40 alternatives were identified and evaluated in the RDEIS, including alternatives that do not include building a lake (see Appendix O). The two alternatives that could meet the project's purpose and need included building the proposed LBCR (Alternative 1) and building a smaller LBCR with blending of water from Lake Texoma (Alternative 2).

The process the USACE followed in developing and screening alternatives that would meet the project's purpose and need is described in FEIS Chapter 1 and Appendix O. The alternatives screening process evaluated a number of other potential water sources, including water supplied by other reservoirs, groundwater use, and desalination. As discussed in detail in FEIS Chapter 1 and Appendix O, these alternatives do not meet the need for a water supply project either because they could not be constructed in time to meet the near-term water supply deficit, may not be reliable, and/or would not meet the long-term water supply shortfall. The USACE will make a decision regarding issuing a CWA Section 404 permit as part of the ROD.

ALT-169. I am asking that real studies need to be done by the USACE on all the alternatives and they should direct NTMWD which alternative could be brought on line first. Combinations of alternatives need to start now and not wait till 2020. I would ask that the USACE deny this revised draft DEIS 404 permit application and force NTMWD to continue on the best alternative that meets CWA and NEPA guidelines and laws. **[CC: P9-49]**

Response: The USACE is tasked with evaluating and issuing a decision on the Section 404 permit application for the proposed LBCR project. As part of this evaluation, an EIS was prepared that identified alternatives to the proposed project. It is not the USACE's responsibility to direct which alternative should be pursued by the Applicant; nor is it the USACE's responsibility to specify which order the alternatives should be implemented. The USACE will follow the CWA and NEPA guidelines in evaluating the permit application and will issue a decision on its evaluation.

Both the USACE and the NTMWD, as well as cooperating agencies at the federal and state levels, have diligently examined the feasibility and viability of all potential alternative strategies for meeting NTMWD's growing water needs. The USACE has independently evaluated each identified alternative. The USACE

will make a decision regarding issuing a CWA Section 404 permit as part of the ROD.

ALT-170. Other issues I have include why have alternatives not been addressed in a circulated document? Why have some alternatives been discarded without letting the public know the findings? One alternative could have been raising the elevation of the other lakes in the region which could be done more quickly and effectively with lower cost than building a new lake.

[CC: P10-8]

Response: The alternatives were evaluated in the RDEIS and FEIS and a detailed discussion is included in Appendix O. Raising the elevation of existing lakes was considered and dismissed due to the small quantity of supply and the time to implement such an alternative, meaning these alternatives do not meet purpose and need and therefore are not reasonable. This is discussed in Chapter 2 and Appendix O.

ALT-171. The RDEIS lists a price per thousand gallons for desalination of brackish water from Lake Texoma that is way out of line of other studies. In the original DEIS, untreated water from LBCR is listed as costing \$1.07 per thousand gallons. Using current TWDB guidelines, the cost of treating LBCR water would be at least \$1.50 per thousand gallons. Additional pipe, not costed in the DEIS, would be needed to move LBCR water to areas of demand. Consequently, the cost of treated water from LBCR would be more than \$2.60 per thousand gallons. On P. 2-56, the original DEIS stated, "The cost is over \$3.00 per thousand gallons of treated water" for the Texas desalination option. The actual cost of desalinated water from Lake Texoma would in fact be substantially less. The HDR study referenced above assessed delivering 81,000 AFY of treated water, in 2004 prices, to Dallas' Elm Fork Treatment Plant, at \$1.71 per thousand gallons of treated water. Trungale Engineering and Science updated the figures in the HDR report to 2008 prices and adjusted the costs for a shorter pipeline, one closer in length to what would be needed in NTMWD's case. Trungale concluded that treated water from Texoma desalination would cost \$1.93 per thousand gallons. Costs of both pipeline and conventional water treatment have risen substantially since 2008. Nevertheless, cost for this option should come in well under \$3.00/kgal. Far from being dramatically more expensive than water from LBCR, a Texoma desalination option for NTMWD similar to the one described in the HDR study would be cost competitive. **[CC: NGOs-19]**

Response: The HDR study referenced in the comment is not a valid example of the real-world costs of desalination as an alternative to the proposed reservoir. That study is now over ten years old. The salinity values used in the study (<800 mg/L) are lower even than the average values documented by the TCEQ between 2001 and 2014 (985 mg/L), as referenced in the comment letter. More importantly, the lower values do not represent the salinity concentrations during drought, when water from Lake Texoma is most needed. Using lower salinity values results in smaller quantities of water requiring desalination and smaller brine discharge amounts.

The 2005 HDR study was updated for the 2014 Dallas Water Utility Long Range Water Supply Plan (HDR, 2015). This study used the same concepts as the 2005 study and the same water quality characteristics. It also updated the cost estimate to \$3.54 per 1,000 gallons. This study assumes that water from Lake Texoma is used for base demands and does not have much peaking capacity, which reduces infrastructure costs. Since this water is more expensive than other sources, it is likely that Lake Texoma would not be used for base supplies as assumed for the infrastructure costs (less expensive supplies are commonly used first by most water providers). To meet higher demands during the summer, additional infrastructure capacity would be needed, increasing the costs of the water. Additionally, the basic concept for waste disposal for this strategy (discharge to the Red River upstream of Lake Texoma) is problematic due to the potential impacts to water quality in Lake Texoma. As a result, the strategy underestimates the costs for waste disposal.

Regardless of whether or not the Texoma desalination option is cost competitive, this alternative does not meet the stated purpose and need of the project. Desalination of water supplied by Lake Texoma is discussed as a potential water supply alternative in FEIS Section 2.6.1, Alternatives that Do Not Require a Section 404 Permit. The assessment concluded that desalination of water from Lake Texoma would not meet be able to meet the water supply needs as summarized in the purpose and need statement. This source would not meet the 2025 water supply operating deficit or be able to supply a considerable portion of the long-term water supply need.

Desalination also results in considerable technological considerations and regulatory hurdles. A desalination operation sized to meet both the near-term and long-term need indicated in the purpose and need would result in a substantial quantity of brine that would require disposal. As an example, the discharge of brine to the Red River would most likely result in adverse water quality impacts and as such be strongly opposed by existing water users downstream of the point of discharge. It is also unlikely that brine in the quantities produced by a desalination plant could be disposed through underground injection.

The text in Section 2.6.3.2 of the FEIS was revised to refer to the purpose and need for the proposed action rather than the environmental concerns and cost, as NEPA requires. Additional information about the unreliability of the desalination of Lake Texoma water alternative has been added to Appendix O of the FEIS.

ALT-172. ES-4, Mitigation Plan. This discussion should explain that NTMWD developed the Revised Mitigation Plan to address potential impacts that would be associated with the Proposed Action (Alternative 1). If USACE ultimately decides to permit the smaller reservoir (Alternative 2) instead, the mitigation identified in the Revised Mitigation Plan would be

reduced to be commensurate with the impacts associated with Alternative 2. **[CC: NMTWD1-24]**

Response: The discussion in the Executive Summary (ES-4, Mitigation Plan) has been revised in the FEIS as suggested.

ALT-17-2015. The appropriate public interest review would show that a balancing of all the actual beneficial and detrimental factors relevant to the proposal requires denial of the application, for the following reasons: practical alternatives that are less damaging to the aquatic environment exist and there has been no showing by the Applicant that they are not reasonably available. **[CC: TCA1-8]**

Response: Please see response to comment ALT-168. The USACE's Public Interest Review will weigh and balance all beneficial and detrimental factors relevant to the LBCR proposal. Factors to be considered include conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. The review will lead to a permit decision that reflects the outcome of that balancing process, and which reflects the national concern for both protection and use of important national resources [33 CFR Part 320.1(a)].

ALT-18-2015. Practical alternatives that are less damaging to the aquatic environment do in fact exist and there has been no showing by the Applicant that they are not reasonably available. **[CC: TCA1-20]**

Response: Please see response to comment ALT-168. The USACE reviewed and evaluated over 40 alternatives including the Applicant's proposed action, which is also the Applicant's preferred alternative. The EIS presents the potential environmental impacts of the proposed action and another reasonable alternative, and explains the rationale for dismissal of the other alternatives. The alternatives analysis presented in the EIS is intended to support the USACE's public interest review and Section 404(b) (1) guidelines evaluation. The USACE will identify the LEDPA for this Section 404 permit application in the ROD for this FEIS.

ALT-26-2015. The alternatives analysis is flawed and does not support a decision to grant the application. The Applicant has failed to adequately consider numerous reasonable alternatives, discussed below, and the permit should be denied for this failure to comply with relevant statutes and rules governing NEPA. **[CC: TCA1-21]**

Response: Please see responses to comments ALT-168 and ALT-18-2015.

ALT-27-2015. The DEIS' analysis of obtaining water from Lake Texoma is both insufficient and inaccurate. As will be shown below, there are multiple options for obtaining water from Lake Texoma that are practicable and reasonable, and adequate to meet NTMWD's projected demands. **[CC: TCA1-22]**

Response: Please see response to comment ALT-28-2015. The USACE and EIS contractor have independently reviewed the evaluation of the alternatives pertaining to Lake Texoma. The USACE found that these alternative analyses are sufficient and accurate for purposes of the evaluation of the Section 404 permit application under the CWA and NEPA.

ALT-28-2015. While the DEIS concludes that the Texoma blend alternative is the most cost-effective of all the options considered, it also asserts that there is insufficient water available for blending with more than 77,000 AFY of NTMWD's permitted supply in Texoma. This is not an accurate statement. If the existing infrastructure were used to deliver 150,000 AFY of Texoma water (roughly twice the amount assumed in the DEIS) to the Wylie Treatment Plant and blended with the available supplies detailed on the table above, the resultant treated water would have a total dissolved solids value of 463 ppm, well within drinking water standards, based on the following assumptions: (1) that the Lake Texoma water would have dissolved solids of 800 ppm (the lake average according to report done by HDR Engineering in 2005 [i]), (2) that the natural inflows to Lavon and Chapman would have dissolved solids of 200 ppm (a typical amount for surface water in the Dallas area), (3) that the Wilson Creek Wastewater Treatment Plant discharges would have dissolved solids of 400 ppm (the maximum stream standard for Lake Lavon), and (4) that reuse water from the East Fork Wetland would have dissolved solids of 300 ppm. **[CC: TCA1-23]**

Response: See responses to comments ALT-83 and ALT-112.

TDS levels in Lake Texoma vary over time depending on the quantity, quality, and timing of inflow. According to the TCEQ (2017), between 2001 and 2016, TDS levels in Lake Texoma ranged from less than 500mg/L to 1,300 mg/L. The median value is 1,015 mg/L, not the 800 mg/L in assumption 1.

Assumptions 2-4 in the comment are not incorrect, but they do not support the comment's conclusion. The comment states that Texoma could supply 150,000 AFY with no new supplies for blending. The sources of existing fresh water supply available to NTMWD in 2020 for blending add up to about 274,500 AFY. This includes reuse supplies from the Wilson Creek WWTP and East Fork Raw Water Supply Project, and 40,000 AFY from the Upper Sabine supplies (the remaining Upper Sabine supply is used locally). To use 150,000 AFY of water from Lake Texoma, without advanced treatment, the blend ratio would be 1.8 to 1. This blend ratio would exceed the federal TDS secondary drinking water standard (500 mg/l) and does not meet the needs of NTMWD's customers. Moreover, as more reuse water is used for blending, the TDS concentrations of

the fresh water supply is expected to increase, further affecting the blend ratio and resulting blended water quality.

Another consideration for NTMWD in its operations of its water and wastewater systems is the relationship between the water quality of the treated water and the water quality of the wastewater return flows. Higher TDS levels in the treated water supply results in higher TDS levels in the wastewater return flows. Discharge of the return flows back into Lavon Lake can violate TCEQ discharge standards and increase TDS levels in Lavon Lake (and subsequently in NTMWD's treated water). This operation can impact both the source water and the wastewater treatment facilities. Blending more Texoma water could result in the inability of existing wastewater treatment plants to meet discharge limits.

The amount of water that could be produced by blending Lake Texoma water with fresher water would be driven by the TDS level within Lake Texoma and the availability of fresh water for blending. During drought conditions, when Lake Texoma water would be needed the most, the TDS within Lake Texoma are typically the highest, limiting the amount of water that could be blended to meet the 500 mg/L objective. The 500 mg/L concentration represents the federal TDS secondary drinking water standard and is a water quality delivery objective for NTMWD and helps drive the districts water supply planning program. In addition, many of the NTMWD customers (medical care facilities, electronics industries, etc.) require water of even higher quality than the 500mg/L standard; these requirements also help establish NTMWDs water supply objectives.

The USACE would like to note that the RDEIS and FEIS both include Alternative 2, Downsized LBCR with Blending. The main elements of Alternative 2 include a smaller LBCR and a pipeline from Lake Texoma. Alternative 2 would allow blending of Lake Texoma with fresher water provided by the smaller LBCR.

ALT-29-2015. If ozone water treatment were planned for some of the water to be blended with Lake Texoma water, then some or all of the Lake Texoma water might have to be treated separately because of concern over bromine compounds. **[CC: TCA1-24]**

Response: As noted in FEIS Chapter 2, Alternatives Including the Proposed Action, treatment of water to meet standards would be accomplished by NTMWD's proposed North Water Treatment Plant, which is not an element of either action alternative. Water provided by the NTMWD must meet quality standards before being delivered. Outside of blending Lake Texoma water with fresher LBCR water, implementing alternative water treatment options is at the discretion of NTMWD and is outside of the scope of the EIS.

The treatment facilities will be designed to meet the regulations for water quality. If bromine becomes a concern, appropriate treatment would be employed. NTMWD is currently blending Texoma water at its Wylie WTP. This facility uses

ozone as part of its treatment process. NTMWD is meeting the regulatory requirements for treated water supply.

ALT-30-2015. It should be emphasized, however, that since the Texoma blend option can utilize existing diversion rights and existing pipelines, the cost of the water from this option would be very low. Partial Desalination of Water from Texoma. Desalination of water from Texoma is dismissed as an alternative based on six assertions, none of which is correct. 1. DEIS Assertion: There is not an established track record of success in the development of large brackish water desalination facilities. Response: The truth of this statement depends on what “established” and “large” mean. Membrane reverse osmosis systems have been in use for decades and there are a sizable number operating in Texas and thousands more worldwide. It is doubtful that the manufacturers of such systems would agree with this assertion. **[CC: TCA1-25]**

Response: Please see response to comment ALT-73. While there may be numerous reverse osmosis systems operating in Texas, the largest known system is the Kay Bailey Hutchison Desalination Plant in El Paso, which has a treatment capacity of 27.5 MGD. In 2014, it provided 9,000 AF of treated groundwater supply. The quantity of brine generated from this facility in 2014 was about 2,000 AFY (3 MGD capacity), which is deep-well injected. This facility is in an area with favorable geologic formations to receive the brine discharge. Even with these favorable conditions, it took years of research, studies, and pilot studies to develop a successful brine injection program.

The full-scale Texoma desalination alternative would require part of the brine waste be discharged to the Red River, and part would be deep-well injected. The quantity of water produced from the Kay Bailey Hutchison Desalination Plant is about one tenth of the proposed water supply from a full-scale desalination of Lake Texoma water, and the amount of brine disposal through deep well injection is one third the volume of the amount required for the Lake Texoma alternative. The technical feasibility of injecting large quantities of brine into local aquifers in North Texas has not been proven to date. Extensive further studies would be needed to assess the technical feasibility of this alternative, including hydrogeologic studies, seismic studies, and treatment pilot studies.

These are among the reasons that in the EIS, Texoma desalination was not considered a reasonable alternative for NTMWD at this point in time.

ALT-31-2015. Assertion: Most of the large desalination facilities built to date are located on or near the coast. Response: For Assertion #1 to be accurate, we would have to assume that none of these large coastal facilities have been successful. In any case, this assertion, if true, is irrelevant. A Lake Texoma brine stream can be placed in the Red River (stream limit 6,000ppm) upstream of Lake Texoma. No need for an ocean. **[CC: TCA1-26]**

Response: It is uncertain whether a permit would be issued for a proposed discharge of up to 28 MGD of brine to Lake Texoma. Discharging the brine wastewater upstream of Lake Texoma would reasonably be expected to have negative impacts to the water quality in the lake. This loop type operation would require NTMWD to remove salts from the source water (Lake Texoma) that were previously removed and then discharged back to Lake Texoma. For the same reasons, it also would be expected to impact the water quality for other users of the lake, including the cities of Denison and Sherman. NTMWD therefore anticipates that implementation of such an operation would be vigorously opposed by other water rights holders and even the state of Oklahoma.

At present, NTMWD has been granted the right to dispose an average of 9.3 MGD (or approximately 10,000 AFY) of brine waste to the Red River, with a maximum daily amount of 18.6 MGD. NTMWD would need to build a 9-mile and 7-mile pipeline to transport the brine for discharge to the Red River. This is the maximum amount of brine that can be discharged and still meet current stream standards. Thus, assuming that NTMWD could discharge 10,000 AFY to the Red River, it still would need to secure an option for disposing of the remaining 6,000 AFY of brine. NTMWD anticipates that it would need to perform that disposal using deep well injection. NTMWD has not completed studies to identify appropriate locations for a disposal well field or determine injection depths, however, because this option cannot meet the purpose and need for the project.

In light of the volume of the brine that would need to be injected for disposal, the activity likely would need to be permitted with TCEQ's Class I UIC General Permit WDWG010000, which has a limited 10-year term that expires on December 15, 2019. Moreover, TCEQ has stated that the "General Permit may be amended, revoked, or canceled by the Commission or renewed for additional terms not to exceed ten years each." Due to the need for recurring authorizations to be able to operate a desalinization plant, such an alternative cannot meet the reliability criterion of purpose and need.

ALT-32-2015. Assertion: If a 100 mgd or larger plant were to be developed for Lake Texoma water, it would be the largest inland desalination plant in the world. Response: As above, this statement, if true, is irrelevant. Desalination equipment is inherently modular and there is no qualitative difference between large and small systems. NTMWD is justifiably proud of its East Fork Wetland and claims it is the largest such project in Texas. Conservation groups would applaud NTMWD's being able to make the same boast about its Texoma desalination project, should NTMWD build one. **[CC: TCA1-27]**

Response: Please see response to comment ALT-31-2015. Treatment systems can be modular. The issue with the largest inland desalination facility is the handling of the waste stream. The larger the facility, the greater amount of waste generated. At this time, there is no proven technology to dispose of the quantity of waste generated by a 115 MGD desalinization facility in the North Texas area that could be reasonably permitted.

ALT-34-2015. Assertion: The method, cost, and regulatory requirements of brine disposal for such a facility are uncertain. Due to this uncertainty, brine disposal has the potential to significantly increase the estimated cost for desalination. Response: If the Applicant believes brine disposal is a problem, then its consultant should do a detailed analysis of why. That is the purpose of a DEIS – to assess viable alternatives, which Texoma desalination clearly is. There are hundreds of communities in Texas that utilize desalination. The costs of brine disposal are not so uncertain that Applicant can merely say so and thereby avoid a proper analysis. Even if deep-well injection were proved necessary to desalinate water from Lake Texoma, there is little uncertainty as to the method or cost. There are thousands of such wells operating in Texas, more than any other state. **[CC: TCA1-28]**

Response: Please see response to comment ALT-31-2015. Costs were developed for a Texoma desalination project in the RDEIS. These costs consider partial disposal of the brine waste to the Red River and partial deep well injection. Since the RDEIS is not tasked with detailed evaluations of alternatives during the screening process, no site-specific studies were conducted on the feasibility of deep well injection.

However, in the final analysis, the Texoma desalination alternative was dismissed from further consideration not because of cost but because it did not meet the purpose and need for the project. It was unable to provide the quantity of water needed within the timeframe required.

ALT-36-2015. Assertion: P. 2-56 of the DEIS contains the statement, “The desalination alternative will only provide the equivalent of about 60% of reliable treated water supply from the LBCR, if 100% is desalinated. Response: This statement assumes (1) that only 100,000 AFY of water is available from Lake Texoma, (2) that all of this water would be desalinated, and (3) that only 75% of the input water would be recovered as water supply. All of these assumptions are at variance with what would actually be done if this option were used. In addition to the 77,000 AFY from Texoma apparently targeted for blending, there are 107,000 AFY available for desalination (see table above; Applicant’s total water right from Lake Texoma is 184,000 AFY). Rather than desalinating 100% of this water, a much more reasonable way to develop the water would be to desalinate 50% of it and blend the desalinated water with the remaining undesalinated 50%. This would meet drinking water standards. According to the HDR Engineering study for the City of Dallas cited above [i], a more accurate expectation would be that at least 80% of the desalinated water would be recoverable as water supply. This option for developing Texoma water would in fact produce a water supply of more than 100,000 AFY, more than 80% of the yield of LBCR.

Response: The desalination strategy for Lake Texoma is discussed in Appendix O of the RDEIS. This alternative assumes that 113,000 AFY of water is available for desalination. It also assumes that only a portion is treated with reverse osmosis and then blended back with conventionally treated water. Of the water treated by reverse osmosis, 80% would be recovered as water supply.

The blend ratio of desalinated water to non-desalinated water is based on a final treatment quality of 500 mg/l of TDS. This results in two parts desalinated water to one part non-desalinated water blend ratio. With these criteria, the Texoma desalinization alternative cannot meet the quantity of water or timeframe specified in the purpose and need for the project.

The suggested alternative of desalinating half of NTMWD's unused, permitted 107,000 AFY and blending it with the other half would still fall short of the minimum 105,804 AFY needed by 2025. This alternative would not meet three of the four criteria (near-term supply, timing, and reliability) under purpose and need in Section 1.5. Moreover, brine disposal would remain problematic.

ALT-38-2015. Roughly half of the water used by NTMWD customers could be supplied with non-potable water (e.g., landscape watering, some industrial applications, firefighting systems). Delivery of non-potable water from Lake Texoma is a practicable option not considered in the DEIS. **[CC: TCA1-30]**

Response: NEPA requires that the lead agency (the USACE in this case) only evaluate a reasonable range of alternatives, not every conceivable alternative. The USACE did not consider an alternative in the EIS that would include delivering non-potable water throughout the NTMWD service area for landscaping, firefighting, or other purposes which do not require potable water. The USACE believes the alternatives screening process (FEIS Section 2.6, Alternatives Dismissed From Detailed Consideration and Appendix O, Alternatives Dismissed From Detailed Consideration) evaluated a broad range of potential options that could meet NTMWD water supply needs.

In any case, delivery of non-potable water is not a "practicable" or reasonable alternative. A non-potable supply would require a separate distribution system (purple pipe system). This would have to be implemented by the end user (member cities and customers). At this time, NTMWD's member cities and customers do not operate purple pipe systems on a wide-scale basis. To install such a system in established areas would be a costly and timely effort.

Also, the quality of water from Lake Texoma may limit its usefulness for landscape irrigation and industrial use. Excess salts are known to kill sensitive plants and create a hardpan on the soil surface, which would require additional water to irrigate.

ALT-40-2015. The issues discussed above all focus on the 184,000 AFY that NTMWD currently has permitted from Lake Texoma. Texas' additional share of the available yield of Lake Texoma is roughly half a million AFY. Some of this water could be made available by reallocation of flood storage or hydropower. **[CC: TCA1-31]**

Response: The USACE is not aware that the available water yield from Lake Texoma could be increased by reallocation of flood control or hydropower

generation. Increasing the capacity and making changes to currently authorized flood control operations would most likely require complex and time consuming environmental compliance and permitting challenges.

Reallocation of flood storage or hydropower at a federal facility requires U.S. congressional authorization. If such authorization is granted, NTMWD would need to obtain a water right permit. Since Texoma has diminished water quality, the water supply would then need to be desalinated. The analysis of Texoma desalinization alternative showed that this strategy (without congressional authorization and a new water right) could not be implemented within the timeframe specified in the purpose and need. Therefore, this is not a reasonable alternative to the proposed project.

ALT-42-2015. The DEIS states on P. 2-25, “Water conservation and water reuse strategies complement the Proposed Action rather than substitute for it.” The subsequent discussion and level of analysis, in Sections 2.3.3.1 “Water Conservation”, and 1.5.6.2, “Water Conservation in the North Texas Municipal Water District”, are not adequate to support such a conclusion. **[CC: TCA1-32]**

Response: Please see response to comment ALT-74.

ALT-44-2015. On P. 1-60, in Section 1.5.6.1, the DEIS describes NTMWD’s water conservation programs as having reduced per capita demand of its member cities from an average of 224 gpcd in 2000 to 162 gpcd in 2013, an admirable reduction. Figures in the DEIS regarding NTMWD’s projection for 2060, however, indicate that NTMWD is projected to use approximately 700,000 AFY (total projected demand of 789,676 minus the amount projected to be “supplied” by conservation) after conservation is figured in -- a water use rate for 2060 of more than 189 gpcd. NTMWD’s member cities’ water use has averaged less than 175 gpcd in recent years, including years before cities in the region began the stringent drought contingency measures initiated after the Zebra mussel infestation in Lake Texoma. Thus, conservation measures, even without special drought contingency measures, were sufficient to bring per capita water use below 175 gpcd. According to the Texas Water Development Board, the state average municipal water use for 2012 was 153 gpcd. Projecting a per capita water use of more than 189 gpcd for 2060, when NTMWD customers have been averaging less in recent years, indicates clearly that additional water conservation would be practicable. The potential for that additional conservation to substitute rather than complement NTMWD’s water strategies should be evaluated in the DEIS. The alternative of conservation in combination with increased reuse and other options, such as the Texoma options described above, should be evaluated in the DEIS. The information provided by the Applicant for the DEIS and in the Applicant’s conservation plan emphasizes that NTMWD 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 also states 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 NTMWD in order to comply with the requirements of

NTMWD's water conservation plan and drought contingency plan, program and/or rules." [ii] 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 189 gpcd projected for 2060. **[CC: TCA1-33]**

Response: The commenter is correct that more conservation by NTMWD, its members, and its customers is possible than was indicated in the 2015 DEIS. The 2017 RDEIS captures some of this in Appendix N. Overall, NTMWD places great priority on conservation in its long-term water supply planning process. The state of Texas, through TCEQ, requires that an Applicant for an interbasin water transfer achieve the highest practicable level of conservation before issuing a permit allowing an interbasin transfer. Conservation is a condition of the water rights permit: TCEQ has recognized that NTMWD has achieved the highest practicable levels of conservation required for granting the state interbasin transfer permit for LBCR on June 26, 2015. The LBCR permit was made final and non-appealable on July 22, 2015.

The USACE recognizes that the TCEQ is the agency with jurisdiction for making determinations within the state of Texas regarding if an Applicant is meeting the highest practicable level of conservation. The USACE concurs with TCEQ's determination.

ALT-48-2015. The Best Management Practices Guide was never intended to meet the standard in Texas law for permits involving an interbasin transfer of water, which requires an entity being permitted to have "developed and implemented a water conservation plan that will result in the highest practicable levels of water conservation and efficiency achievable within its jurisdiction". A district court judge in Texas recently reversed and remanded approval of the permit for an interbasin transfer of water from another proposed reservoir in Fannin County, Lake Ralph Hall, because the Applicant had not demonstrated compliance with the "highest practicable" provision. The DEIS lacks analysis to determine whether NTMWD's conservation plan meets this standard. **[CC: TCA1-35]**

Response: The state of Texas has recognized that NTMWD has achieved the highest practicable levels of conservation required for granting the state interbasin transfer permit for the LBCR on June 26, 2015. Achieving this standard is a requirement for obtaining an interbasin transfer permit in the state of Texas. The LBCR permit was made final and non-appealable on July 22, 2015.

As noted in the TCA et al. comment letter, the definition of "highest practicable levels of conservation" recently was litigated in the context of a water right application for the proposed Lake Ralph Hall by the Upper Trinity Regional Water District (UTRWD). In that case, in January 2017 the Texas Court of Appeals concurred that TCEQ, as the state agency with the technical resources to make such determinations, demonstrated a reasonable basis for issuance of an

interbasin transfer permit, and thus meeting the requirements for highest practicable level of conservation.

Contrary to TCA et al.'s comment letter, the court determined that, "TCEQ could, in its own judgment, determine that the information in Report 362 [Best Management Practices Guide] was relevant to and supported a determination that... [the Applicant's] application would result in the highest practicable levels of water conservation and efficiency achievable within its jurisdiction." TCEQ utilized similar reasoning and basis for the interbasin transfer for LBCR as they used for Lake Ralph Hall.

ALT-50-2015. A recent peer-reviewed study in Journal AWWA reported a significant nationwide decline in residential water use over the last 30 years; a typical single-family household in 2008 used 11,678 gallons less water annually (i.e., 32 gallons less per day) than an identical household did in 1978. The study identified the installation of water-efficient indoor appliances and fixtures – such as those meeting standards set by the 1992 Energy Policy Act – as the predominant factor explaining this decrease. [iii] This trend is likely to continue for years, if not decades, to come. As inefficient fixtures and appliances currently in use are replaced over time, further reductions can be expected. Currently, in single-family homes, nearly 20% of all the water used indoors is for washing clothes. As of 2013, water-efficient Energy Star labeled clothes washers achieved over 66% of new washer sales. A washer meeting these new specifications will use about half as much water as the typical top-loader it will replace. When new regulatory standards for clothes washers take full effect in 2018, all new washers will meet or exceed today's Energy Star efficiency levels. Moreover, as of 2011, toilets that meet EPA's voluntary Water Sense efficiency standards – which are more stringent than the 1992 federal requirements – comprised the majority of sales for tank-type toilets. At least four states, including Texas, have already mandated their use. Lastly, the bodies that write model building codes for state adoption have added new provisions to their 2015 model codes that would further decrease indoor water usage, including insulation requirements for hot water distribution piping.[iv], [v] The cumulative effect of these changes is that, as existing fixtures and appliances are replaced over the years and decades ahead, existing trends in decreased indoor water use can be expected to continue, or even accelerate.[vi] As noted above, it is anticipated that this trend will be reflected in the projections of the 2016 State Water Plan, which will be lower than those of the 2011 State Water Plan used in the DEIS. The Initially Prepared Plan for Region C is due to be released in May 2015. **[CC: TCA1-36]**

Response: Increases in conservation and efficiency from a variety of sources, including more efficient appliances and fixtures, are causing per capita water consumption to decrease, which is a welcome development. The growth in future water demand and need projected in the 2016 Region C Water Plan, both for the region as a whole and for NTMWD in particular, is lower than in the 2011 Region C Water Plan, and increased conservation and efficiency are a major reason why. However, in a region that is experiencing some of the most rapid population growth in the entire U.S., these welcome improvements can only partially offset the strong upward demand for water.

ALT-52-2015. As noted above, the DEIS credits NTMWD's future supply with only 176,000 AFY from return flows. NTMWD's permitted flows, however, total 229,275 AFY. Based on NTMWD's projected water usage, its return flows should equal as much as 350,000 AFY, making the 229,275 AFY of currently-permitted reuse a conservative estimate of the potential. Given that all return flows are discharged into water supply sources, the DEIS should explain why credited reuse is less than future return flows. This error infects the entire analysis and also illustrates the short-comings of relying on the State Water Plan projections. **[CC: TCA1-37]**

Response: Not all return flows generated by NTMWD customers are available for reuse by NTMWD. Some return flows are made to waterbodies not controlled by NTMWD, are required for environmental purposes, or are stipulated as part of water rights permits. As an example of water rights permits requirement, 30 percent of the return flows of water originating from the Trinity River Basin cannot be re-diverted by NTMWD. Return flows available to NTMWD in any given hydrologic period are also driven by hydrologic conditions. As an example, available return flows would be much less during drought periods as opposed to wetter periods. Because it is impossible to make reliable long term hydrologic forecasts, NTMWD subscribes to planning based on having 40 percent of water used in dry years available for reuse as return flows.

ALT-54-2015. The description in the DEIS of the alternative of obtaining water from Wright Patman Reservoir cites some hurdles that would have to be overcome before that water could be obtained, but it provides no actual analysis of the difficulty of overcoming those hurdles. On the face of it, the hurdles for some methods of obtaining water from Wright Patman Reservoir seem less than the hurdles of building a new reservoir. The DEIS treats this option as "not practicable", when clearly it is a viable possibility. **[CC: TCA1-38]**

Response: None of the three options examined for the Wright Patman Reservoir alternative is capable of meeting all four criteria of the project purpose and need: near-term quantity, timing, reliability, and meaningful share of long-term water supply. Please see Section 2.6 and Appendix O in the FEIS.

ALT-56-2015. Regarding purchase of water from the City of Texarkana, the DEIS mentions as hurdles that the contract between Texarkana and the USACE for additional conservation storage would have to be activated, requiring additional environmental studies and mitigation, and that Texarkana has not committed to selling the water as of 2008. Neither of these statements constitutes a reason for dismissing this option as "not practicable". Further, the information of the latter statement is not recent and there is no evidence of an attempt to learn the current position of the City of Texarkana regarding sale of water from Wright Patman. While the 100,000 AFY Texarkana has available for potential sale is less than the yield of LBCR, the potential of a combination of alternatives including this one should be assessed. **[CC: TCA1-39]**

Response: Purchasing Wright Patman water from Texarkana is not a viable alternative. It would supply only about eight percent of the quantity needed for the near-term supply criterion of the purpose and need, and it would not meet the long-term supply criterion or the reliability criterion, since this new water source would not be solely within NTMWD's control. Please see Section 1.5 of the FEIS.

ALT-58-2015. Regarding raising the flood pool of Lake Wright Patman, the DEIS cites studies conducted in 2003 and 2010. These studies assess raising the conservation storage in Wright Patman to an elevation of 228.6. The hurdles mentioned that would have to be overcome to raise Wright Patman to this level include the fact that a portion of the White Oak Creek Mitigation Area would be inundated. It gives no figures for how much would be inundated by the 228.6 conservation pool level, but says that approximately 500 acres lay below 230 msl. The impacts of inundating less than 500 acres of this mitigation area should be compared to the impacts of inundating 2,231 acres of federally protected wetlands on the Caddo National Grasslands that would be caused by reduced downstream flows (see attached report by Tom Hayes, Ph.D.). **[CC: TCA1-40]**

Response: Thank you for this additional information about potential impacts to waters of the U.S. and the WOCMA from one of the alternatives evaluated in Chapter 2. This alternative is dismissed from more detailed consideration not on environmental grounds, but because it cannot meet the project purpose and need. Please see response to comment ALT-60-2015.

A more detailed assessment of the Wright Patman alternative was provided in the RDEIS. This assessment found that the water level elevation of Wright Patman would need to be raised to elevation 232.5 ft msl to provide sufficient water to meet the purpose and need. At this elevation, approximately 13,661 acres of forested wetlands and bottomland hardwoods would be inundated. Approximately 1,000 acres within the WOCMA would also be inundated.

None of the federally protected wetlands on the Caddo Grasslands would be inundated or lost by the proposed project, either Alternative 1 or Alternative 2. An analysis of the downstream impacts to the wetlands downstream of the proposed LBCR dam found that overbank flows would continue to provide hydrology for the wetlands. See relevant Appendix of the proposed Mitigation Plan (Appendix C to the FEIS).

ALT-60-2015. The DEIS also notes that the strategy of raising the flood pool for Wright Patman has been included in the City of Dallas' long-range water supply plan, in state water plans, and in the 2011 Region C Water Plan. As noted above, these documents are simply what they are named – planning documents. The City of Dallas has no permit, contract, or other legal commitment from anyone to reserve the water supply that would be obtained from raising Wright Patman. Further, Dallas has made no legal commitment of intent to use this water in the future. This is not a reason for dismissing the option as not practicable. It is a practicable

option and should be assessed as such in the DEIS. It should also be assessed in combination with other alternatives. **[CC: TCA1-41]**

Response: "Raising the flood pool" as mentioned in the comment is really reallocation for the conservation pool through raising the flood pool.

Reallocation for the conservation pool through raising the flood pool at Wright Patman was dismissed from detailed consideration because it would not meet any of the four criteria of the purpose and need. Please see Section 2.6.3.2 of the FEIS for further information on this. In direct response to the commenter's recommendation, this alternative does not meet the reliability criterion of the purpose and need statement, even if combined with other alternatives.

ALT-62-2015. The DEIS concludes that obtaining water from Toledo Bend Reservoir is not practicable while at the same time indicating that NTMWD plans to obtain water from Toledo Bend in the future. If it is "practicable" in the future, it is practicable now. NTMWD may argue that it is only practicable when partnering with Tarrant Regional Water District, but that is a matter of cost. If Toledo Bend is the least environmentally damaging practicable alternative, then the Corps cannot permit LBCR. The cost of Toledo Bend is not a factor in whether it is the "least environmentally damaging". **[CC: TCA1-42]**

Response: The Toledo Bend alternative has been dismissed from detailed consideration not because it is not reasonable but because it cannot meet the timing criterion of the purpose and need. In the future, this alternative may well be developed eventually. At the present time, however, it cannot provide the water NTMWD needs by 2025. The Toledo Bend alternative was determined to not meet the purpose and need for the project because it could not be developed until 2034.

ALT-64-2015. The DEIS cites increased energy usage as a reason why LBCR is preferable to Toledo Bend, but it lacks serious analysis to compare the significant impacts that LBCR would have on waters of the U.S. versus impacts due to increased energy use of Toledo Bend. **[CC: TCA1-43]**

Response: Neither the DEIS nor the RDEIS attempted to state that the proposed LBCR is environmentally preferable to Toledo Bend because the comparatively lower energy consumption and greenhouse gas emissions of the former are more important than the smaller aquatic and terrestrial habitat impacts of the latter. Rather, the DEIS and RDEIS described the pros and cons, the relative advantages and disadvantages, of each of the alternatives. The Toledo Bend alternative was dismissed from detailed consideration not because of its high relative energy use or environmental impacts but because it cannot meet the purpose and need criteria. It could not be developed until 2034. See Section 2.6 and Appendix O in the FEIS.

ALT-66-2015. As noted above, the DEIS lacks analysis of a combination of alternatives. The alternatives discussed above, plus others that were dismissed because they provided an amount of water less than LBCR, should be assessed in combination. **[CC: TCA1-44]**

Response: The DEIS and RDEIS did analyze combinations of alternatives that have been identified. Alternative 2, for example, is a combination of a new reservoir on Bois d'Arc Creek blended with water from Lake Texoma. Also, please see response to comment ALT-155.

ALT-68-2015. There is no determination of a Least Environmentally Damaging Practicable Alternative (LEDPA) in the DEIS. This is presumably because all alternatives other than the recommended alternative, Lower Bois d'Arc Creek Reservoir, are found not to be practicable. As described above, there are a number of alternatives, including multiple options for developing water from Lake Texoma, that should have been found to be practicable. To meet the standards set out for preparation of an EIS, the DEIS for LBCR should analyze those options in detail, as well as combinations of those options with increased conservation and reuse, then make a determination of the LEDPA. **[CC: TCA1-45]**

Response: Alternatives using water from Lake Texoma were evaluated in the RDEIS. Alternative 2 (smaller LBCR with blending water from Texoma) was evaluated in detail in the RDEIS.

The LEDPA was not indicated in the DEIS, RDEIS, or FEIS because the USACE has decided to make this determination in the ROD, not because Alternative 1 is the only practicable alternative. This determination has not yet been made.

If an alternative cannot meet the fundamental purpose and need of a proposed action, its environmental effects are not examined in great detail in the Environmental Consequences chapter of an EIS. In the cursory analysis of effects in Chapter 2 and Appendix O, the DEIS, RDEIS, and FEIS all indicate that there are various alternatives that are environmentally preferable to Alternatives 1 and 2 in at least several respects, such as reduced impacts to wetlands and waters of the U.S., but that has no bearing on whether those alternatives meet the purpose and need for the proposed action.

ALT-81-2015. Assertion: The estimated cost for desalination of Lake Texoma water would be about twice that of water from LBCR. Response: This assertion is dramatically inaccurate. In the DEIS untreated water from LBCR is listed as costing \$1.07 per thousand gallons. Using current TWDB guidelines, the cost of treating LBCR water would be at least \$1.50 per thousand gallons. Additional pipe, not costed in the DEIS, would be needed to move LBCR water to areas of demand. Consequently, the cost of treated water from LBCR would be more than \$2.60 per thousand gallons. On P. 2-56, the DEIS states, "The cost is over \$3.00 per thousand gallons of treated water" for the Texas desalination option. The actual cost of desalinated water from Lake Texoma would in fact be substantially less. The HDR study referenced above assessed delivering 81,000 AFT of treated water, in 2004 prices, to Dallas' Elm Fork Treatment Plant, at

\$1.71 per thousand gallons of treated water. Trungale Engineering and Science updated the figures in the HDR report to 2008 prices and adjusted the costs for a shorter pipeline, one closer in length to what would be needed in NTMWD's case. Trungale concluded that treated water from Texoma desalination would cost \$1.93 per thousand gallons. Costs of both pipeline and conventional water treatment have risen substantially since 2008. Nevertheless, cost for this option should come in well under \$3.00/kgal. Far from being "twice" as much, the costs would be similar. A Texoma desalination option for NTMWD similar to the one described in the HDR study should be given careful analysis in the DEIS. Given the inaccuracies detailed above, each of which tends to bias the cost of water from LBCR compared to Lake Texoma, it is clear that Lake Texoma is not only a practicable alternative, but one with a lower cost and lower environmental impacts. Omitting the kind of analysis suggested above results in a DEIS that does not meet the standards set forth in statute and in the Corps' rules for preparing an EIS.

Response: Please see response to comment ALT-31-2015.

Also, the HDR study referenced in the TCA et al. comment letter is not a valid example of the real-world costs of desalination as an alternative to the proposed reservoir. That original study is over ten years old. The salinity values used in the study (<800 mg/L) are lower even than the average values documented by the TCEQ between 2001 and 2014 (985 mg/L), as referenced in the comment letter. More importantly, the lower salinity values do not represent the salinity concentrations during drought conditions, when water from Texoma is most needed. Using lower salinity values results in smaller quantities of water requiring desalination and smaller brine discharge amounts.

The HDR study cited by TCA et al. was updated for the 2014 Dallas Water Utility Long Range Water Supply Plan (HDR, 2015). This study used the same concepts as the 2005 study and the same water quality characteristics. It also updated the cost estimate to \$3.54 per 1,000 gallons. This study assumes that water from Lake Texoma is used for base demands and does not have much peaking capacity, which reduces infrastructure costs. Since this water is more expensive than other sources, it is likely that Lake Texoma would not be used for base supplies as assumed for the infrastructure costs because less expensive supplies are commonly used first by most water providers. To meet higher demands during the summer additional infrastructure capacity would be needed, increasing the costs of the water. The basic concept for waste disposal for this strategy (discharge to the Red River upstream of Lake Texoma) is problematic due to the potential impacts to water quality in Lake Texoma. As a result, the strategy underestimates the costs for brine waste disposal.

Taking into account the differences in assumptions for: a) source water TDS concentrations, b) peaking capacity, and c) waste disposal, the unit costs indicated for the HDR strategy are not applicable to the Lake Texoma desalination NTMWD would need to implement in order to meet the purpose and need for the proposed action.

Elsewhere, TCA et al. have also asserted that the EIS understates the cost for water from the proposed LBCR because it does not include treatment or the cost of the treated water line. Most of the alternatives identified in the EIS provide raw water at the North WTP, so comparison of the costs for these alternatives to the LBCR project would be appropriate. The Lake Texoma desalination alternative provides treated water at an estimated cost of \$6.89 per 1,000 gallons (September 2013 dollars).

With treatment (assuming a 200 MGD WTP) and transmission from the North WTP to McKinney, the cost for the treated LBCR water is estimated at \$3.79 per 1,000 gallons. After amortization, the cost would be \$0.88 per 1,000 gallons. This assumes a treatment cost of \$0.50 per 1,000 gallons. For comparable alternatives with similar peaking capabilities, the full-scale desalination of Lake Texoma water is nearly twice the cost of treated water from LBCR. The costs developed by HDR for the City of Dallas do not provide the same level of peaking capabilities, assume lower TDS concentrations of the source water, and assume that all of the brine can be discharged to the Red River. Based on NTMWD's experience, these assumptions are not valid during drought, when the TDS levels in Lake Texoma exceed 1,000 mg/L and demands necessitate greater peaking capacity.

ALT-82-2015. NTMWD's conservation planning relies on the Region C Water Plan and on the Best Management Practices Guide, developed by the Water Conservation Implementation Task Force in 2004[ii]. The Task Force stated clearly in developing the guide that the practices included were voluntary practices that might be used in a specific case. Use of voluntary practices indicates room for increased conservation not assessed in the DEIS. **[CC: TCA1-34]**

Response: Please see response to comment ALT-77.

BIOLOGICAL RESOURCES

BIO-1. There are no measures mentioned in the RDEIS to limit disturbances to migratory bird species. This includes actions, such as not clearing trees or nesting area during breeding season, or having a certified biologist conduct surveys immediately prior to vegetation clearing. Include more detailed description of measures that will be implemented to protect migratory birds within the Final EIS or the Final Reservoir Clearing Plan. **[CC: EPA-20]**

Response: Section 4.5.2.5 has been revised to clarify the requirements under the Migratory Bird Treaty Act (MBTA) to avoid take of migratory birds. Limiting disturbances to migratory birds is inherent in the MBTA statute. The U.S. Fish and Wildlife Service (USFWS) has statutory authority and responsibility for enforcing the MBTA (16 U.S.C. 703-712) NTMWD would be responsible for ensuring their action complies with the MBTA should a Department of the Army permit be authorized.

BIO-2. RDEIS incorrectly analyzes federally-listed species and state-listed species together without differentiating between the two. As a result, the RDEIS identifies a potential impact to federally-listed species that is not supported in any way by the admin record. There is no information in the RDEIS, the admin record, or elsewhere to support any assertion that either federally-listed species or designated critical habitat are present in the Proposed Action area or would be affected by any of the action alternatives. Correct the erroneous statements that there is "any presence of these species within the study area" and that Alts 1 and 2 could have any effect on any federally-listed species. **[CC: NTMWD1-13]**

Response: Federally-listed and state-listed species are described in the FEIS in Section 3.5.5, Threatened and Endangered Species, under separate subsections, and they are analyzed separately in the Threatened and Endangered Species subsection under Sections 4.5.2.6 and 4.5.3.6, Federally Listed Threatened and Endangered Species, and Sections 4.6.2.7 and 4.6.3.7, State Listed Threatened and Endangered Species. Federally-listed and state-listed species were not separated in the RDEIS biological resources impact summary table (Table 4.6-1), but the table has been revised in the FEIS to clearly distinguish between the two.

In addition, Section 3.5.5.1, Federally Listed Threatened and Endangered Species, has been revised to reflect the most current federally-listed species list for Fannin County, and Sections 4.5.2.6 and 4.5.3.6 have been revised to clarify impacts to federally-listed species. The USFWS delisted the threatened black bear in 2016 from the Endangered Species Act (ESA) species list, and it has been removed from Table 3.5-6. There are three federally-listed species currently listed in Fannin County, including the endangered interior least tern, the threatened piping plover, and the threatened red knot. The USFWS states that the piping plover and red knot should only be considered for wind energy projects in this county; therefore, these two species do not need to be considered for this proposed action. There is no USFWS-designated Critical Habitat for any of these three species in Fannin County. The FEIS states that there is no interior least tern nesting habitat or foraging habitat in the project area. The nearest known interior least tern habitat in Fannin County is outside of the project area along the Red River. Therefore, the construction and operation of the dam and reservoir would have *No Effect* on the species or its habitat.

BIO-3. There is no support in the admin record for the assertion in the RDEIS that any state-listed mussel species will be affected by Alt 1 or 2 directly, indirectly, or cumulatively. **[CC: NTMWD1-14]**

Response: Section 3.5.3.2, Benthic Macroinvertebrates, has been revised to include information on mussel sampling efforts to clarify that mussel sampling was not incidental collection during the Instream Flow Study (IFS) but was a deliberate part of the IFS. While the Texas Parks and Wildlife Department (TPWD) has previously stated that habitat may exist in the project area, there are

no documented records of any state-listed mussel species in the project area, and no state-listed mussels were collected during the mussel sampling effort conducted as part of the IFS field surveys. Additional information on state threatened mussels has been included in FEIS Section, 3.5.5.2, State Listed Threatened and Endangered Species.

BIO-4. There is no information suggesting that the only federally-listed species identified in the RDEIS as potentially occurring in the vicinity of the proposed action area, the interior least tern, would either be directly affected by the action alternatives or that it would be indirectly affected on account of impacts to species' habitat. **[CC: NTMWD1-15]**

Response: Section 3.5.5.1, Federally Listed Threatened and Endangered Species, has been revised to reflect the most current federally-listed species list for Fannin County, and Sections 4.5.2.6 and 4.5.3.6 have been revised to clarify that construction and operation of the project would not impact the interior least tern.

BIO-5. ES-9, Upland Habitats, Terrestrial Wildlife, and Threatened and Endangered Species - Please see overall comment above on the analysis of federally-listed species and state-listed species and update this section accordingly. **[CC: NTMWD1-27]**

Response: Section 3.5 and Section 4.5 have been revised regarding federal and state threatened and endangered species. Also, please see response to BIO-2 for federally-listed species affected by the proposed action, and response to BIO-3 regarding mussel sampling.

BIO-6. 3-46, Section 3.4, Biological Resources - NTMWD recommends this section be revised in the Final EIS to describe the entire affected environment for Alternative 2, including areas that would be impacted by the 8-mile and 25-mile Texoma pipeline. **[CC: NTMWD1-71]**

Response: Section 3.5, Biological Resources, has been revised as applicable to clarify where Alternative 2 differs from Alternative 1 in terms of project components and biological resources. Section 4.6 has been revised to clearly indicate the impacts from each project element for Alternatives 1 and 2.

BIO-7. 3-47, Section 3.4.1, Methods- The first sentence in this section is incorrect. The data collections related to biological resources were not limited by land access. NTMWD was granted access to all areas identified for the assessment methods. Where needed, access was gained through legal means. Standard biological assessment methodology does not require a 100% survey, and for the Proposed Action/Alternative 1 and Alternative 2, field data collected is applied across the respective project site, as appropriate. The field data points collected for the respective studies were shown to be sufficient and represent a complete field study. NTMWD therefore requests that USACE revise this discussion in the Final EIS to remove any inference that the assessment was incomplete. **[CC: NTMWD1-72]**

Response: The introductory paragraph under Section 3.5.1, Methods, has been revised to better reflect the methods utilized.

BIO-8. 3-66 and 3-67, Section 3.4.2, Tree Savanna- The last three paragraphs of this section discuss the North WTP and pipeline alignment. As written, it is unclear what the relevance of these paragraphs is to the discussion of the tree savanna affected environment. Also, please note that this discussion continues to reference an outdated/superseded pipeline alignment and pump station location. The total acreage for the transmission system, TSR, North WTP and rail spur is 860 acres (though, as discussed, these latter two elements are not part of the proposed project). The acreages identified by cover type in the last paragraph of this section are correct. The new alignment was finalized in 2013, and the corresponding report was sent to the USACE (see reference Freese and Nichols, 2013b). Also, as discussed above, Appendix I, PJD for Proposed Pipeline Route to the North WTP, does not contain the correct report. It contains the 2008 Alan Plummer Associates report. Appendix I should be the 2013 Freese and Nichols report, which is also included as Attachment D to these comments. **[CC: NTMWD1-77]**

Response: The three paragraphs in question in Section 3.5.2, Tree Savanna, have been deleted in the FEIS. In addition, Appendix I has been corrected – the 2013 FNI report has replaced the 2008 Alan Plummer Associates report.

BIO-9. 3-67, Section 3.4.2, Native Prairie Remnant- The site-specific assessment methods utilized by NTMWD for the Proposed Action/Alternative 1 and Alternative 2 did not identify any Native Prairie Remnant. NTMWD recommends deleting this paragraph because there is no information in the record to support TPWD's suggestion that such habitat might exist in the project footprint. **[CC: NTMWD1-78]**

Response: The record to support the presence of the native prairie remnant is the information provided in the Texas Natural Diversity Database (TXNDD) for this habitat polygon (ID #12932). The TXNDD states that this native prairie remnant was field verified by TPWD in 2009 and that the Element of Occurrence (EO) rank is considered "extant/present". Because the site-specific biological field surveys for the proposed action were conducted prior to the 2009 TXNDD listing of this habitat area, the area would not have been investigated. The TXNDD record for this habitat polygon states the area is in a grazed pasture with one plant community of medium quality grass species, low quality forb species, and presence of invasive plant species; woody cover is 51-75 percent mixed hardwoods. The habitat polygon is within the footprint of the reservoir and Section 3.5.2.3 of the FEIS has been revised to include information on the TXNDD field verification and conditions of the habitat area.

BIO-10. 3-67, Section 3.4.3, Aquatic Biota- The discussion and supporting tables only present information from the 2010 IFS (Freese and Nichols, 2010a). Supplemental data was collected in May 2010 and published in the supplemental data report (this report is included in Appendix M). NTMWD recommends that USACE incorporate the findings from the IFS Supplemental Data report into the Final EIS. **[CC: NTMWD1-79]**

Response: The IFS Supplemental Data report conducted for the proposed Bois d'Arc Creek Reservoir did not provide any new or substantially different biological resources information. See Appendix M-2 for details.

BIO-11. 3-78, Section 3.4.3, Benthic Macroinvertebrates - Please see overall comment above on analysis of federally-listed species and state-listed species and update this section accordingly regarding state-listed mussels. **[CC: NTMWD1-80]**

Response: Section 3.5.3.2, Benthic Macroinvertebrates, and Section 3.5.5.2, State Listed Threatened and Endangered Species, have been revised and updated to better reflect the current state listed mussel species in Fannin County and mussel sampling efforts.

BIO-12. 3-83 to 3-84, Section 3.4.5, Threatened and Endangered Species, Table 3.4-7 – This table presents a list of "TPWD-listed Species Potentially Occurring in Fannin County." This list mistakenly identifies two species (American burying beetle and arctic peregrine falcon) that are not state listed, however. The American burying beetle is a federally listed endangered species. It is inappropriate to include that species in the state list or analyze it in the Final EIS because the USFWS (the agency charged with overseeing federal listing decisions) does not recognize Fannin County as being within the species' range. See U.S. Fish & Wildlife Service, Counties List for American Burying Beetle, available at <https://ecos.fws.gov/ecp0/profile/countiesBySpecies?entitvld=440> (last visited April 21, 2017). The arctic peregrine falcon is neither state-listed nor federally listed. USFWS deemed that species to be recovered and delisted it under the federal ESA in 1994. See U.S. Fish & Wildlife Service, Species Profile Page for Arctic Peregrine Falcon, available at <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=B047> (last visited April 21, 2017). As a result, neither the American burying beetle nor the arctic peregrine falcon should be analyzed for potential effects in the Final EIS. **[CC: NTMWD1-81]**

Response: Table 3.5-7 has been revised to reflect the most current TPWD state-listed threatened and endangered species for Fannin County. Arctic peregrine falcon and American burying beetle have been removed from the table because they are not listed as state threatened or endangered. The American burying beetle is federally listed, but the USFWS does not list this species as occurring or potentially occurring in Fannin County. Table 3.5-6 has also been revised to reflect the most current federally-listed species list for Fannin County.

BIO-13. 3-87, Section 3.4.6, Invasive Plant Species - This section refers to an incorrect Texas Parks and Wildlife Code provision. Section 66.0007 does not exist, and to the extent this is a typo and was meant to refer to Section 66.007, that code provision applies only to fish and shellfish and should not be discussed in this section. **[CC: NTMWD1-82]**

Response: Section 3.5.6.2, Invasive Plant Species, has been revised, and reference to this code has been deleted.

BIO-14. 4-48, Section 4.6, Biological Resources - This section should also include a discussion of the 8-mile pipeline from the existing Texoma pipeline to the North WTP. If USACE needs additional information about this pipeline segment, please let us know. **[CC: NTMWD1-107]**

Response: Section 4.5, Biological Resources, has been revised to include habitat information on the 8-mile pipeline segment.

BIO-15. 4-49. to 4-52, Section 4.6, Biological Resources, Table 4.6-1- The RDEIS appears to incorrectly state the size of certain areas in the table. For example, the terrestrial/upland area is used for Threatened and Endangered Species. It is unclear whether this section addresses only federally-listed species or both federal and state species. In either case, shore birds are listed for Fannin County, which would use wetland and aquatic habitats. The state listed species also include aquatic species. It is also unclear why the terrestrial habitat area is cited for Invasive Species. Please clarify these areas. In addition, the open waters acreage for Alternative 2 should be 20 acres, not 78 acres. Finally, in line with the overall comment above regarding the analysis of federally-listed species and state-listed species, NTMWD recommends that USACE revise this table to ensure accuracy. **[CC: NTMWD1-108]**

Response: Table 4.6-1 in the FEIS has been revised to clarify all points raised in this comment.

BIO-16. 4-53, Section 4.6.1, Open Water Habitats and Biota - This section addresses open water habitats and therefore should not discuss stream habitat, specifically Bois d'Arc Creek. NTMWD recommends revising this section to only discuss open water. **[CC: NTMWD1-109]**

Response: The title for Section 4.5.1.2 has been revised to *Aquatic Habitats (Open Water and Streams) and Aquatic Biota* to match the habitat types summarized in the impact table. Aquatic habitats include both open water and stream habitat.

BIO-17. 4-55 to 4-56, Section 4.6.2, Construction Phase - In the fourth paragraph, NTMWD recommends including discussion on how TCEQ ensures water quality protection during construction through its Clean Water Act Section 401 Certification, including imposing specific requirements for and conditions on such certifications (e.g., TCEQ-required erosion and sediment control measures). **[CC: NTMWD1-110]**

Response: Section 4.6.3, Alternative 1, has been revised to include text on Texas Commission on Environmental Quality's (TCEQ) National Pollutant Discharge Elimination System (NPDES) Construction General Permit (Clean Water Act [CWA] Section 402) and CWA Section 401 Water Quality Certification requirements and examples of Best Management Practices (BMPs) that would likely be required in conjunction with this alternative.

BIO-18. 4-56, Section 4.6.2, Construction Phase - The first full paragraph on this page discusses the possibility of spills during construction. NTMWD recommends including additional information regarding how a Spill Prevention, Control, and Countermeasure (SPCC) plan (in addition to the SWPPP) is required if the contractor stores 1,300 gallons or more of fuel on site in a unique container (if the fuel tank is part of the equipment, it does not trigger this requirement). An SPCC plan would include provisions for secondary containment and BMPs in the event a spill occurs. The current plan is for temporary power to be provided to the dam site for the concrete batch plant and possibly other equipment. There will be equipment that will need fuel (diesel, etc.). It is likely that this equipment will be fueled using a fuel truck rather than a separate storage facility that would require a SPCC plan, but that has not been determined. **[CC: NTMWD1-111]**

Response: Section 4.5.2, Alternative 1, has been revised to include information on the potential need for a Spill Prevention, Control, and Countermeasures (SPCC) plan if storage of fuel greater than 1,320 gallons is required during construction.

BIO-19. 4-59, Section 4.6.2.2, Grassland/Old Field - NTMWD recommends revising the sentence that says "Up to 300 acres or more." It should either be "Up to 300 acres" or "More than 300 acres." **[CC: NTMWD1-114]**

Response: Since the WTP is not part of the proposed action, reference to the WTP has been deleted throughout Section 4.5, Biological Resources as appropriate, including the acreage referenced in the comment. Habitat impacts from the WTP are noted under the No Action Alternative discussions in Section 4.5.

BIO-20. 4-61, Section 4.6.2.2, Aquatic Habitats and Aquatic Biota - Remove the word "draft" from description of the water right permit in the first full paragraph on this page. **[CC: NTMWD1-115]**

Response: Section 4.5.2.4, Aquatic Habitats (Open Water and Streams) and Aquatic Biota, has been revised to remove "draft" as noted by the comment.

BIO-21. 4-63, Section 4.6.2.2, Fish - In the last paragraph on this page, the first sentence should be deleted. TPWD is working with NTMWD on initial stocking activities that could enhance the fish populations for sports fishing after the Reservoir fills. NTMWD anticipates future discussions with TPWD regarding the long-term management of fish populations during Reservoir operation. **[CC: NTMWD1-116]**

Response: Section 4.5.2.4 has been revised to delete the first sentence and include the information referred to in the comment.

BIO-22. 4-64, Section 4.6.2.2, Benthic Macroinvertebrates - NTMWD recommends that the last sentence of this subsection be revised to refer to the "water right permit" and not just "permit." **[CC: NTMWD1-117]**

Response: Section 4.5.2.4 has been revised to include this terminology.

BIO-23. 4-65, Section 4.6.2.2, Threatened and Endangered Species - Please see overall comment above on the analysis of federally-listed species and state-listed species and update this section accordingly. Also, please see comment above on Section 3.4.5 and revise accordingly. **[CC: NTMWD1-118]**

Response: Section 3.5 and Section 4.5 have been revised with regard to federal and state threatened and endangered species. Also, please see response to comment BIO-2 for federally listed species affected by the proposed action and the response to comment BIO-3 regarding mussel sampling.

BIO-24. 4-67, Section 4.6.3, Impacts associated with the Project Phases - The acreage used in the RDEIS to analyze Alternative 1 (Section 4.6.2) includes the entire area of the reservoir, but the acreage used to analyze Alternative 2 in this section includes only the area of the dam. NTMWD recommends presenting these acreages in a consistent manner for both Alternatives 1 and 2. **[CC: NTMWD1-119]**

Response: Section 4.5.2, Alternative 1, has been revised so that the impact acreages are consistent with the revised impact summary in Table 4.5-1.

BIO-25. 4-67, Section 4.6.3, Operations Phase - In the second paragraph of this section, the reference to 108 MGD is incorrect and should be revised to 77 MGD. **[CC: NTMWD1-120]**

Response: Section 4.5.3, Alternative 2, has been revised to reflect the correct volume.

BIO-26. 4-69, Section 4.6.3, Habitat, Table 4.6-4 - This table incorrectly shows 78 acres of open water. As explained above, the area of open water associated with Alternative 2 is 20 acres. **[CC: NTMWD1-121]**

Response: Table 4.5-4 has been revised to reflect the correct open water area.

BIO-27. 4-70, Section 4.6.3, Upland Habitats - The 25-mile Texoma pipeline will parallel an existing pipeline and be constructed within an existing right-of-way. The new 8-mile Texoma pipeline has not been surveyed and will cross additional upland acreages. The cover types and associated acreages are included in Table 3 of the reference (Kiel, 2016b). Please include these acreages under the respective cover type discussions. NTMWD recommends revising this section to appropriately reflect impacts associated with these two pipelines. **[CC: NTMWD1-123]**

Response: The upland habitats subsections in Section 4.5 in the FEIS include analysis of habitat impacts for all elements of the proposed action, including the 8-mile pipeline, based on information provided by the Applicant and independently reviewed by the USACE.

BIO-28. 4-72, Section 4.6.3, Threatened and Endangered Species - Please see overall comment above on the analysis of federally-listed species and state-listed species and update this section accordingly. Also, please see comment above on Section 3.4.5 and revise the discussion in this section accordingly. **[CC: NTMWD1-124]**

Response: Sections 3.5 and 4.5 have been updated in accordance with this and previous related comments from NTMWD.

BIO-29. 4-73, Section 4.6.4.1, Project Area - As discussed above, the Proposed Action area does not include "2,700 acres of storage lands." Please remove this acreage and correct the total acreage cited. **[CC: NTMWD1-125]**

Response: Section 4.5.4.1, Project Area, has been revised to remove the project area acreages (including the 2,700 acres of storage lands) as this is not necessary information for this section the intent of the section is to succinctly describe habitat impacts and the mitigation to offset those impacts. Mitigation plan details can be found in Appendix C, and project footprint information can be found in FEIS Section 2.5.1.

BIO-30. NTMWD has coordinated with TPWD and given Inland Fisheries Division staff the opportunity to provide input on the Reservoir Clearing Plan. NTMWD also has committed to working collaboratively with TPWD to enhance the creation of fisheries habitat and recreational fishing opportunities if the project is permitted. TPWD appreciates this opportunity and looks forward to continued cooperation with NTMWD. **[CC: TPWD-3]**

Response: The USACE appreciates the submission of this statement regarding the proposed action and will consider the spectrum of public opinion in its final decision on this project.

BIO-31. The biological resources and wetlands sections do not include the road extension in the baseline condition. TPWD recommends the DEIS indicate whether the road extension ROW is also within uplands and whether biological resources including wetlands were assessed for the road extension. **[CC: TPWD-4]**

Response: Sections 3.5 and 4.5 have been revised to include all elements of the proposed action, including the FM 897 road extension (to replace the FM 1396 crossing of Bois d'Arc Creek and leading to the new bridge over the reservoir). The USACE conducted an Approved Jurisdictional Determination for the FM 1396 road relocation and determined that it would have no impact to any waters

of the United States. As shown in the FEIS, the road extension would affect upland habitats but not wetlands or surface waters.

BIO-32. Although Oklahoma does not list *P. phoxocephala* as a species of concern, there is some evidence that this species is declining in abundance due to siltation of rocky substrates. TPWD recommends that the EIS address this species and again requests further evaluation.

[CC: TPWD-5]

Response: The slenderhead darter was addressed in the RDEIS and remains in the FEIS. The species is disclosed as being present in the project area in Tables 3.5-3 and 3.5-4. This information is based on fish sampling efforts that were part of the Instream Flow Study (see Appendix M). Impacts to all fish species (including the slenderhead darter) are collectively addressed in Sections 4.5.2.4 and 4.5.3.4, Aquatic Habitats (Open Water and Streams) and Aquatic Biota, and Table 4.5-3 indicates each fish species' likelihood of survival in the reservoir environment. The USACE believes the species has been sufficiently addressed for an EIS-level analysis of a non-listed federal or state threatened or endangered species.

BIO-33. Mussel collections incidental to the Applicant's Instream Flow Study lack the accuracy necessary to determine mussel diversity and species distributions, and therefore cannot be used to make conclusions regarding the extent of impacts to mussel species. The incidental collection of six mussel species offers a strong indication that the Bois d' Arc Creek watershed supports mussel habitat. As the agency charged with conserving and protecting the fish and wildlife and other natural resources of Texas, TPWD consistently recommends that a thorough biological baseline be established for all projects affecting state trust resources. With respect to mussels, this issue is particularly relevant considering the Texas Parks and Wildlife Commission's adoption of rules designating fifteen mussel species as threatened in the state (see 31 Texas Administrative Code §65.175). TPWD continues to recommend a targeted mussel survey for this project, and TPWD staff is available to assist the Applicant in developing a mussel survey methodology. **[CC: TPWD-7]**

Response: The RDEIS erred in stating that the collection of mussels as part of the Instream Flow Study (IFS) was "incidental", and this error has been corrected in the FEIS. A review of the methodology developed for the IFS (see Appendix M – Section 3.1, *Instream Flow Study Plan Development*) shows that "incidental" mussel collection was not part of the study but that mussel sampling was a deliberate part of the IFS sampling effort that was developed in coordination with the IFS Inter-Agency Team, which included the USFWS, U.S. Environmental Protection Agency (USEPA), USACE, U.S. Forest Service (USFS), TPWD, TCEQ, Red River Authority (RRA), and NTMWD. One of the technical components of the IFS included aquatic biology; the Inter-Agency Team decided to include mussel sampling as part of this technical component (in addition to fish and macroinvertebrate sampling) for each IFS study site. Please see Appendix M for methodology used for the IFS. Based on the mussel sampling conducted

as part of the IFS and in coordination with the Inter-Agency Team, the USACE believes a sufficient effort was made to characterize mussel presence in the project area (See FEIS Table 3.5-5 and Appendix M, Table 4.6 for mussel species collected). The FEIS has been revised to include this information.

BIO-34. TPWD respectfully disagrees that the complete loss of riverine habitat at the reservoir site can be characterized as moderate in magnitude. Rather, for aquatic biota found only in rivers and streams, the project would constitute a severe impact, defined in the document as, "a substantial impact or change in a resource that is easily defined, noticeable, and measureable, or exceeds a standard." **[CC: TPWD-10]**

Response: The USACE agrees with the comment. After re-evaluating the dam and reservoir aquatic habitat impacts, the USACE has determined that 'severe' better represents the impact magnitude because the impact would be a substantial change that is easily defined, noticeable, and measurable. This change of impact severity is reflected in the FEIS in Section 4.5.

BIO-35. According to this method of evaluation, a single voucher of a species from another reservoir environment could be used to determine that a species is likely to persist in the proposed reservoir, regardless of abundance or documented habitat preferences. Additionally, fish species that occur in non-reservoir lacustrine environments such as riverine pools, backwaters, oxbows, or other floodplain habitats are unlikely able to survive in a reservoir environment. This methodology alone should not be used to evaluate future potential habitat. **[CC: TPWD-12]**

Response: The USACE recognizes the commenter's concern. However, insufficient supporting data has been provided by the commenter. The USACE believes the underlying issue is adequately addressed in FEIS Sections 4.5.2.4 and 4.5.3.4, Aquatic Habitats (Open Water and Streams) and Aquatic Biota. The FEIS assessment of fish species likely to occur in the reservoir was based on fish sampling conducted for the IFS (Appendix M), review of fish species present in other Texas reservoirs, review of habitat requirements for fish species sampled during the IFS, and from known occurrences in other Texas reservoirs, and studies conducted that evaluated before and after fish species presence in streams that were impounded for reservoir creation (e.g. Taylor et. al. 2001 as cited in the FEIS in Section 4.5). The USACE believes this is a reasonable method to describe how the reservoir may change fish species composition when compared to fish species that are present in Bois d'Arc Creek.

BIO-36. The summary of impacts in Table 4.6-1 regarding biological resources presents operational impacts to threatened and endangered species, but it only includes terrestrial habitat impacts (11,230 acres of upland habitat loss from the dam, reservoir, and wastewater treatment plant). Please note that eight of the nine state listed species identified in Chapter 4 of the DEIS as potentially impacted by the project are aquatic species and one is a terrestrial

species that uses both upland and bottom land terrestrial habitats. The table should present impacts to both aquatic and terrestrial habitat. **[CC: TPWD-13]**

Response: Table 4.5-1 has been revised to better reflect the habitat impacts by project element.

BIO-37. Please note that the DEIS still contains discrepancies between the state-listed species identified for the study area in Chapter 3 and assessed for impacts in Chapter 4. TPWD recommends creating consistency between Chapter 3 and Chapter 4 by discussing habitat suitability and potential impacts to the paddlefish, shovelnose sturgeon, Texas horned lizard, and alligator snapping turtle in Chapter 4. **[CC: TPWD-14]**

Response: The state threatened and endangered species discussion in Section 4.5, Biological Resources, has been revised to be consistent with information presented in Section 3.5.

BIO-38. Conclusions drawn in this evaluation regarding adverse effects to mussel species cannot be supported without a completed targeted mussel survey to establish a baseline for abundance, habitat, distribution, and diversity. **[CC: TPWD-15]**

Response: Please see response to comment BIO-33 regarding mussel surveys in the project area.

BIO-39. Alt #2 prevents the destruction of 7,120 acres of sensitive habitats, approximately 50% less than Alt #1. **[CC: P13-5]**

Response: It has been noted that Alternative 2 would avoid impacts on habitats as compared to Alternative 1. As shown in FEIS Table 4.5-1, when compared to Alternative 1, Alternative 2 would avoid 2,254 acres of wetlands, 162 acres of aquatic habitat, and 5,208 acres of upland habitats.

BIO-40. The severing of a major wildlife thoroughfare should be taken into consideration when evaluating this project. Currently the forested hardwood bottomland serves as a refuge and habitat for wildlife to roam from the Caddo National Grasslands and disperse throughout the county. The RDEIS states in Appendix C page ES-1 that a 42 mile corridor of aquatic and terrestrial habitat would be "protected in perpetuity." This is an absolute conflict with the recent zoning ordinances passed by Fannin County. Zoning has been established along the shoreline to accommodate housing and businesses, which does not coincide with the promotion of habitat for terrestrial wildlife. **[CC: P14-8]**

Response: The proposed mitigation of protecting 42 miles of aquatic and terrestrial habitat corridors in perpetuity is located upstream and downstream of the reservoir, so it would be unlikely that Fannin County zoning established around the reservoir after the creation of the reservoir would affect these mitigation areas. If a decision is made to issue Department of the Army

authorization, the associated mitigation lands would require legal instrument protection. The USACE has no jurisdiction on private and other government owned lands not associated with the proposed project. The proposed dam and reservoir, and all other elements of the proposed project, would comply with current Fannin County zoning requirements. In addition, as stated in Chapters 1 and 5 and Appendix O, the population of Fannin County is expected to grow in the coming decades with or without a new reservoir along Bois d'Arc Creek. Associated with this growth would be continued development (e.g., residential, commercial, etc.), and impacts on existing wildlife habitat and corridors would likely occur. While the reservoir would remove forested hardwood bottomlands and displace wildlife to surrounding habitats, the general protection of a long, wide corridor from the Riverby Ranch along the Red River upstream to a new reservoir and beyond to the proposed Upper Bois d'Arc Creek Mitigation Site would likely benefit wildlife considered in the context of the development that would likely occur irrespective of whether a reservoir is constructed. Based on *Fannin County's Comprehensive Plan for Lower Bois d'Arc Creek Reservoir* (2016), most of the zoning around the reservoir would be agriculture and open space. Even though the reservoir would remove forested hardwood bottomlands, there would still be connectivity around the reservoir between the downstream and upstream wildlife corridors along Lower Bois d'Arc Creek.

BIO-41. Why were the zebra mussels not found in Bois d' Arc? While walking along the creek we found many of them where the flood had washed them into the edge of the field. We found other species of mussels we could not identify. This needs to be looked at further. **[CC: P15-10]**

Response: As stated in the RDEIS and FEIS, zebra mussels are non-native, invasive species that have not been documented in Bois d'Arc Creek. In addition, mussel sampling was conducted in the project area as part of the Instream Flow Study (see response to comment BIO-33) and zebra mussels were not observed.

BIO-42. Bald eagles also are nesting in the area. Why is there no concern for this protected bird? **[CC: P15-11]**

Response: The USACE recognizes that bald eagles can nest in Fannin County and that bald eagles can migrate through the project area. Additional information on bald eagles in the project area has been added to FEIS Section 3.5.5, Threatened and Endangered Species

BIO-43. On two occasions I have seen wolves fitting the description of the endangered red wolf. Careful study needs to be done to find these animals. **[CC: P15-12]**

Response: Table 3.5-7 discloses the state endangered red wolf (*Canis rufus*) as potentially occurring in Fannin County. However, this species is not known to occur locally in the project area; no evidence of the presence of this species has been recorded in the project area and TPWD has determined this species to be

extirpated (no longer found) in Texas; the FEIS has been revised with this information.

BIO-44. I would like to see more studies done on endangered plant and animal life since it is obvious the submitted studies were not complete. **[CC: P15-13]**

Response: The USACE recognizes the commenter's concern. However, insufficient supporting data has been provided by the commenter. The USACE believes the underlying issue is adequately addressed in FEIS Section 3.5 and Section 4.5.

BIO-45. What effects will hogs have on the quality of water from this lake? There are hundreds, possibly thousands of them. They are a costly nuisance to county citizens. If farmers cannot control them, what will be done to prevent contamination of the water from this lake? Where is the plan NTMWD has to eradicate wild hogs? Domestic livestock will not be allowed to drink from the lake to prevent contamination. How will the hogs be kept out of the lake? Hogs carry deadly diseases that cattle, horses and other livestock do not have. What will NTMWD do about the explosive growth in wild hog population that will happen when there is perfect habitat for them in the shallow muddy lake that has been pumped down to 1/2 capacity in the summer? Will NTMWD compensate Fannin County citizens for these losses? **[CC: P15-14]**

Response: Hogs are widespread throughout the southern U.S. and much of the country, including Texas. They occur extensively even on many National Wildlife Refuges in the southern U.S., most of which are centered on lakes, reservoirs, rivers, and other waters of the United States. They are widely acknowledged to damage habitat through their foraging methods, and they must continually be controlled. Hogs are not known to contaminate water any more than other domestic or wild animals. Landowners would be able to continue to control them (within state law) on their own property even with the reservoir in place.

BIO-46. No one said anything about the black bear that was found in the lake foot print and photographed by hog hunters. **[CC: P15-16]**

Response: The USACE recognizes the commenter's concern. However, insufficient supporting data has been provided by the commenter. The USACE believes the underlying issue is adequately addressed in FEIS Section 3.5.5.2, State Listed Threatened and Endangered Species. The USACE recognizes that a large number of wildlife can inhabit the project area, including potentially the black bear. The black bear was addressed as a federally threatened species in RDEIS Table 3.4-5 and the proceeding text, where it states that potential suitable black bear habitat is present in the reservoir footprint but that no individuals have been documented. Table 3.5-6 has been revised in the FEIS to exclude the black bear as a federally threatened species because in 2016 the USFWS determined the species is no longer threatened and that protection under the ESA is no longer required. The USACE does not discount the possibility of black

bear in the project area just because none have been documented. The EIS states that suitable habitat is present for the black bear, which means the black bear could potentially be present. However, while potential habitat is present for the black bear, only one documented sighting has occurred in Fannin County since 1977. The location of this sighting is outside of the project area based on the Texas Natural Diversity Database.

BIO-47. Appendix J: Habitat Evaluation Procedure (HEP) 2.3 Evaluation Species Selection and Descriptions, page 4 through 10, there is no mention of white tail deer, beavers, gray squirrels, river otters or copperhead snakes. Why were these very prevalent mammals omitted, along with the copperhead? What about the great blue heron or great egret? I see far more of these birds than I do of the green heron. There is no mention of mollusk species in the RDEIS. The mollusks are very important indicators of a healthy environment. The HEP is not complete and needs more extensive studies done because too much of the major wildlife has been omitted. **[CC: P17-28]**

Response: The HEP Team (which consisted of wildlife experts from seven federal and state natural resource agencies) specifically selected 16 evaluation species based on their ecological significance, the availability of applicable Habitat Suitability Index (HSI) models, and the professional judgement of the HEP Team that these species appropriately represent the multitude of species that are expected to occupy the habitats within the project area. The HEP can only be used with wildlife species that have documented HSI models. As stated in Appendix J, the HEP quantifies Habitat Value, which is calculated as the product of habitat quantity and habitat quality.

Mussels (a type of mollusk) are discussed in Section 3.5.3.2, Benthic Macroinvertebrates, and Section 3.5.5.2, State Listed Threatened and Endangered Species. Please see response to comment BIO-33 for information on mussel sampling efforts.

There are many common species of wildlife that occur on-site, several representative species of which are mentioned by habitat type in Section 3.5.4, Wildlife. EISs are not intended to be comprehensive biological encyclopedias that list each and every species of plant and animal documented and suspected as occurring at the site of a project.

BIO-48. NTMWD commissioned ZERO tests for the final 7+ miles of Bois d'Arc Creek. And this part of the creek has a completely different makeup. Much deeper and wider, different flow rates, flora, fauna, and cultural sites. Because they chose to NOT gather ANY data on these final miles of the creek, any blanket description of what happens downstream of the dam is incomplete and misleading description of the impact. **[CC: P3-5]**

Response: This segment of Bois d'Arc Creek, furthest downstream from the dam and just upstream of its confluence with the Red River, is heavily influenced by the Red River, which often backs up into Bois d'Arc Creek during periods of high

flow. Its hydrology and aquatic habitat would be much less affected by the presence of the reservoir than by the Red River, and for that reason it was not surveyed. In light of this, the USACE believes that the level and focus of the analysis is appropriate.

BIO-49. How convenient. The scientists decided not to look for mussels when 4 species had been identified that could potentially habitat a creek environment like Bois d'Arc. Even worse, the scientists did not go back and recheck for these mussels. **[CC: P3-13]**

Response: Mussels were sampled in multiple locations in the project area within the reservoir footprint and downstream. Please see response to comment BIO-33 for details on this sampling effort.

BIO-50. We have a lot of wildlife here. What's going to happen to them. **[CC: P5-2]**

Response: Potential impacts to wildlife and their habitats from construction and operation of the proposed action are discussed in Section 4.5, Biological Resources.

BIO-51. We made mention to Mr. Andrew Commer at the public meeting in Bonham that we think there is an endangered mussel in some of the creeks at the potential reservoir site. In front of several witnesses, I asked if we could provide him with photographs or other evidence of these mussels. Mr. Commer stated that we were not biologists and we would not be able to take pictures of these mussels because that could be considered harassment of wildlife. Every way that we asked to be able to prove that these endangered mussels were there, Mr. Commer said we could not do that. Does Mr. Commer not care that these endangered mussels could be present? Why was he not interested in the fact that NTMWD did not show evidence of the presence of these mussels? Could the EPA or another agency help us to prove that they are there and explain why this has not been brought forth? **[CC: P8-17]**

Response: Mussels were sampled in multiple locations in the project area. Six mussel species were collected during this sampling effort (see Table 3.5-5). No state-listed threatened or endangered mussels were observed during the sampling effort, and no other state agency source has documented any state-listed threatened or endangered mussels in the project area. Please see response to comment BIO-33 for details on this sampling effort.

Mr. Commer was speaking generally about endangered species regulations and requirements that are in place to protect these species and stated that certain activities involved with these species are prohibited without a permit from a state or federal agency, depending on the species.

BIO-52. I have personally seen two known endangered species of woodpeckers in the footprint of the site. One is the Red-cockaded woodpecker. The other is the Ivory-billed woodpecker. I did not know these were endangered species at the times when I saw them, but now I do know

how important both of these are. I have been told by other hunters, that they have seen and heard a large woodpecker that sounds like a “jack hammer” on the trees. I believe they also saw the Ivory-billed woodpecker. Neither of these endangered species were shown on the DEIS. Could they be investigated by a non-biased third party other than Freese & Nichols or Mangi?
[CC: P8-18]

Response: The USACE recognizes the commenter's concern. However, insufficient supporting data has been provided by the commenter. The USFWS and TPWD do not list the ivory-billed woodpecker as occurring or potentially occurring in Texas. While a recovery plan is in place, there has been no confirmed sighting of an ivory-billed woodpecker in 75 years. The red-cockaded woodpecker is a federal and state endangered species, but the USFWS and TPWD have not listed the species as occurring or potentially occurring in Fannin County, Texas. The EIS does not cover these woodpeckers because they are not known to occur in Fannin County, Texas.

BIO-53. There are also numerous sightings of Bald Eagles throughout the reservoir site. These are not founded in the DEIS. I can show you some Bald Eagle nests here if given permission to do so. I have seen them and witnessed Bald Eagles many times and have seen them raising young eagles as well. **[CC: P8-19]**

Response: Please see response to comment BIO-42.

BIO-54. In the DEIS they listed no endangered species or Bald Eagle nests. During last summer there are many eyewitnesses to two different Bald Eagle nests. One was off of HYW 82 and one was off of CR 2950. Why are so many obvious things left out of the revised DEIS? The revised DEIS is lacking in analysis of Eagles nest and possible endangered species. The USACE should investigate these issues. I would suspect that there would be other endangered species left off if they cannot identify the easy ones. Also, just to let you know both nests are on NTMWD property. **[CC: P9-11]**

Response: Please see response to comment BIO-42 regarding the bald eagle. All federal- and state-listed threatened and endangered species are addressed in the FEIS in Section 3.5.3.2 (for mussel species), 3.5.5 (for all federal- and state-listed species), Sections 4.5.2.6 and 4.5.3.6 (for federally-listed species), and Sections 4.5.2.7 and 4.5.3.7 (for state-listed species).

BIO-55. On the section of Environmental Consequences, comment 1 talks about adverse impacts and a large portion of the largest, if not the largest, remaining hardwood bottom left in the state of Texas. This is a big concern that does not need to be left out. **[CC: P9-31]**

Response: Bottomland hardwood forests are discussed throughout Sections 3.5 and Section 4.5, as well as in Chapter 5, Cumulative Impacts. The RDEIS and FEIS recognize the importance of this habitat.

BIO-56. I would like to see a detailed analysis on the fresh water mussels that was performed by Freeze and Nichols, the USACE, and the Texas Parks and Wildlife for comparison. I believe an independent assessment should be included in the DEIS from all parties involved for comparison. There is a high probability that that some endangered mussels can be found in Bois d'Arc Creek. This should be assessed from the start of the proposed lake all the way to the Red River and not from just a selection of sites. The entire creek needs to be walked and studied. One reason they are endangered is because few exist and can be missed easily. Can you send me those assessments in your response? **[CC: P9-44]**

Response: Please see response to comment BIO-33.

BIO-57. Land owners in the lake footprint have locked gates to prevent trespassing and poaching on their land. I have not received any requests to enter the land from people doing studies on the species of plant life, aquatic life or animal life. I did have requests from people to do studies on archaeological and soil core samples but no one contacted me to study animal and plant life. **[CC: P15-9]**

Response: In conducting the various field surveys associated with this EIS, and in keeping with standard scientific methods associated with these studies, it was not necessary to gain access to each and every property. Section 3.5.1 has been revised to better explain the field methodology used.

BIO-58. The Table 3.4-3 indicates white crappie (*Pomoxis annularis*) was documented in the 1998 study, whereas the corresponding table in the 2015 DEIS indicates this fish was documented in the 1982 study. This reference should be reviewed and corrected, if necessary. **[CC: TPWD-6]**

Response: Thank you for calling attention to this discrepancy. White crappie was documented in the 1982 study; the DEIS is correct and the RDEIS is not. The FEIS contains the correct listing (documented in the 1982 study).

BIO-59. The mitigation plan did not include detailed studies to check for mussels and particularly endangered species of mussels that might inhabit Bois d'Arc Creek or its tributaries. We know that there have been mussels in Honey Grove Creek, Allens Creek and Ward Creek on or along our property in the past but there was no mention of them in the raw data collected from our property. **[CC: P18-24]**

Response: Please see response to comment BIO-33.

BIO-21-2015. The proposed reservoir sits on top of the USFWS bottomland hardwood preservation site in Fannin County. The DEIS dismisses the importance of these sites, questioning how much of the preservation site would lie within the reservoir footprint and how accurate the designation remains (since it was made in 1984). However, Tom Gooch and Simon Kiel of Freeze and Nichols, who also participated in the DEIS, were two of the coauthors of the

site protection study, which USFWS uses in its Bottomland Hardwood Preservation Program as the sole criteria to evaluate and weight the 16 reservoirs evaluated in that study. **[CC: TCA1-51]**

Response: Bottomland hardwood forests are discussed throughout Sections 3.5 and 4.5. The FEIS recognizes the importance of this habitat. The USACE and the USACE's third-party contractor prepared the EIS, and any information provided by Freese and Nichols was independently reviewed and verified for accuracy.

BIO-22-2015. The LBCR is also located on a river segment characterized by Texas Parks and Wildlife Department (TPWD) as an Ecologically Significant Stream Segment. TPWD made this designation for Bois d'Arc Creek "from the confluence with the Red River in Fannin County upstream to its headwaters in east Grayson County". **[CC: TCA1-52]**

Response: FEIS Section 3.5.2.2, Open Water and Streams, includes information on TPWD's identification of Bois d'Arc Creek as an Ecologically Significant Stream Segment (ESSS).

BIO-23-2015. In addition to the 6,000+ acres of wetland forests the reservoir footprint would inundate (and thereby destroy), the loss of overbank flows which would be captured by the reservoir would result in degradation of bottomland hardwood forest downstream of the proposed project. The proposed site is located immediately upstream of the Caddo National Grassland. As noted in the DEIS, "The Caddo National Forest and Grassland is one area where bottomland hardwoods are protected and managed by the USFS (USACE, 2000)." Visual inspection of the map indicated that somewhere between 3,000 and 4,000 acres of bottomland forests, much of it within the protected national grassland, would be degraded by the loss of high flows from the proposed project. In his report on the proposed mitigation plan, attached and incorporated into these comments below, Tom Hayes, Ph.D., analyzed these impacts in greater detail. **[CC: TCA1-53]**

Response: EIS Section 4.5.2 addresses the commenter's concern of potential downstream impacts.

CLIMATE CHANGE

CC-1. USACE should clarify in the FEIS that incremental changes in GHG emissions are expressed in the NEPA analysis as a proxy for potential impacts on global climate change. **[CC: NTMWD1-16]**

Response: The text in Section 3.6.2 has been revised to state that GHG emissions are presented as a proxy for potential impacts to global climate change.

CC-2. To the extent there is more specific information available, USACE should replace the generic statement that the two alternatives would generate "relatively small amounts" of GHG with more specific information because it is unclear what GHG sources that USACE is comparing those emissions to. **[CC: NTMWD1-17]**

Response: The text in Sections 4.6.3.7 and 4.6.4.7 has been revised to state that GHG emissions would occur under both Alternatives 1 and 2. The total GHG emissions under each alternative are quantified and later compared to Texas' annual GHG emissions (approximately 0.7 percent and 0.6 percent for Alternatives 1 and 2, respectively).

CC-3. The RDEIS (at 4-84) correctly notes that the "Total amount of GHG emissions that would occur over the 100-year life of the project represents approximately 0.7% of Texas' annual GHG emissions (641 million metric tons of CO₂ equivalent in 2013)," and Table 4.7-4 identifies estimated CO₂ equivalent figures for "lake inundation," "construction," "embodied in fabrication materials," and "power use." To supplement this discussion, NTMWD notes that specific types of sources under each of those categories are foreseeable. (The same comment applies to Table 4.7-5 and the related Alternative 2 in the RDEIS). For example, the types of sources that will emit GHGs and potentially contribute to climate change effects during construction include things like construction equipment. And the types of GHG-emitting sources that could create potential indirect effects include those associated with reservoir-induced recreation (cars, boats/personal watercraft, etc.) and development (construction equipment), and sources involved in the generation of electricity that will be used in the operation of project components (see reference Freese and Nichols, 2011b). **[CC: NTMWD1-17]**

Response: Specific examples of GHG emissions have been added to the text for each heading in Tables 4.6-4, 4.6-6, and 4.6-7. However, indirect GHG emissions from recreation at the reservoir (i.e., cars, boats, and personal watercraft) have not been quantified because of the uncertainty associated with the number of future users and emission sources used at the reservoir. As stated in Section 4.6.3.7, GHG emissions in the vicinity of the future reservoir would likely increase due to long-term local population growth, additional recreational visitors, increased vehicular usage and power generation, and general development in the lake vicinity.

CC-4. ES-10, Air Quality and Greenhouse Gas Emissions - Please see overall comments above on the analysis of GHG/climate change and update this section accordingly. **[CC: NTMWD1-28]**

Response: The Air Quality and Greenhouse Gas Emissions section of the Executive Summary has been updated to reflect all changes made to Sections 3.6 and 4.6.

CC-5. 3-90, Section 3.5.2, Greenhouse Gas Emissions - Please see overall comments above on the analysis of GHG/climate change. In addition, Chapter 4 of the RDEIS (at 4-84) correctly

recognizes that "GHG emissions from reservoir inundation includes the GHG that are currently being removed or sequestered by existing vegetation within the reservoir site, and, for the first 10 years, the GHG emitted by the biomass that would decompose after inundation as a result of conversion to permanently flooded land," but the discussion of GHGs in Chapter 3 does not provide information about the current removal/sequestration by existing vegetation. NTMWD recommends that USACE update the discussion in Chapter 3 of the Final EIS to include this information. To that end, the CO₂ uptake from existing vegetation at the project site is 4.776 million pounds CO₂eq per year (Freese and Nichols, 2011b). **[CC: NTMWD1-83]**

Response: A discussion about the current removal and sequestration of GHGs by existing vegetation in the reservoir footprint (approximately 4.776 million pounds of CO₂ equivalent per year) has been added to Section 3.6.2.

CC-6. 4-78 to 4-87, Section 4. 7 Air Quality and Greenhous Gas Emissions - Please see overall comments above on the analysis of GHG/climate change and revise this section as appropriate. **[CC: NTMWD1-126]**

Response: The changes mentioned in the responses to comments CC-1 through CC-5 have been made to all applicable sections of the FEIS.

CC-7. In the argument that NTMWD makes about greenhouse gasses and carbon emissions, a reservoir takes vegetation away forever. Vegetation helps to filter harmful gasses out of the environment. Why would the USACE believe any statements made by NTMWD with regard to greenhouse gasses and carbon emissions regarding this matter? **[CC: P8-4]**

Response: As shown in Section 4.6.3.7, under Alternative 1, initial impoundment of the water in Bois d'Arc Creek would account for approximately 1,018,000 tons of CO₂ equivalent emissions, much of which would be emitted in the first five to ten years after the dam was built. GHG emissions from reservoir inundation account for the GHGs that are currently being removed or sequestered by existing vegetation within the reservoir site, and, for the first 10 years, the GHGs emitted by the biomass that would decompose after inundation as a result of conversion to permanently flooded land.

CC-8. Long-term energy consumption and related CO₂ emissions from transporting and pumping water from a new supply source to NTMWD's System and service area will vary according to a project's location. For reservoir options, transfers, or groundwater, the additional GHG emissions will be proportional to the distance the source is from the System and NTMWD's service area and vary according to whether water needs to be pumped uphill for treatment or delivery. For desalination alternatives, construction and operation of a large-scale desalination facility would cause significant additional carbon emissions. **[CC: NTMWD3-12]**

Response: Section 4.6 presents the GHG impacts of each alternative analyzed in this FEIS and Tables 4.6-4, 4.6-6, and 4.6-7 present the estimated CO₂ equivalent emissions from power use during construction (i.e., generators) and

operation (i.e., pumping water through the pipelines) over the 100-year life of the project. The GHG analysis does not analyze the construction and operation of a desalination facility because these alternatives were considered and dismissed from further analysis (see Section 2.6 and Appendix O of the FEIS).

CULTURAL RESOURCES

CR-1. The History Programs Division, led by Justin Kockritz, has completed its review of the Revised Environmental Impact Statement and concurs with the findings in Chapters 3.14 and 4.16 that there are no architectural or above ground resources within the project's Area of Potential Effect that are listed in, or eligible for listing in, the National Register of Historic Places (NRHP) or as State Antiquities Landmarks (SALs). **[CC: THC-1]**

Response: The USACE acknowledges this comment and agrees with the Texas Historical Commission's (THC) concurrence of the findings in Sections 3.15 and 4.15.

CR-2. We concur with the United States Army Corps of Engineers (USACE) that the project will have adverse effects on archeological sites identified as historic properties (36 CFR 800.3(a)(1)). **[CC: THC-2]**

Response: The USACE acknowledges this comment and agrees with the THC's concurrence that the project will have adverse effects on archeological sites identified as historic properties. Appropriate mitigation measures would be required if determined necessary to offset impacts to archeological sites.

CR-3. In addition, we concur with the recommendations in Chapters 3.14 and 4.16 that additional archeological investigations should be conducted for sites that are **eligible** or of **undetermined** eligibility for listing on the NRHP or as SALs and that will be impacted by construction of the reservoir or any of the ancillary facilities, pipelines, or mitigation area. **[CC: THC-3]**

Response: The USACE acknowledges this comment and agrees with the THC's concurrence that the project will require additional archeological investigations for sites that are eligible or of undetermined eligibility for listing on the NRHP or as SALs and that will be impacted by construction of the reservoir or any of the ancillary facilities, pipelines, or mitigation site.

CR-4. Please revise the title of Table 3.14-2 to read "Historic Age Buildings and Structures". **[CC: THC-4]**

Response: The title for Table 3.15-2 has been revised in the FEIS as suggested.

CR-5. Please update the THC information in section 1.2.9; as of March 2017, there are nine governor-appointed commissioners and over 16,000 Texas Historical Markers. **[CC: THC-5]**

Response: The THC information numbers in Chapter 1, Section 1.2.9 have been updated in the FEIS as suggested.

CR-6. The narrative of the DEIS should indicate if a cultural resource assessment or investigation has occurred (or will occur) for the Upper Bois d' Arc Creek Mitigation Area. **[CC: RPWD-28]**

Response: A statement that cultural resource surveys and reviews of investigations will be conducted in the Upper Bois d'Arc Creek Mitigation Area per the PA has been added to Section 4.15.

CR-7. The Archeological studies are far from being in compliance with the proposed LBCR project's Programmatic Agreement. My Exhibit C, Comments on Revised DEIS for Lower Bois d' Arc Creek Reservoir submitted by Timothy K. Perttula, Ph.D., lists the areas that need further studies. Exhibit D is the cover letter from the Archeological Study done on my ranch by AR Consultants, Inc. The second page of the letter states: Additional testing should be conducted prior to construction of the proposed LBCR dam. These investigations should be conducted under a new antiquities permit and coordinated with the USACE, Caddo Nation of Oklahoma and the Texas Historical Commission in accordance with the LBCR project's Programmatic Agreement and research design. As of this writing no one has been back on my property to continue the Archeological studies. Until all Archeological Studies are fully complete no Section 404 can be permitted. **[CC: P17-32]**

Response: These archeological studies for the project are in-progress, and site identification/intensive surveys have been completed. These studies and reports are summarized in Appendix S of the FEIS. Additional archaeological NRHP testing will be conducted so that impacts to NRHP eligible properties may be assessed, adverse impacts identified, and mitigation plans prepared. Additional NRHP testing has already been recommended by the archaeologists, with additional recommendations by the USACE. The THC and Caddo Nation recommendations are forthcoming. Once received and approved by the USACE, Caddo Nation, and THC, NTMWD will submit a research design/Scope of Work for the additional testing for approval by the USACE, THC, and Caddo Nation.

Section 3.15.3, Cultural Resource Investigations, of the FEIS states that the Programmatic Agreement (PA) notes that Section 106 and its implementing regulation 36 CFR Part 800 require the Tulsa District to ensure both that historic properties are identified and documented, and that any adverse effects to those historic properties are evaluated and resolved prior to any disturbance to these properties. Because the effects of the proposed action on historic properties will not be fully determined prior to a decision of the proposed action, the PA will serve to fulfill the legal requirements of Section 106 of the NHPA by ensuring that adverse effects are identified and resolved prior to any ground disturbance or construction. The development and execution of the PA solidifies the agreement

between the USACE, the Caddo Nation, and the SHPO to accomplish the Section 106 process by implementing the PA in accordance with 36 CFR 800.6 and 36 CFR 800.14(b)(3).

CR-8. P. 3-146: It is not accurate to say that few sites diagnostic of Archaic are known in the region. There are 100s if not more than that recorded to date. Sedentism is not characteristic of the Late Archaic as stated in the RDEIS, but only beginning in the later Woodland period. **[CC: P19-1]**

Response: The USACE recognizes the commenter's concern. However, insufficient supporting data has been provided by the commenter. This information has been passed along to the archaeological contractor and the THC.

CR-9. P. 3-147: Very few structures have ever been excavated in the Woodland period, so impossible to accurately generalize about sedentary units or types of structures. The supposed 20 x 80 ft. structure in Lamar County is highly speculative; no final report has ever been prepared on the site that could be reviewed and evaluated by other archeologists. Coles Creek pottery was never shell-tempered; the DEIS is inaccurate on that point. Large scale maize production was only characteristic of post-AD 1200 times among the Caddo, not during the Early Caddo period. Sub-structural mounds are also present during the Early Caddo period, not just burial mounds. Middle Caddo period: "artifact assemblages" are not site types. Scallorn points are not part of Middle Caddo period tool kits. **[CC: P19-2]**

Response: While it is true the final report is still being finalized, the authors Alan Skinner and Elton Prewitt present this as their interpretation of the structure at the site. Generalized statements about the structures at the site are provided in Section 3.15.1.3 of the FEIS. Regarding large-scale maize production, this was wrongly stated in the LBCR 2014 final report, and Section 3.15.1.4 of the FEIS has been adjusted to explain that in the Early Caddo period, hunting and gathering subsistence strategies were supplemented by the cultivation of maize, squash, and several kinds of native seeds (Perttula 2004; Mahoney 2001). Regarding burial mounds, the text in Section 3.15.1.4 of the FEIS has been revised to state that sites include single structures and small villages, some of which contained associated platform/sub-structure burial mounds and/or burial mounds. Regarding "artifact assemblages" and Scallorn points, the text in Section 3.15.1.5 of the FEIS has been revised to state the lithic assemblages commonly seen in the Middle Caddo period includes Bonham and Morris arrow points, celts, and ground stone. Finally, regarding the Coles Creek pottery, the language in Section 3.15.1.3 of the FEIS related to Coles Creek ceramics has been revised to include shell tempered ceramics and decorated Coles creek ceramics.

CR-10. P. 3-147: Perttula (2001) never discussed Osage invasions occurring in the Late Caddo period. In the 18th century there were conflicts but it is inaccurate to refer to these as

"invasions". Half of the discussion for the Late Caddo period should be moved to the Contact period or the Historic Caddo period. **[CC: P19-3]**

Response: The text in Section 3.15.1 has been revised in the FEIS as appropriate.

CR-11. P. 3-148: All of the Contact Period discussion should be included in the Late Caddo period discussion, based on chronology. **[CC: P19-4]**

Response: The text in Section 3.15.1 has been revised in the FEIS as appropriate.

CR-12. P. 3-152: Shell-tempered pottery indicative of Historic Caddo has also been found at the Harling site. **[CC: P19-5]**

Response: The text in Section 3.15.1 has been revised in the FEIS as appropriate.

CR-13. P. 3-158: Excavating shovel tests at 75-100m intervals is a completely inadequate way in which to identify cultural resources. **[CC: P19-6]**

Response: The methodology used to identify cultural resources, as outlined in Section 3.15.3.3, Field Survey Methodology, was approved by the THC as meeting standards for the state of Texas. Shovel tests on adjacent transects were staggered, which creates smaller intervals between shovel tests. The Field Survey Methodology was approved by all signatories.

CR-14. P. 3-160: The most basic attribute that should be determined in Northeast Texas ceramic analysis is temper. The DEIS does not indicate if this was done, which would be a serious shortcoming if it was not. **[CC: P19-7]**

Response: As discussed in Section 3.15.3.3, Field Survey Methodology, temper, as an attribute, was included in the ceramic analyses.

CR-15. P. 3-162: The proper language is "not eligible for inclusion" in the NRHP, not "eligible for listing". **[CC: P19-8]**

Response: The USACE disagrees with this statement. USACE archeologists have confirmed that both of these phrases used to describe NRHP eligibility are acceptable.

CR-16. P. 3-180 Table 3.14-8: 41LR2 is the Sanders site, and it is more than an artifact scatter. It is an extensive (+200 acres) village with mounds, habitation features, and Caddo cemeteries. How is a site in Lamar County included in the Fannin County Riverby Ranch Mitigation area?

How many acres of the Sanders site are included in the Riverby Ranch mitigation area? **[CC: P19-9]**

Response: The exact location of the Sanders site (41LR2) is unknown within the Wetlands Reserve Program (WRP), and the site itself consists of a very large area with some portion of the site extending across the creek into the WRP property which is part of the Riverby Ranch mitigation site. There is some evidence that shows that one of the sites within the Sanders site could extend into the WRP property; however, the bulk and core of the site is located on private property. Nonetheless, there would be no impacts on the 41LR2 site from the proposed project or mitigation. Table 3.15-8 in Section 3.15.7 identifies the Sanders site.

CR-17. P. 3-180 Table 3.14-8: 41LR2 is more than an artifact scatter, but also has Caddo burial features. The level of protection for this site should be substantial to protect it from looting activities. **[CC: P19-10]**

Response: Individual site descriptions for each of the archeological sites listed in Table 3.15-7 and 3.15-8 (which includes 41LR2) are located in Appendix S of the FEIS. This site is in the WRP and would not be impacted by proposed LBCR mitigation activities. Looting is always a concern regarding cultural sites, however, the exact location of the 41LR2 site within the WRP is unknown, and the archeologists were not allowed to test for it within the WRP. The WRP has restrictions that would protect both locations thought to be at the site, and subsequently, there will be no impacts from the proposed project or the mitigation efforts on the 41LR2 site or near the landform thought to be the actual location.

CR-18. p. 3-184: The DEIS should provide the determinations of the USACE, THC, and Caddo Nation regarding the NRHP status of each site on the Riverby Ranch Mitigation area. **[CC: P19-11]**

Response: A discussion of individual sites evaluated for eligibility for listing on the NRHP in the Riverby Ranch mitigation site is included in Appendix S of the FEIS. Final determinations for eligibility for listing on the NRHP have not been made because the NRHP testing is not complete. All work at the Riverby Ranch mitigation site is being completed as per the process set forth in the PA, and is conducted in compliance with Section 106 of the NHPA.

CR-19. General Comment for Section 4, Cultural Resources: how much of the APE actually received an archeological survey, 5000 acres? Under Alternative 1 (ca. 16,640 acres) or Alternative 2 (ca. 8600 acres), there is a very low density of archeological sites identified in the APE: 31 sites in Alternative 2 (1 site per 277 acres) and 58 in Alternative 1 (1 site per 293 acres). Typical surveys in East Texas encounter site densities 5-10 times higher than is the case with the Lower Bois d'Arc survey. This low density is surely the product of the fact that only 30 percent (letter from Andrew Commer of October 27, 2015 to Dr. Timothy K. Perttula) of the APE ever

received an archeological survey. Colleagues and I (Perttula et al. 2016) surveyed a small portion of the APE that was never surveyed for the COE, and we found four previously unrecorded sites. I suspect that if a larger percentage of the APE was or had been rigorously surveyed, at least 40-50 new sites would be found that would need NRHP evaluation by the COE. That this was not done raises considerable doubts about the adequacy of the archeological survey under Section 106 of the NHPA to identify sites with NRHP potential. **[CC: P19-12]**

Response: While the Sanders site (41LR2) is considered to be an East Texas site, it has always been described as a marginal area in the western most extent of the cultural area, so the site density should not be compared to what is found in other watersheds in the Caddo heartland of East Texas. In addition, the area surveyed by the commenter was originally included in the survey areas to be surveyed by ARC, but access was denied by the landowner. Access was granted to the commenter before it was granted to ARC (through NTMWD). Once access was granted to ARC, work began at this location and additional sites were recorded (including sites not identified by the commenter). The USACE does not believe it is accurate to base site density on this area, as this area had been included in the originally identified high potential areas. These sites would have been identified in the original survey had access been granted at that time. Additionally, the survey conducted by ARC was augmented with 40 miles of creek bank survey. The identification of sites in an area which was previously identified as a high potential area in the research design and scope of work, but which was previously inaccessible, supports the methodology of identifying high potential areas for survey.

CR-20. p. 4-170, Table 4.14-1: This table notes that "some sites already subject to extensive testing." When was this testing done and have the results been made available for public review and comments? Reading p. 4-172 suggests that no sites have been tested to evaluate their NRHP eligibility, which they certainly should be before the reservoir is constructed. **[CC: P19-13]**

Response: The testing referred to in Table 4.15-1 occurred during the extensive archeological surveys completed for all portions of the project area of potential effect (APE) as described in Section 4.15. The results of this testing have been included in Appendix S of the FEIS. Additional testing is included in a separate report which is currently under review by the USACE, and coordination with the Caddo Nation and the THC has not yet been completed. Additional testing will be conducted as warranted for NRHP eligibility determinations at the Riverby Ranch mitigation site.

The PA guides the cultural resources work on a timeline separate from that of the permit. As discussed in Section 3.15.3, the PA notes that Section 106 and its implementing regulation 36 CFR Part 800 require the Tulsa District ensure both that historic properties are identified and documented, and that any adverse effects to those historic properties are evaluated and resolved prior to any

disturbance to these properties. Because the effects of the proposed action on historic properties will not be fully determined prior to a decision on the proposed action, the PA will serve to fulfill the legal requirements of Section 106 of the NHPA by ensuring that adverse effects are identified and resolved prior to any ground disturbance or construction. The development and execution of the PA solidifies the agreement between the USACE, the Caddo Nation, and the SHPO to accomplish the Section 106 process by implementing the PA in accordance with 36 CFR 800.6 and 36 CFR 800.14(b)(3).

CR-21. p. 3-168, cont., Table 3.14-4 and p. 4-172: The text is not up to date on the number of sites within the APE. Overlooked are 41FN176-179. Information on these sites was provided to Andrew Commer the COE in August 2015 (and acknowledged by Commer in an October 27, 2015 letter to Dr. Timothy K. Perttula). The findings from the survey of H. D. Witcher lands was also published in 2016 (Perttula et al. 2016) in Vol. 66 of the Journal of Northeast Texas Archaeology. These sites, and the evaluation of their NRHP status, need to be added to the Final EIS. **[CC: P19-14]**

Response: The Witcher property was not surveyed until the survey of the rest of the reservoir footprint was completed because access was denied by the owner (Mr. Witcher). The archaeologists working for NTMWD have since been granted access to the site, and Timothy K. Perttula's work is summarized and referenced in a separate report of investigations on the Witcher property titled "Archaeological Investigations at the Witcher Property within the Lower Bois d'Arc Creek Reservoir" which is currently under review by the USACE, and coordination with the Caddo Nation and the THC has not yet been completed. ARC revisited and shovel tested the sites identified by Perttula and identified a large site on the property which was not identified by Perttula. All surveys and data available will be included in any decisions or actions that may involve cultural resources.

Section 3.15.3, Cultural Resource Investigations, of the FEIS states that the Programmatic Agreement (PA) notes that Section 106 and its implementing regulation 36 CFR Part 800 require the Tulsa District to ensure both that historic properties are identified and documented, and that any adverse effects to those historic properties are evaluated and resolved prior to any disturbance to these properties. Because the effects of the proposed action on historic properties will not be fully determined prior to a decision of the proposed action, the PA will serve to fulfill the legal requirements of Section 106 of the NHPA by ensuring that adverse effects are identified and resolved prior to any ground disturbance or construction. The development and execution of the PA solidifies the agreement between the USACE, the Caddo Nation, and the SHPO to accomplish the Section 106 process by implementing the PA in accordance with 36 CFR 800.6 and 36 CFR 800.14(b)(3). This and any other issues pertaining to cultural resources will be resolved according to the PA.

CR-22. p. 4-172-4.173: Has the report on the Riverby Ranch archeological investigations been made available for public review and comments? As a member of the public and an interested person, I request a copy of the Davis et al. 2016 report be provided to me by the COE-Tulsa District. **[CC: P19-15]**

Response: The Riverby Ranch mitigation site report is under USACE review, and coordination with the Caddo Nation and THC has not yet been completed. Therefore, a final report for the Riverby Ranch mitigation site is not yet available to the public. Furthermore, archaeological site information from draft reports is protected information, and site location information is not made available to the public. The purpose of providing the site description in this FEIS is to allow for appropriate public comment on that information as part of the public review of the FEIS.

CR-23. p. 4-176: The Revised DEIS should provide specific information on the findings of evaluative testing of archeological sites in each Alternative area. **[CC: P19-16]**

Response: The text in Sections 4.15.2 and 4.15.3 has been revised to include the findings and evaluations of site information that were available at the time of publication of the FEIS.

CR-24. Table 4.14-2: 41 FN 14 on this table is actually 41 FN140. This table also needs to include information on 41FN176-179, as these sites occur in the APE. **[CC: P19-17]**

Response: Table 4.15-2 has been updated as requested by the commenter. Site 41FN179 was plotted erroneously, was not field verified by Timothy Pertulla's crew, and could not be officially located. Therefore, no eligibility recommendation can be made for the site at this time. Additional attempts to locate the 41FN179 site were made on NTMWD property adjacent to the Witcher property, but no site was located in the reported area. The report of investigations on the Witcher property titled "Archaeological Investigations at the Witcher Property within the Lower Bois d'Arc Creek Reservoir" is still under review by the USACE and is not final.

Section 3.15.3, Cultural Resource Investigations, of the FEIS states that the Programmatic Agreement (PA) notes that Section 106 and its implementing regulation 36 CFR Part 800 require the Tulsa District to ensure both that historic properties are identified and documented, and that any adverse effects to those historic properties are evaluated and resolved prior to any disturbance to these properties. Because the effects of the proposed action on historic properties will not be fully determined prior to a decision of the proposed action, the PA will serve to fulfill the legal requirements of Section 106 of the NHPA by ensuring that adverse effects are identified and resolved prior to any ground disturbance or construction. The development and execution of the PA solidifies the agreement between the USACE, the Caddo Nation, and the SHPO to accomplish the Section 106 process by implementing the PA in accordance with 36 CFR 800.6

and 36 CFR 800.14(b)(3). This and any other issues pertaining to cultural resources will be resolved according to the PA.

CR-25. No attempt has been made to investigate the most well documented Caddo burial site in the area, one that goes to the edge of the creek. **[CC: P3-3]**

Response: The Caddo burial site mentioned by the commenter along the edge of the creek is the Sanders site (41LR2), which would not be impacted by the proposed project or mitigation. The site has been studied previously and information about the site is included in the Archeology reports for the Riverby Ranch mitigation site that are still under review by the USACE, and coordination with the Texas Historical Commission and Caddo Nation is not complete. A summary of the information in these reports is provided in Appendix S of the FEIS.

CR-26. ES-14 The Area of Potential Effect (APE) as described does NOT seem to include the creek beds and banks downstream of the dam. Because the Dam will obviously change the flow of the creek all the way to its joining with the Red River, the APE must be written so that the banks and beds of the creek ARE included as APE. **[CC: P3-6]**

Response: The APE for the project (included in the PA) is described in Section 3.15.3.2 and consists of the reservoir proposed footprint itself, up to the elevation of the planned top of flowage easement (elevation 541 feet msl at the crest of the emergency spillway), as well as the planned location of the dam and all associated construction and staging areas, the planned North WTP, the pipeline from the new water treatment facility to the discharge point into Pilot Grove Creek, all raw water pipelines between the reservoir and associated existing water treatment facilities, lands manipulated for impact mitigation, plus the full horizontal and vertical extent of any identified cultural or historic resources intersected by or adjacent to any of the above listed project component boundaries and associated impact areas. The PA was agreed upon and signed by the USACE, Caddo Nation, and THC.

CR-27. This is the ONLY time 41LR2 is mentioned anywhere in the RDEIS. This archeological site is on our farm, yet NO ONE FROM NTMWD HAS EVER ASKED TO COME SEE IT. Now read below all that the report says about Cultural Investigations and sites "eligible for listing on NRHP". Furthermore, years of archeological investigations shows that this well-known site goes all the way to the banks of the creek. If the creek banks will be altered in anyway with the new flows, then this site will be impacted. This is why the APE needs to include all downstream creek beds. **[CC: P3-14]**

Response: The APE for the project (included in the PA) is described in Section 3.15.3.2, and consists of the reservoir proposed footprint itself, up to the elevation of the planned top of flowage easement (elevation 541 feet msl at the crest of the emergency spillway), as well as the planned location of the dam and

all associated construction and staging areas, the planned North WTP, the pipeline from the new water treatment facility to the discharge point into Pilot Grove Creek, all raw water pipelines between the reservoir and associated existing water treatment facilities, lands manipulated for impact mitigation, plus the full horizontal and vertical extent of any identified cultural or historic resources intersected by or adjacent to any of the above listed project component boundaries and associated impact areas. The PA was agreed upon and signed by the USACE, Caddo Nation, and THC. The Sanders site (41LR2) would not be impacted by the proposed project or mitigation. The site has been studied previously and information about the site is included in the Archeology reports for the Riverby Ranch mitigation site that are still under review by the USACE, and coordination with the THC and Caddo Nation is not complete. A summary of the information in these reports is provided in Appendix S of the FEIS.

Regarding the discussion presented by the commenter that the report says "eligible for listing on the NRHP," this was the final determination which occurred during the Keystone Study by SWCA. The USACE has not reached a final determination of NRHP eligibility for sites on Riverby Ranch as discussed in Section 3.15.7. The ongoing USACE work at the Riverby Ranch site is to identify additional sites to aid in making eligibility recommendations for other sites. Table 3.15-7 documents newly recorded archaeological sites within the Riverby Ranch mitigation area and makes eligibility recommendations and/or recommendations for further testing.

CR-28. 3.14.3 Brief description of the "Goss Plantation on the Bois d'Arc Creek. It mentions an archeological site 41LR2, but not 41LR2. Any researcher worth his/her salt would have also discovered this land is now owned by our family, and that we have had ongoing archeological investigations for the past 5 years, most of which have been published in the Journal of Northeast Texas Archeology. In addition, any researcher who did any investigations would know this site 41LR2 is known as the Sander Site. **[CC: P3-15]**

Response: The APE for the project (included in the PA) is described in Section 3.15.3.2 and consists of the reservoir proposed footprint itself, up to the elevation of the planned top of flowage easement (elevation 541 feet msl at the crest of the emergency spillway), as well as the planned location of the dam and all associated construction and staging areas, the planned North WTP, the pipeline from the new water treatment facility to the discharge point into Pilot Grove Creek, all raw water pipelines between the reservoir and associated existing water treatment facilities, lands manipulated for impact mitigation, plus the full horizontal and vertical extent of any identified cultural or historic resources intersected by or adjacent to any of the above listed project component boundaries and associated impact areas. The PA was agreed upon and signed by the USACE, Caddo Nation, and THC. The Sanders site (41LR2) would not be impacted by the proposed project or mitigation. The site has been studied previously and information about the site is included in the Archeology reports for

the Riverby Ranch mitigation site that are still under review by the USACE, and coordination with the THC and Caddo Nation is not complete. A summary of the information in these reports is provided in Appendix S of the FEIS.

CR-29. I asked the USACE three times to be considered as an interested party to this PA. I was denied, told that the “scope of impact to my land wasn't enough”. Page 3-154 This page of the report is one of the most disturbing in that it says that “The Bois d'Arc Creek and Red River drainages in northeastern Texas were occupied by ancestors of the Caddo Nation, and thus may retain historic properties of importance to this nation.” **[CC: P3-16]**

Response: The land referenced by the commenter was not included in the EIS because it is not located in the APE and would not be impacted by the proposed project. The APE for the project (included in the PA) is described in Section 3.15.3.2 and consists of the reservoir proposed footprint itself, up to the elevation of the planned top of flowage easement (elevation 541 feet msl at the crest of the emergency spillway), as well as the planned location of the dam and all associated construction and staging areas, the planned North WTP, the pipeline from the new water treatment facility to the discharge point into Pilot Grove Creek, all raw water pipelines between the reservoir and associated existing water treatment facilities, lands manipulated for impact mitigation, plus the full horizontal and vertical extent of any identified cultural or historic resources intersected by or adjacent to any of the above listed project component boundaries and associated impact areas. The PA was agreed upon and signed by the USACE, Caddo Nation, and THC.

CR-30. May? May retain historic properties of importance? See above where it states “41LR2 is eligible for listing in NRHP.” 41LR2 is a nationally recognized Caddo Indian burial site and village. This location is undeniably one of historic importance. To read the RDEIS one would think they didn't now 41LR2 was alongside the creek. It would appear this is precisely what the authors would want someone to believe. When in fact there ARE historic properties. This was total misdirection on the author's part. **[CC: P3-17]**

Response: The APE for the project (included in the PA) is described in Section 3.15.3.2 and consists of the reservoir proposed footprint itself, up to the elevation of the planned top of flowage easement (elevation 541 feet msl at the crest of the emergency spillway), as well as the planned location of the dam and all associated construction and staging areas, the planned North WTP, the pipeline from the new water treatment facility to the discharge point into Pilot Grove Creek, all raw water pipelines between the reservoir and associated existing water treatment facilities, lands manipulated for impact mitigation, plus the full horizontal and vertical extent of any identified cultural or historic resources intersected by or adjacent to any of the above listed project component boundaries and associated impact areas. The PA was agreed upon and signed by the USACE, Caddo Nation, and THC. The Sanders site (41LR2) would not be impacted by the proposed project or mitigation. The site has been studied previously and information about the site is included in the Archeology reports for

the Riverby Ranch mitigation site that are still under review by the USACE, and coordination with the THC and Caddo Nation is not complete. A summary of the information in these reports is provided in Appendix S of the FEIS. The text in Section 3.15.7 has been revised to clearly discuss the fact that historic properties of importance are located at 41LR2. The paragraph has also been revised to more clearly delineate the location of 41LR2.

CR-31. Report has already stated 41LR2 is eligible for NRHP, yet NO ONE has ever contacted us for info on this site, or to come investigate it. **[CC: P3-18]**

Response: See response to comment CR-30.

CR-32. Page 3-156 Under Sample Methodology, it states “To develop the approach for the survey methods, it was assumed that certain areas are intrinsically more likely to have intact cultural resources and deposits” Yes, they are on our property, 41LR2. And since this settlement extended all the way to the creek, where the Caddos would have washed their food, cooked their game, etc., it makes sense that their Sample Methodology would have led them to our land to investigate. Yet no one has even called to come look. **[CC: P3-19]**

Response: See response to comment CR-30.

CR-33. Page 3-158 Report states “Field methods were designed to gather baseline information and data related to the location and recording of cultural resources within the survey areas for the purpose of making a preliminary assessment of NRHP eligibility”. Once again, no one has contacted us about the site they already say is eligible for NRHP. **[CC: P3-20]**

Response: See response to comment CR-30.

CR-34. I personally know Dr. Skinner. He has on several occasions asked if he could come survey the Sanders Site. He knows of its historical significance. In fact, I have asked him why he wasn't already asked to come look at it as part of the LBCR project. He indicated he hasn't been instructed to, which is a mystery to him. **[CC: P3-21]**

Response: See response to comment CR-30.

CR-35. Why is Lamar County, which is half of the Bois d'Arc Creek banks, ignored in the investigations? **[CC: P3-22]**

Response: A portion of Riverby Ranch extends across Lower Bois d'Arc Creek into Lamar County and is thus included in the APE. The APE includes lands manipulated for impact mitigation. Channel and riparian work is proposed as part of the mitigation plan for a stream within the Lamar County portion of Riverby Ranch which is outside the WRP. However, the 50-foot forested riparian buffer strip on each side of this stream is included in the Scope of Work for the archaeological survey associated with the WRP. The remainder of the area in

Lamar County is identified as Old Field in the NTMWD mitigation plan and will not be disturbed. Although there is some portion of Lamar County that is in the APE, it is a small portion, and the USACE plans to do due diligence and conduct appropriate surveys, to ensure that none of the work would be in what the USACE believes to be the Sanders (41LR2 site). Based on the information the USACE has, there would be no proposed work on the WRP site and there would be no impacts to the 41LR2 site.

CR-36. If land 70 feet across a creek merits research and investigation, then why isn't a documented Caddo site like 41LR2 worthy of research just because it is in an adjoining county? **[CC: P3-23]**

Response: See response to comment CR-30.

CR-37. It is again, imperative that someone shows some interest in the elephant in the room, 41LR2, which is just across the creek from Riverby. **[CC: P3-24]**

Response: See response to comment CR-30.

CR-38. Page 5.6.13 Report states "The study area for the cumulative cultural resource effects assessment consists of Fannin County. Again, recall they have admitted that 41LR2 is eligible for NRHP. Yet there is a continue refusal to acknowledge this. It would seem no one wants to admit they need to research the Sander Site. **[CC: P3-26]**

Response: The site has been studied previously, and information about the site is included in the archaeology reports for the Riverby Ranch mitigation site that are still under review by the USACE, and coordination with the THC and Caddo Nation is not complete. Although some portions of the site extend into the Riverby Ranch mitigation areas, there would be no impacts on the 41LR2 site from the proposed project or mitigation. A summary of the information in these reports is provided in Appendix S of this FEIS.

CR-39. My understanding is that NTMWD would have to move cemeteries that will be under the 534' elevation. In this case, is it federal law that all closest remaining relatives be asked for approval to move the bodies? **[CC: P9-10]**

Response: Section 3.15.3.3, Field Survey Methodology discusses that NTMWD will move cemeteries that are under the 534 feet msl elevation in accordance with all requirements and stipulations outlined in the Texas Health and Safety Code.

CUMULATIVE IMPACTS

CUM-1. To provide important context in the Final EIS, the Introduction to Chapter 5 should make clear that the actions (existing/current or proposed) qualifying for inclusion in the

cumulative impacts analysis are those that: (1) affect a resource or resources potentially affected by the proposed project; (2) cause the impact within all, or part of the project area's zone of impacts; and (3) cause this impact within all, or part, of the timespan for the potential impact from the proposed action. **[CC: NTMWD1-131]**

Response: The USACE agrees that the comment provides important context and has added the commenter's suggested language to Section 5.0 of Chapter 5, Cumulative Impacts.

CUM-2. 5-1, Section 5.1, Introduction - NTMWD recommends that USACE revise the last sentence of the first paragraph of this section to state that "The analysis should look at other actions that have affected or could affect the same resources as the proposed action and alternatives." **[CC: NTMWD1-132]**

Response: The USACE agrees with the commenter's recommendation and has revised the last sentence of the first paragraph in Section 5.0 of Chapter 5, Cumulative Impacts.

CUM-3. 5-7, Section 5.3, Overview of Proposed New Reservoirs in Region and State- Please note that George Parkhouse North and George Parkhouse South are not recommended strategies in the 2017 State Water Plan. These are alternate strategies. An alternate strategy is one that may be implemented if a recommended strategy could no longer be developed. For example, if plans for Marvin Nichols are abandoned, a provider may choose to pursue one of the Parkhouse reservoirs. In no scenario would all three reservoirs be built, however. Also, Lake Ringgold is a proposed reservoir in the Red River Basin, but that reservoir is not mentioned in the text. The four reservoirs in the Red River Basin shown on Figure 5.3-1 include Ringgold, LBCR, Lake Ralph Hall (Sulphur), and Marvin Nichols (Sulphur). Please revise the text to clarify this. **[CC: NTMWD1-133]**

Response: Section 5.2, Overview of Proposed New Reservoirs in Region C and the State, has been revised in the FEIS for clarity regarding Marvin Nichols, George Parkhouse North, and George Parkhouse South. Lake Ringgold is not included because it is neither in Region C nor HUC 111401.

CUM-4. 5-9 to 5-10, Section 5.4.1, Lake Bonham- In the interest of ensuring that the Final EIS is comprehensive, NTMWD recommends that USACE specifically discuss the impacts of Lake Bonham construction and operation that could contribute to cumulative impacts. While USACE identifies Lake Bonham in Table 5.6-1, we suggest that it be discussed in the text here as well. **[CC: NTMWS1-134]**

Response: Each past action in this section (now Section 5.3), not just Lake Bonham, has been expanded to include a brief discussion of which specific impacts potentially contribute to cumulative impacts.

CUM-5. 5-11, Section 5.4.1, TransCanada Gulf Coast Pipeline Project - Please update the discussion to reflect that the Presidential Permit has now been issued. In addition, NTMWD recommends that USACE discuss potential impacts from pipeline maintenance that could contribute to cumulative impacts in the region. USACE identifies this in Table 5.6-1 of the RDEIS, so NTMWD recommends that it incorporate a corresponding discussion in this section as well. **[CC: NTMWD1-135]**

Response: Section 5.3.1.9, TransCanada Gulf Coast Pipeline Project, has been revised in the FEIS to reflect issuance of the permit. Impacts from pipeline maintenance that could contribute to cumulative impacts are included in Chapter 5.

CUM-6. 5-13 to 5-14, Section 5.5.1, Lake Ralph Hall- In the discussion of Lake Ralph Hall, USACE states that "the current construction timeframe for LRH is estimated to occur between 2025 and 2030. This would be subsequent to the proposed construction of LBCR. It is thus likely that both projects would not be built concurrently. The impacts of Lake Ralph Hall that could contribute to cumulative impacts in the region are shown in Table 5.5-1." NTMWD notes that, irrespective of their different schedules, the two reservoirs would have cumulative effects, as the RDEIS recognizes. Accordingly, NTMWD suggests that USACE specify in the Final EIS what "short term" effects it is referring to that now will be avoided by the offset schedules. **[CC: NTMWD1-136]**

Response: Section 5.3.2.1, Lake Ralph Hall, has been revised in the FEIS to indicate examples of short-term effects that would be avoided by the offset schedules.

CUM-7. 5-14, Section 5.5.1, Lake Ralph Hall, Table 5.5-1- This table needs to be updated to reflect a firm yield of the Alternative 1 Reservoir of 120,665 acre-feet per year. **[CC: NTMWD1-137]**

Response: This change has been made to this table (which is now Table 5.3-1) in the FEIS.

CUM-8. 5-15, Section 5.5.4, Reasonably Foreseeable New, Nearby Reservoir Projects in Red River Basin- As discussed above, it is unlikely that all three identified reservoirs in the Sulphur River Basin (Marvin Nichols, Parkhouse North and Parkhouse South) will be constructed. Because Parkhouse North and Parkhouse South are only alternative strategies if the planned Marvin Nichols Reservoir ultimately is not developed, it is incorrect to analyze the Parkhouse reservoirs as reasonably foreseeable in combination with Marvin Nichols. In addition, as noted above, Lake Ringgold is reasonably foreseeable. Given its location upstream of Lake Texoma, however, USACE might not consider it to be "nearby." That said, it is located in the Red River Basin. **[CC: NTMWD1-138]**

Response: Although Parkhouse North and Parkhouse South are alternate strategies, it is appropriate to include them in the possible future projects that

could contribute to cumulative impacts, even though it is unlikely that all three would be constructed. Section 5.3.2.2 has been revised to clarify that these two sites are alternatives to Marvin Nichols and that it is highly unlikely that all three would be built. Lake Ringgold is outside of HUC 111401, the geographic area for cumulative impacts on waters and wetlands, so it has not been included.

CUM-9. 5-16 to 5-17, Section 5.5.4, Reasonably Foreseeable New, Nearby Reservoir Projects in Red River Basin - In the RDEIS discussions of George Parkhouse Lake (North) and (South), USACE states that each of those projects "would also contribute to its own set of cumulative effects." Please clarify what this means. **[CC: NTMWD1-139]**

Response: These sentences have been deleted from the FEIS.

CUM-10. 5-20, Section 5.6.3, Water Resources and Surface Water Hydrology- The RDEIS's discussion of Water Resources indicates that the "study area for cumulative effects on surface water hydrology and water quality includes the reach of Bois d'Arc Creek downstream of the project alternatives and the segment of the Red River at the confluence with Bois d'Arc Creek. The operation of the project alternatives in combination with the operation of the actions shown in Table 5.6-1 were selected for the cumulative effects assessment because the combined impact of these projects (changes in Red River flows and resulting impacts on surface water hydrology and water quality) may be measurable near the confluence of the Red River with Bois d'Arc Creek." NTMWD agrees that this is a reasonable study area, but notes that the analysis in Surface Water Hydrology focuses more broadly on Region C. Please clarify the relationship between the two. **[CC: NTMWD1-140]**

Response: Most of the text and discussion in this section is focused on the stated study area. Region C, the Texas water supply planning region in which Bois d'Arc Creek and Fannin County are located, is cited by way of comparison.

CUM-11. 5-21, Section 5.6.3, Surface Water Hydrology - In the discussion of Water Supply Availability Downstream, the RDEIS correctly concludes that "Cumulative impacts from all actions, including mining and hydraulic fracturing for shale-gas production, are not likely to cause water supply shortages." But the text of the RDEIS does not appear to include baseline information about the prevalence of these activities in the area or their potential individual effects on water supply availability. Please include that information in the Final EIS if USACE continues to believe that is relevant to the cumulative impacts analysis. **[CC: NTMWD1-141]**

Response: Hydraulic fracturing was addressed more extensively in the cumulative impacts chapter of the 2015 DEIS compared to the 2017 RDEIS. The DEIS generally concluded that it was not a significant problem for water supply in the region or along the Red River, and for that reason, the discussion was largely eliminated from the 2017 RDEIS.

Section 5.4.3.1, Surface Water Hydrology has been revised in the FEIS to remove reference to mining and hydraulic fracturing since these two activities are

not a significant issue in the study area. The conclusion now refers only to the other activities presented in Section 5.3, Actions Considered in Cumulative Impacts Analysis.

CUM-12. 5-26, Section 5.6.4, Overview of Cumulative Effects - There is no information in the administrative record or elsewhere that in any way supports the suggestion in the RDEIS that any farmland or woodland species that occur in the county could experience extirpation. Please correct this misstatement. **[CC: NTMWD1-142]**

Response: The statement has been corrected and the word 'extirpation' removed from this sentence in the FEIS.

CUM-13. Further examination of these issues could potentially change conclusions reached in Chapter 4 -- Environmental Consequences and, by extension, the Cumulative Effects assessed in this chapter. **[CC: TPWD-18]**

Response: The commenter is referring to issues regarding biological resources. The USACE has revised Chapter 5 of the FEIS, Cumulative Effects, to reflect revisions made to Chapter 4, Environmental Consequences, for all resource topics.

CUM-7-2015. These organizations request that the application of North Texas Municipal Water District (NTMWD) to construct Lower Bois d'Arc Creek Reservoir be denied for the following reasons: A)The application on which this DEIS is based is deficient in providing adequate information for the analysis required, because it fails to assess adequately downstream impacts and other environmental impacts. **[CC: TCA1-4]**

Response: Downstream impacts are discussed throughout Chapter 4 of the EIS; for example, Sections 4.5.2 and 4.5.3 discuss downstream impacts on aquatic habitats and aquatic biota, as well as other biological resources. The comment does not suggest what is specifically deficient about the impact analyses, so the USACE cannot specifically respond.

CUM-8-2015. The appropriate public interest review would show that a balancing of all the actual beneficial and detrimental factors relevant to the proposal requires denial of the application, for the following reasons: the proposed project will cause significant destruction and degradation of waters of the United States, including significant bottomland hardwoods, wetlands and open waters, and the Applicant has not proposed adequate mitigation for such impacts. The adverse impacts are known and unacceptable, and are created by the reservoir project individually and in combination with the impacts of related infrastructure, including pipelines and the cumulative impacts of past and future reservoir projects in the region. **[CC: TCA1-9]**

Response: The USACE acknowledges that the proposed action would eliminate existing forested wetlands and other wetland types within the reservoir footprint.

However, over the long term, implementation of the compensatory mitigation plan (see Appendix C) should result in no net loss of wetlands and should compensate for the loss of other waters of the U.S. There are no other foreseeable reservoir projects within the region at this time.

Little or no contribution to cumulative adverse impacts on waters and wetlands in the region as a whole is anticipated under Alternatives 1 and 2 (with mitigation) or the No Action Alternative. There would be no net loss of wetlands, in keeping with national policy.

DATA AND REFERENCES

DAT-1. The references in Appendix N do not appear to be consistent with the references in Chapter 1 and should be updated to be consistent with the Chapter 1 references, or Appendix N should have a standalone reference section. **[CC: NTMWD1-35]**

Response: A standalone reference section has been provided for Appendix N in the FEIS.

DAT-2. 3-1, Section 3.0, Affected Environment- In the last sentence of the last paragraph on this page, NTMWD recommends clarifying that only one RGA analysis was conducted for the Proposed Action and that it was then further supplemented with additional data collection. **[CC: NTMWD1-63]**

Response: The clarification that only one Rapid Geomorphic Assessment (RGA) analysis was conducted for the proposed action and that it was further supplemented with additional data collection has been made in the FEIS.

DAT-3. 3-3, Section 3.0, Affected Environment - In the first bullet, NTMWD recommends including the reference for the Instream Flow Study (IFS) Supplemental Data report in the reference (Freese and Nichols, 2010b). Both reports are included in Appendix M of the RDEIS. **[CC: NTMWD1-64]**

Response: A reference to the IFS Supplemental Data report has been added to the bulleted list.

DAT-4. 3-15, Section 3.2.2, Proposed Raw Water Pipeline Routes, WTP, and TSR- The reference to Freese and Nichols report (2013b) is the Preliminary Jurisdictional Determination (PJD) for the pipeline. This report should be included as Appendix I to the Final EIS rather than the AP AI report that was included as Appendix I to the RDEIS. A copy of this 2013 Freese and Nichols report is included as Attachment D to these comments for reference and use in Appendix I to the Final EIS. **[CC: NTMWD1-65]**

Response: The 2013 Freese and Nichols report has been included as Appendix I to the FEIS.

DAT-5. Appendix F fails to include TCEQ's first set of technical memoranda on the Reservoir Water Rights Permit from November 2013 that was provided to USACE via email on June 13, 2016. NTMWD recommends these memoranda also be included in Appendix F. **[CC: NTMWD1-143]**

Response: These technical memoranda have been included in Appendix F in the FEIS.

DAT-6. NTMWD recommends adding a reference list to Appendix N because the references in the Appendix do not correspond to the references in Chapter 6 of the RDEIS. Alternatively, the references in Appendix N should be revised to correspond to the references in Chapter 6 of the RDEIS. **[CC: NTMWD1-144]**

Response: A standalone reference section has been provided for Appendix N in the FEIS. References in Appendix N were revised as necessary to correspond to the references in Chapter 6 of the FEIS.

DAT-7. Design Report for LBCR Raw Water Pipeline. See this report. **[NTMWD5-1]**

Response: The USACE appreciates the submission of this information. It has been included as an appendix to the FEIS.

DAT-8. The Applicant's effort to incorporate more robust stream and wetland assessment methodologies is a very positive step, as is the additional data and analysis provided on potential reservoir impacts to downstream portions of Bois d'Arc Creek. **[CC: TPWD-2]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

DAT-10. The studies reportedly done by Freese and Nichols are very incomplete and are not factual. **[CC: P15-5]**

Response: The USACE recognizes the commenter's concern. However, insufficient supporting data has been provided by the commenter.

It is common practice for the USACE to require applicants applying for Department of the Army authorization to furnish environmental information necessary for the preparation of an EIS. The USACE has a responsibility to independently evaluate the information submitted by an applicant and shall be responsible for its accuracy. The intent of the agency responsibility under NEPA is that acceptable work submitted by an applicant not be redone, but that it is verified by the USACE [40 CFR 1506.5(a)]. For the LBCR project, the applicant

(NTMWD) and their consultant (FNI) were requested by the USACE to provide information that was then used by the USACE to help prepare the EIS.

The USACE selected Solv LLC as a third-party contractor to help prepare the EIS pursuant to the requirements of 40 CFR 1506.5(c). Solv LLC and its subcontractors have assisted the USACE in preparing the DEIS, RDEIS, and FEIS. To help ensure that the preparation of the EIS was conducted in an objective manner, Solv was required to execute a disclosure statement prepared by the USACE verifying that the firm has no financial or other interest in the outcome of the project.

DAT-11. If this is the type of study that the DEIS and RDEIS is based on, then it doesn't truly consider what is being inundated and should be completely redone by a truly third party, objective, unbiased and unvested contractor. **[CC: P18-22]**

Response: See response to comment DAT-10.

DAT-15. Due to the high cost of a hydrology study to be done by individuals, I would like the USACE to do an independent assessment of this possible scenario. The revised DEIS fails to consider the questions above and needs an independent assessment from the USACE. Does the USACE have hydrologist that work independently from Freeze & Nichols that could perform this study? **[CC: P9-6]**

Response: [For reference, the commenter states in their letter that once in their lifetime, 14 inches of rain fell in less than 24 hours. The commenter states that if their calculations are correct, such an event would almost fill up the reservoir in 24 hours.]

As an unbiased federal agency, the USACE works independently from Freese & Nichols. The USACE river channel floodwave routing model, HEC-RAS, and site-specific data were used to estimate the water surface along Bois d'Arc Creek under different rainfall conditions, such as the one presented by the commenter. Elevation contour data from aerial photography and LiDAR mapping were used to develop 137 cross sections of 22 miles of Bois d'Arc Creek for the HEC-RAS model. Analyses of the 2-, 10-, 50-, 100-, and 500-year flood events were conducted. The 2-year and 100-year floodplains at the project site are shown in Appendix Q of the FEIS. Within the project site, the 2-year floodplain covers approximately 43 percent of the site, and the 100-year floodplain extends over 55 percent of the site. This information is contained in Appendix Q of the FEIS.

Areas within the proposed LBCR project site will be inundated to elevation 534' msl under normal operating conditions. Analyses of the 100-year rainfall event show water levels within the project increasing to 539.7 feet msl. The 500-year event will increase water levels within the lake to 541.6 feet msl. These impacted areas will be acquired by the NTMWD as part of the project. Property within the 541-foot elevation contour will be purchased by the NTMWD for the project, and

flowage easements will be attained for property that lies between 541 feet and 545 feet msl.

As stated in Appendix Q.2 (LBCR Probable Maximum Flood Analysis) of the RDEIS and FEIS, the 327-square mile drainage area of the proposed LBCR was subdivided into 11 subbasins in addition to the reservoir surface. Rainfall amounts for the various storms studied were estimated using available standard resources. The Probable Maximum Precipitation (PMP) was found using the standard guidelines from the *Hydrometeorological Report (HMR) No. 512* and *HMR No. 523*, published by NOAA. The values were input into the *HMR-52 Probable Maximum Storm Generalized Computer Program* issued by the USACE. HMR-52 was used to distribute the rainfall spatially over the various subbasins and to optimize the storm area and orientation for maximum rainfall. TCEQ Design Storm Guidelines were used to temporarily distribute the rainfall. Methodology is further detailed in Section 2 of Appendix Q.2. The final Probable Maximum Flood (PMF) configuration produced a peak lake level of 550.53 feet at the LBCR, a rise of 16.53 feet above normal pool of 534.0 feet msl.

The city of Bonham has historically experienced serious and frequent flooding on Bois d'Arc Creek, particularly adjacent to the Highway 56 bridge. Concerns have been raised that the construction of the reservoir could exacerbate this flooding. In the conceptual design of the reservoir project with the preliminary versions of the flood routing models, the normal reservoir pool level was chosen as the highest level that could be used without causing any incremental flooding upstream from Highway 82. The new model with the updated detailed mapping was used to check with greater precision and accuracy whether this design criterion that had been used still applied.

To do this, water surface profiles for each of four frequency events analyzed were developed from the HEC-RAS model in order to define any potential impact on flood levels in the city of Bonham. A plot of the current flood levels for these same events is also plotted, providing a comparison of the flood level along the creek both with and without the reservoir. As can be seen in the profile plots in Appendix Q, none of these floods cause higher water levels upstream of Highway 82 than would have occurred without the reservoir. In addition, no incremental impact would exist upstream of the portions shown in the profiles. Based on its independent review, the USACE believes that all relevant hydrology information has been taken into consideration.

DAT-16. In the DEIS they mention that the old Bonham Landfill is not a concern. There were test done on this several years back. The pollutants were off the charts. You can see pollutants coming out of the ground close to Sloan's Creek that feeds within a mile of the proposed LBCR. Were their tests done at the landfill site, in the water at Sloan's Creek closest to the landfill, Hwy 82 and Sloan's creek, or down in Bois d'Arc Creek several miles from the site? I would like to know their test site locations. These pollutants may be able to be cleaned out of drinking water; however, they are not listed in the DEIS and this has been overlooked. These pollutants

will be a water quality problem for wildlife and recreation. This lake is being offered for water supply and recreation and water quality may not be safe for that. I'll be glad to take you there for samples if you would like. Why is this being overlooked or not tested properly? **[CC: P9-7]**

Response: According to a May 10, 2016 Technical Memorandum from FNI, the Bonham landfill is located outside of the reservoir project area and outside of the 500-year floodplain – meaning there is little to no likelihood that the reservoir would be impacted by surface runoff of leachate or groundwater contamination from the closed Bonham landfill. This conclusion is supported by the water quality data in the Bois d'Arc Creek watershed that reflects no indications of negative impacts to water quality and reflects compliance with state and federal water quality standards.

Regarding the commenter's concerns about pollutants originating from the Bonham landfill, FNI reviewed a May 2016 surface water sampling analytical results letter report prepared by The Carel Corporation to evaluate the surface water quality in Bois d'Arc Creek in response to the allegations that the closed Bonham landfill is releasing leachate to the surface. After reviewing the report, FNI determined that surface water quality in this area of the Bois d'Arc Creek watershed reflects no negative impacts to water quality from alleged releases of leachate and reflects compliance with state and federal water quality standards.

The USACE has independently reviewed and finds FNI's data/studies were completed under acceptable methodologies and reflect accurate results. Additionally, TCEQ conducted a compliance investigation of the Bonham Landfill on May 5, 2016 and observed erosion of soil along the southern side of the property. However, neither waste nor leachate was observed within the erosion.

DAT-17. Another noticeable problem is the Bonham Sewage Treatment Plant, which is a source of continuous water supply for the reservoir. There are known bacteria that come from that source on a daily basis. I would like to see test sample data from their outlet. Did Freeze and Nichols do sampling from the outlet area of the treatment plant? How does the USACE plan to deal with this water quality issue since this is portrayed as a recreational lake and water supply lake? **[CC: P9-8]**

Response: The Bonham Wastewater Treatment Plant is located approximately 5 miles from the site of the proposed reservoir. Due to the distance between the wastewater treatment plant (WWTP) and the proposed reservoir, Freeze and Nichols did not conduct sampling from the outlet area of the treatment plant and the USACE concurs that such sampling was unnecessary for the EIS.

Deficiencies found by TCEQ at the Bonham WWTP were anticipated to be corrected by late 2016, utilizing funding from the Texas Water Development Board (slated to expire in August 2017). As a result, any water supplied to the reservoir would meet EPA standards for the types of uses for which the reservoir would be permitted. An individual 401 water quality certification would be

required from TCEQ should a DA permit be authorized. The USACE does not make determinations related to water quality issues.

DAT-18. There are problems with the RGA Scores and how they are created. The information and scores are based off of reports done in Montgomery County, Vermont. How can this be accepted in Texas? The data field would be calculated in a different way in Texas than Vermont. I would ask the USACE to do an independent assessment of how the RGA scores calculated would be specific to the region affected. Where is all the data calculation's listed for Montgomery County methods? Can the USACE locate and send this information to me? It seems to not be listed publicly. Can I get a list or a copy of the RGA methodology? How long has it been in use? RGA Calibration? Locations of all the sites tested? A copy of RGA reports done on the impact sites? This needs to be done independently to determine if the same results would be found calculating from the Bois d'Arc Creek area and not in Vermont. The USACE should determine the calculations so that Freeze and Nichols cannot fabricate the results. **[CC: P9-24]**

Response: The information and scores for the proposed LBCR site are based on field data collected at the site. Data from Montgomery County, Vermont were not used. The RGA technique was developed using standard protocols that have become industry standards. The RGA study for the reservoir site included a review of the Rapid Stream Assessment Technique published by the Montgomery County Department of Environmental Protection, Montgomery County, Maryland and the Department of Environmental Programs, Metropolitan Council of Governments of Washington, D.C. to ensure that all appropriate methodologies were followed. The field protocols for data collection were also reviewed for a study in Vermont, along with other published methods before any field work was conducted at the proposed LBCR site. All field protocols applied to the proposed LBCR project site are valid techniques. No results were fabricated as suggested by the commenter. The RGA method applied to the LBCR project is described in Appendix L-1.

The USACE hosted a workshop for all of the cooperating agencies in October 2015. FNI personnel (on behalf of NTMWD) explained in detail the RGA model, the conditions measured, and how the conditions are quantified. During the workshop, Dr. Peter Allen of Baylor University provided an explanation of fluvial geomorphology principles and how the RGA analyzes these processes within the stream. The USACE also required additional sampling in stream reaches. The USACE is satisfied that the RGA method accurately measures and quantifies the quality of the streams and that the data were collected appropriately.

It is common practice for the USACE to require applicants applying for Department of the Army authorization to furnish environmental information necessary for the preparation of an EIS. The USACE has a responsibility to independently evaluate the information submitted by an applicant and shall be responsible for its accuracy. The intent of the agency responsibility under NEPA is that acceptable work submitted by an applicant not be redone, but that it is

verified by the USACE [40 CFR 1506.5(a)]. For the proposed LBCR project, the applicant (NTMWD) and their consultant (FNI) were requested by the USACE to provide information that was then used by the USACE to help prepare the EIS.

The USACE selected Solv LLC (formerly Mangi Environmental) as a third-party contractor to help prepare the EIS pursuant to the requirements of 40 CFR 1506.5(c). Solv LLC and its subcontractors have assisted the USACE in preparing the DEIS, RDEIS, and FEIS. To help ensure that the preparation of the EIS was conducted in an objective manner, Solv was required to execute a disclosure statement prepared by the USACE verifying that the firm has no financial or other interest in the outcome of the project.

ENVIRONMENTAL JUSTICE

EJ-1. The Environmental Justice and Protection of Children section fails to mention that the reservoir creates 3000 acres of mud flats, mostly in the shallow ends of the reservoir when the permitted amount of water is transferred from the full reservoir. If the reservoir is less than full before the annual transfer, whether it occurs all at one time or a little at a time, a much larger mud flat is exposed even if less water is transported. **[CC: P18-42]**

Response: TCEQ's signed water use permit for LBCR and technical memorandums for the water availability analysis are included in Appendix F of the FEIS. The TCEQ's water availability model encompasses a period of record that is representative of hydrologic variability in the area, including droughts. Its results indicate that 120,590 acre-feet of water is available 100 percent of the time. If the District were to divert the full requested 175,000 acre-feet per year when that water is available, 100 percent of the total annual demand of 175,000 acre-feet would be met 78 percent of the years, and 75 percent of the monthly demand would be met in 92 percent of the months.

Because it was determined that there could be impacts to instream uses when storage in the reservoir is low – including to fish and wildlife habitat and water quality – special conditions are included in the TCEQ permit to mitigate those impacts. Special conditions (i.e. 6.Q. and 6.R.) include provisions for impoundment or diversion of reservoir inflows when flows are at or below certain values. Special condition 6.Q. is subject to adjustment by the commission if it is determined that such an adjustment is appropriate to achieve compliance with applicable environmental flow standards adopted pursuant to Texas Water Code §11.1471. For example, subsistence freshet releases, or short duration releases, would refresh pools and provide moisture to sustain instream and riparian vegetation.

Because the water permit includes special conditions, mitigations, and monitoring requirements, the scenario described by the commenter will not occur. It is therefore not discussed in the Environmental Justice and Protection of Children section as a potential impact.

GENERAL

GEN-1. I am writing in support of the proposed Lower Bois d'Arc Creek Reservoir and to encourage its expedited approval through the federal permitting process. **[CC: TXHouseofRep-1]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-2. EPA rates the RDEIS as "EC-2", i.e., EPA has "identified environmental impacts, and we request additional information be included in the Final EIS (FEIS)." The "EC" rating is based on the potential for adverse impacts to wetlands and streams. The "2" indicates the RDEIS does not contain sufficient information to fully assess impacts to wetlands and streams. **[CC: EPA-2]**

Response: Additional data have been added to Section 3.4, Water Resources, in the FEIS, and a more detailed assessment of impacts to wetlands and streams has been included in Section 4.4. The USACE believes that all relevant wetlands and streams information have been taken into consideration.

GEN-3. The RDEIS reflects significant revisions to each Chapter of the DEIS, but the Executive Summary does not include some of those changes. To ensure that the Executive Summary is consistent with the analysis in the NEPA document, NTMWD urges USACE to fully review and update the Executive Summary before issuing an FEIS. **[CC: NTMWD1-19]**

Response: The Executive Summary in the FEIS has been revised and thoroughly reviewed to ensure consistency with the rest of the document.

GEN-4. 1-1, Section 1.0, Introduction - NTMWD recommends that the actual date USACE received the Section 404 application for the Reservoir be included. The application was submitted to USACE on June 3, 2008. **[CC: NTMWD1-29]**

Response: This information has been included in Chapter 1 of the FEIS.

GEN-5. 4-181, Section 4.17, Unavoidable Adverse Impacts, Table 4.17-1 -The acreage for Alternative 2 appears to be incorrect in this table. As explained in the overall comments above, the total footprint area for Alternative 2 is 10,409 acres. **[CC: NTMWD1-140]**

Response: Acreages have been corrected to reflect the change in project description.

GEN-6. 4-183, Section 4.17, Unavoidable Adverse Impacts, Table 4.17-1- The discussion on Wilks cemetery for Alternative 2 appears to be incorrect. The flood easement for Alternative 2

would be approximately 525 ft msl for the 100-year flood and approximately 530 ft msl for the 500-year flood. NTMWD can provide a more precise elevation for the Final EIS. **[CC: NTMWD1-120]**

Response: FNI conducted a hydraulic study for the 100-year floodplain. Based on this analysis, the elevation of the 100-yr floodplain is 524 feet msl. The estimate of 530 feet msl is still valid for the 500-year floodplain. The Wilks Cemetery is outside of the 530 feet msl elevation and is not located within any flood zone identified for Alternative 2. Table 4.15-1, Cultural Resources, for Alternative 2, has been updated to reflect this information.

GEN-7. The RDEIS has sufficiently incorporated TCEQ's comments and suggestions. Therefore, in response to the public notice and RDEIS, the TCEQ has no comments at this time. **[CC: TCEQ-1]**

Response: Thank you for noting that the EIS was revised to reflect TCEQ's comments and suggestions.

GEN-8. The DEIS and Mitigation Plan satisfactorily address many of the comments and recommendations submitted by TPWD during previous review periods. **[CC: TPWD-1]**

Response: Thank you for noting that the EIS and Mitigation Plan were revised to reflect many of the comments and recommendations submitted by TPWD during previous review periods.

GEN-9. This letter is submitted on behalf of the Frisco Chamber of Commerce (the Chamber) to express support for the issuance of a Clean Water Act Section 404 permit (404- Permit) for the Lower Bois d'Arc Creek Reservoir (Reservoir) as applied for by the North Texas Municipal Water District (NTMWD). **[CC: Frisco-1]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-10. The Reservoir is vital to ensuring that NTMWD can continue to supply Frisco's growing population with the water it needs. **[CC: Frisco-2]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-11. The Chamber fully supports issuance of the 404 Permit for the Reservoir so that NTMWD may commence construction immediately to meet the ever-growing demand of its customers. **[CC: Frisco-5]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-12. We strongly support the construction of the proposed Lower Bois d 'Arc Creek Reservoir as a new water supply for the North Texas region. **[CC: Richardson-1]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-13. This letter is submitted on behalf of the City of Allen to express the City's support for the issuance of the Clean Water Act Section 404 permit (404 Permit) for the Lower Bois d'Arc Creek Reservoir (Reservoir) as applied for by the North Texas Municipal Water District (NTMWD). **[CC: Mayor Terrell-1]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-14. The City of Allen fully supports issuance of the 404 Permit for the Reservoir so that NTMWD may commence construction of the Reservoir immediately to meet the ever-growing demands of its customers. **[CC: Mayor Terrell-4]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-15. The City of Allen urges USACE to issue a Record of Decision for issuance of the 404 Permit for the Reservoir as applied for by NTMWD so that the water supply needs of our citizens can be addressed by this vital reservoir project. **[CC: Mayor Terrell-6]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-16. As Mayor of the City of Richardson, I am writing to express the City's support of the issuance of the Clean Water Act Section 404 permit (404 Permit) for the Lower Bois d' Arc Creek Reservoir (Reservoir) as applied for by the North Texas Municipal Water District (NTMWD). **[CC: Mayor Richardson-1]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-17. The City supports issuance of the 404 Permit for the Reservoir so that NTMWD may commence construction of the Reservoir. **[CC: Mayor Richardson-3]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-18. This letter is submitted on behalf of the City of Rockwall (City) to express the City's support for the issuance of the Clean Water Act Section 404 permit (404 Permit) for the Lower Bois d' Arc Creek Reservoir (Reservoir) as applied for by the North Texas Municipal Water District (NTMWD). **[CC: Mayor Pruitt-1]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-19. The City fully supports issuance of the 404 Permit for the Reservoir so that NTMWD may commence construction of the Reservoir immediately to meet the ever-growing demands of its customers. **[CC: Mayor Pruitt-4]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-20. The City urges USACE to issue a Record of Decision for issuance of the 404 Permit for the Reservoir as applied for by NTMWD so that the water supply needs of our citizens can be addressed by this vital reservoir project. **[CC: Mayor Pruitt-6]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-21. I am wholehearted in support of the Lower Bois d'Arc Creek reservoir. **[CC: Councilman Dahl-1]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-22. It is our opinion that the proposed project will not impact Indian trust lands within the jurisdiction of the Southern Plains Region. **[CC: BIA-1]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-23. These organizations request that the application of North Texas Municipal Water District (NTMWD) to construct Lower Bois d'Arc Creek Reservoir be denied. **[CC: NGOs-1]**

Response: The USACE appreciates the submission of statements opposing the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-24. Based on the inadequacies reflected in the RDEIS for the Lower Bois d'Arc Creek Reservoir project named above, and described in more detail below, Texas Conservation Alliance, Natural Resources Defense Council, Audubon Texas, Ward Timber, Ltd, and Ward Timber Holdings request that the District Engineer of the Tulsa District of the U.S. Army Corps of Engineers deny the permit to build Lower Bois d'Arc Creek Reservoir. **[CC: NGOs-7]**

Response: The USACE appreciates the submission of statements opposing the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-27. I believe that the LCBR project is more a positive than a negative to the peoples of the United States. I am in favor of this project. **[CC: P12-1]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-28. I am concerned about the irreparable damage that will be caused to a unique and endangered natural resource. **[CC: P13-1]**

Response: Impacts to natural resources are described in Chapter 4, Environmental Consequences, of the FEIS. Impacts are analyzed by resource topic in separate subsections of this chapter. Other impacts are discussed in Section 4.18, Irreversible and Irretrievable Commitments of Resources.

GEN-29. In purchasing land required for reservoir Alt #1, NTMWD indicated to land owners that they would be ensured perpetual lease back rights for the land areas lying between the Conservation Pool (Elev 534), Flood Pool Take-Line (Elev 541). Landowners that have already sold their family land with this perpetual understanding have been saddened to learn that NTMWD is not required to guarantee their perpetual use of this land area. Landowners that have sold land based on the premise that Alt #1 was the only option are angered further by NTMWD's purchase of land that should have remained in their families if the Alt #1 option is not allowed. **[CC: P13-6]**

Response: The USACE will not comment regarding private real estate transactions. As stated in response to other similar comments, the USACE did

not require NTMWD to purchase "in fee" any property or lands that relate to the proposed LBCR.

For property owners with land purchased for the proposed reservoir for Alternative 1, NTMWD has told landowners that they would have access from their property to the reservoir and that they would be able to have boat docks on the reservoir. The final plans for exactly how access would work have not yet been decided, but the details of how that would be implemented would be directed by the zoning plan now being initiated under the guidance of the Fannin County Commissioners Court. The properties that are located adjacent to the reservoir and that are not used for mitigation (fringe wetlands and Upper Bois d'Arc Creek Mitigation Site) would have access as directed by the zoning plan with the County.

Property identified for the Upper Bois d'Arc Creek Mitigation Site, located upstream of the proposed LBCR, would be purchased by NTMWD and no perpetual use agreement would be granted as this land would be committed in perpetuity as a Mitigation Site, as outlined in the mitigation plan (Appendix C).

If Alternative 1 is not approved and the land is not used for the reason it was purchased (for a reservoir), the landowners that sold the property to NTMWD would have first option to purchase their property back. Landowners who have made enquiries to NTMWD about this issue have been told this.

GEN-30. We believe that the USACE should evaluate the NTMWD 404 permit request and 2017 RDEIS as Alt #2 "Reduced LBDCR Footprint" vs. Alt #3 "No Action". Alt #1 is not a current viable option. **[CC: P13-8]**

Response: The USACE believes that their analysis of the proposed action is consistent with NEPA and the CWA. The Applicant submitted their proposed action and over 30 alternatives for the USACE' review and evaluation. The EIS presents the potential environmental impacts of the No Action Alternative, the proposed action, and a reasonable alternative, and explains the rationale for dismissal of other alternatives. Because the proposed action (Alt #1 in the comment) meets purpose and need, it was retained in the RDEIS and FEIS. The thorough alternatives analysis presented in the EIS is intended to also support the USACE's public interest review and Section 404(b)(1) guidelines evaluation, which have not yet occurred. The USACE will identify the LEDPA in the ROD for this FEIS.

GEN-32. While the financial benefits can be recognized for NTMWD constructing LBDR, this does not justify destroying an ecosystem, harming the environment, and the disrupting livelihoods of landowners when alternative sources are readily available. **[CC: P14-4]**

Response: Thank you for your comment. Please refer to Chapter 2 and Appendix O of the FEIS for detailed discussion regarding the evaluation of other

alternatives to the project. Cost was not a criterion for retention or dismissal of alternatives in the EIS.

GEN-34. A Section 404 should not be granted. The only sound ruling would be a plan of no action when considering this project. **[CC: P14-9]**

Response: The USACE appreciates the submission of statements opposing the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-38. I respectfully ask you to reject the 404 permit in favor of less damaging alternatives to the environment and the economy of Fannin County. **[CC: P15-15]**

Response: The USACE appreciates the submission of statements opposing the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-39. The main premise of the Section 404 regulatory program is that no discharge of dredged or fill material can be permitted if a practicable alternative exists which is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. With this said it is the duty and obligation of the USACE to deny NTMWD a Section 404 permit for the proposed LBCR. **[CC: P17-2]**

Response: The USACE appreciates the submission of statements opposing the proposed action and will consider the spectrum of public opinion in its final decision on this project. The USACE will not select an alternative that violates Section 404 of the Clean Water Act.

GEN-40. To destroy all of the positive things that the Bois d' Arc Creek has caused to evolve over hundreds of years, the hardwood forests, wet lands and the rich bottom land that is farmed to help put food on our tables would be devastating. **[CC: P17-19]**

Response: Compensatory mitigation would be provided for forested wetlands, emergent wetlands, scrub shrub wetlands, open water, and streams that would be permanently impacted as a result of constructing the proposed LBCR. This mitigation would be achieved through wetland restoration and enhancement as well as stream restoration and enhancement at the nearby Riverby Ranch and Upper Bois d'Arc Creek mitigation sites. Specific plan objectives are to mitigate for impacts to the following:

- 4,035 FCUs of forested wetlands;
- 514 HUs of emergent wetlands;
- 23 HUs of scrub shrub wetlands;
- 78 acres of open water; and
- 192,377 SQUs of streams.

Further detailed discussion of planned mitigation is included in Section 4.5.4.2 of the EIS.

GEN-41. Quoting NTMWD top paragraph, page N-56 "Thus, to some extent, thorough and diligent implementation of conservation measures by, for example, residential water consumers, is beyond NTMWD's direct influence." This is a false statement, because if NTMWD would dissolve the Take or Pay Contracts with their members and customers there would be a greater incentive by the members and customers to conserve water. Why would one of their members or customers want to go out and tell a consumer to turn off the water when if left on would help pay for the water that would fall between the Take or Pay. Take or Pay Contracts are not Water Conservation Practices. Until Take or Pay Contracts are abolished there should be no new Water Permits Issued. **[CC: P17-29]**

Response: The USACE acknowledges that Take or Pay Contracts are not water conservation practices; however, they are not presented in the EIS as such. The dissolution of Take or Pay Contracts by NTMWD and the impact that may or may not have on water conservation by consumers is outside of the scope of this EIS. NTMWD has a statutory and contractual obligation to continue supplying water pursuant to its Take or Pay Contracts and cannot abolish such contracts, particularly as it relates to the Member City Contract that is used to secure debt issued by NTMWD for its water supply system. Water conservation is discussed in Section 2.6.1.3 of the FEIS, and is not considered an alternative to a water supply project—it is part of the baseline.

GEN-42. The RDEIS was not proof read, full of inconsistencies from one report to the next, studies that had been denied where included, no practical alternatives were included, HEP studies were not complete, Archeological studies half done. The Rapid Geomorphic Method is a made up procedure invented by Freese and Nichols, Inc. that has not been tested or validated. All studies done by Freese and Nichols, Inc. should be discarded because they are the firm of choice that NTMWD is planning on using to construct the proposed LBCR. **[CC: P17-35]**

Response: The USACE believes that comprehensive data gathering was conducted throughout the NEPA process and this is reflected in the EIS. Alternatives were developed as a result of the public scoping process, discussions between NTMWD and the USACE, and with other cooperating agencies. The EPA, USFS, and USFWS actively assisted with the HEP analysis of the proposed reservoir and mitigation sites, and inter-agency instream flow studies associated with the project. In 2015 and 2016, the EPA Region 6 participated in several workshops and field data collection efforts to evaluate alternatives to the proposed LBCR. The EPA, USFS, and USFWS also participated in field data collection on the hydrogeomorphic (HGM) approach to the functional assessment of forested wetlands in East Texas, and the EPA also assisted with fluvial geomorphology and RGA, with expertise provided by Stephen F. Austin State University and Baylor University. The Texas Water

Development Board reviewed NTMWD's water demand projections and concurred that the projections are reasonable. In the preliminary draft stage of the EIS, Dr. Ralph Wurbs, of the Zachry Department of Civil Engineering at Texas A&M reviewed Chapters 1 and 2 of the DEIS (where discussion of the water supply numbers is provided) to provide an outside opinion. Dr. Wurbs' areas of expertise are water resources planning and management, hydraulics, hydrology, and water resources system analysis.

The USACE acknowledges that the project would require additional archeological investigations for sites that are eligible or of undetermined eligibility for listing on the NRHP or as SALs and that would be impacted by construction of the reservoir or any of the ancillary facilities, pipelines, or mitigation area. Please see response to comment CR-7 for further details on additional studies that have been or will be conducted.

The FEIS has been thoroughly edited and any inconsistencies have been corrected.

GEN-43. My responses to the Revised Draft Environmental Impact Statement are proof enough that a Section 404 Permit should not be issued to North Texas Municipal Water District. **[CC: P17-37]**

Response: The USACE appreciates the submission of statements opposing the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-44. On page 1, paragraph b. Site Selection the USACE chose river mile 23.5 and NTMWD chose river mile 24.8. Page 2, still in paragraph 1, a reservoir at river mile 23.5 would inundate an existing Forest Service Lake on Coffee Mill Creek, and flood control benefits would be reduced by backwater effects from the Red River. The exact same thing would happen at river mile 24.8, which is the NTMWD site. I did not include the rest of the 1968 Scoping Report in Exhibit J because it revolved around the dam site at river mile 43.1, which is referred to as the Upper Bois d'Arc Creek Reservoir. Who is going to be liable for this oversight? Is the USACE going to pay the damages since they are responsible for reviewing the data? Will NTMWD or FNI pony up and pay for the resulting damages? This needs an answer. **[CC: P17-38]**

Response: The referenced 1968 Corps' Bonham Reservoir scoping report was for the purpose of evaluating flood risk management, water supply, and recreation in this order. The proposed LBCR is solely for water supply and is not designed to have any flood risk reduction benefits. Furthermore, current methods and standards for hydraulic modeling are considerably advanced compared to 1968. The USACE concurs with the current modeling data regarding the minimal effects that the proposed LBCR would have on the existing Bois D'Arc Creek floodplain. The commenter provides supporting information that is not relevant to support their claim. If a DA Authorization is granted for the

construction of the LBCR, NTMWD would be responsible for any effects the reservoir may have on the watershed.

GEN-45. Cost considerations also should not be a factor since the cost of connecting existing water supplies, a recommended water strategy on the State Water Plan, while being expensive, will never be any cheaper than it is at the present before more housing and infrastructure gets put in the way. **[CC: P18-3]**

Response: Cost was not a criterion for retaining or dismissing alternatives in the EIS. The connection of existing water supplies will not meet the purpose and need, including not supplying enough water to meet the NTMWD service area's demand projections by or past 2025. Section 2.6.3.2, Transporting Water From Existing Reservoirs and Appendix O describes in detail the issues associated with use of existing water supplies to meet NTMWD's needs.

GEN-46. The land owners in Fannin County in the area of the Proposed Action have no other options but to give up the property that they need for their farms and ranches if the proposed Action is permitted. The Proposed Action is the highest cost alternative for these citizens. **[CC: P18-6]**

Response: The RDEIS and the FEIS address impacts to landowners and communities in Section 4.13 under Impacts to Homes and Social Landscape. Cost was not a criterion for retaining or dismissing alternatives in the EIS. The USACE would not have jurisdiction regarding land acquisition by NTMWD should DA authorization be granted.

GEN-47. It is not fair to the people of the United States, the State of Texas or the citizens of Fannin County and especially the people who own the land needed for the project to ask them to give up their property, culture and economy so that a public entity with other viable options can horde natural resources. **[CC: P18-8]**

Response: The USACE appreciates the submission of statements opposing the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-48. Is the timing of this RDEIS another scheme to get a low response from those who are only trying to protect and keep what is legally theirs from those who plot and scheme and make grandiose plans with other people's property for their own gain and the detriment of those who actually own the property? **[CC: P18-18]**

Response: In compliance with NEPA, the USACE has engaged in a public process for the EIS and has solicited comments beginning with the scoping process through review of the RDEIS. The RDEIS afforded a second public review and comment period following the original DEIS and prior to the FEIS.

The NEPA process precedes any decision being made by USACE regarding whether or not to proceed with the project.

GEN-49. The DEIS and the RDEIS are both biased in favor of developing the reservoir because the data collection and some of the analyses for the habitat evaluation, the wetlands study, the channel stability and the instream flow study were done by the Applicant's engineering firm, which has an economic vested interest in the project. This is not a fair, impartial or objective study by an independent third party as indicated it would be at the scoping meeting. **[CC: P18-25]**

Response: The USACE, Solv LLC and its subcontractors, cooperating government agencies, and experts from academia have provided independent review of the environmental analyses mentioned by the commenter. The USACE has participated with NTMWD and FNI in many of the data collection activities to ensure that the data were collected appropriately. The EPA participated in field data collection regarding the Modified East Texas HGM for the proposed LBCR project functional assessment of forested wetlands and the Rapid Geomorphic Assessment (RGA), with expertise provided by Stephen F. Austin State University (for the HGM study and surveys) and Baylor University (for the RGA). Stephen F. Austin State University completed a detailed study of the efficacy of the Modified East Texas HGM for the LBCR project (Appendix K-1 of the FEIS). The EPA, TPWD, TWDB, and TCEQ also assisted with Habitat Evaluation Procedures (HEP) analysis of the proposed reservoir and mitigation sites and participated in the inter-agency instream flow studies associated with the project. In 2015 and 2016, EPA Region 6 participated in several workshops and field data collection efforts to evaluate alternatives to the proposed LBCR. In the preliminary draft stage of the EIS, Dr. Ralph Wurbs, of the Zachry Department of Civil Engineering at Texas A&M reviewed Chapters 1 and 2 of the DEIS (which provide the water demand and supply data and projections used throughout the rest of the EIS) to provide an outside opinion. Dr. Wurbs' areas of expertise are water resources planning and management, hydraulics, hydrology, and water resources system analysis. All data used in the EIS have been approved by the USACE to be appropriate for evaluating the impacts of the proposed action.

GEN-50. The CD copy of the RDEIS sent to us from the Tulsa District of the USACE did not contain any of the second volume of the RDEIS so we can only guess why most alternatives not discussed in Volume I were dismissed. **[CC: P18-26]**

Response: The USACE did not mail CD copies of the RDEIS to interested parties. Notice of the RDEIS was published in the Federal Register and elsewhere with USACE contact information, both volumes of the RDEIS were made publicly available at a central location and online during the public comment period, and all interested parties were encouraged to contact the USACE with questions and comments. The USACE is confident that ample time and opportunity was given for review of the RDEIS.

GEN-51. If you are forced to make a decision in a hurry, deny the permit and if later you discover that you were wrong you can always change your mind. If you later discover you were right in the denial, you are still right. **[CC: P18-39]**

Response: The USACE appreciates the submission of statements opposing the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-52. NTMWD's current attempt at a "land grab" up to the 545 ft. elevation level (primarily associated with the 500 year flood plain) has been anxiously conceived and poorly communicated to the landowners. Once again, NTMWD's lowball offers for family-owned farm and ranch land have applied undue pressure on the elderly and established landowners of our county. Despite the fact that the NTMWD doesn't have the necessary permits to move forward with this expansive project, the constituents of our county have repeatedly been led to believe that it is inevitable. **[CC: P1-1]**

Response: A decision regarding whether or not to approve the permit application for the proposed project has not yet been made by the USACE. The FEIS addresses impacts to landowners and communities in Section 4.13.

The USACE will not comment regarding private real estate transactions. During a 2009 Fannin County Commissioners Meeting, Commissioner Dewayne Strickland voiced several concerns on behalf of his constituents, including whether county residents are being fairly compensated for the land currently being purchased for the lake (NTEN, 2009a). However, the fact that NTMWD had already acquired 82 percent of the property within the reservoir footprint from landowners as of the date of publication of the RDEIS suggests that the majority have been willing to sell for the compensation offered.

Although there are some homes – approximately 21 (11 of which are owned by NTMWD and still existing/lived in and 5 of which have been vacated or demolished due to safety concerns with the structures) – in the area, most of the land is currently agricultural or undeveloped. Very few occupied houses have been or would be purchased as part of the project, but those approximately dozen homes were or would be purchased at fair market value. Some homeowners were paid up to \$15,000 for relocation costs as part of the purchase negotiations (McCarthy, 2011).

GEN-53. One concern of mine is in the event of land purchase it would be the taking of all mineral rights and feel NTMWD would certainly oppose our exercise of these rights on grounds of protecting water quality. **[CC: P2-2]**

Response: The USACE does not have jurisdiction regarding mineral rights. NTMWD has indicated they do not intend to purchase mineral rights should DA authorization be granted.

GEN-54. ...the location would do much less damage to landowners and the public if the required land is obtained downstream instead of upstream. **[CC: P2-5]**

Response: Mitigation sites are located downstream of the proposed LBCR as well as upstream. Damage to landowners and the public is not anticipated as a result of the location of either mitigation site. The long-term management of the mitigation sites would be provided by NTMWD until the USACE has determined that the mitigation project is meeting its performance standards or is on an acceptable trajectory to meeting those standards. An adaptive management approach would be used to assess mitigation conditions to facilitate project success with the final goal of native habitats that are stable and self-sustaining over time. If required USACE monitoring reports indicate that mitigation progress is falling short of success standards, the need for additional adaptive management measures to meet performance standards and overall mitigation goals and objectives would be reviewed.

GEN-56. No research of any kind was conducted on the final 5+ miles of Bois d'Arc creek, so the research is incomplete. **[CC: P3-2]**

Response: Downstream impacts are discussed throughout Chapter 4 of the EIS, for example, Section 4.5.2 and 4.5.3 discuss downstream impacts on aquatic habitats and aquatic biota, as well as other biological resources. The comment does not suggest what is specifically deficient about the impact analyses, so the USACE cannot specifically respond.

GEN-58. Figure 3.4-18 Report shows researchers in hip waders, standing in creek “along Lower Bois d'Arc Creek”. There was absolutely NO investigation of the last 5+ miles of Lower Bois d'Arc Creek that involved anyone getting wet, or touching any fish, or collecting any data. This again is a misrepresentation of the extent of their investigations. **[CC: P3-12]**

Response: The title of Figure 3.5-18 has been revised to read ...along Bois d'Arc Creek. Please see response to comment GEN-56.

GEN-59. Our land and surrounding area is a haven for natural resources and wildlife. And while I understand the need for public works projects such as this reservoir, I also believe little has been done to promote conservation of water and efficient use of our existing supplies. I would prefer more land reserved for wildlife or individual landowner use and less for public works unless all existing resources have been utilized fully. **[CC: P4-2]**

Response: NTMWD has spent over \$11.2 million over the last decade for the development and implementation of the Water IQ campaign. The Water IQ campaign encourages water conservation by NTMWD's customers and the 1.6 million people served by its customers. In addition to Water IQ, NTMWD has also funded several other programs that contribute to public education and

outreach. NTMWD has implemented a program to rebate to member cities the portion of NTMWD's operations and maintenance costs (power costs and chemical costs) not incurred when a city reduces its water usage. However, NTMWD projects a water supply deficit by 2025 despite water conservation efforts. Water conservation efforts are assumed, and are not sufficient as a standalone alternative.

GEN-60. I am writing about Lower Bois d'Arc Creek Reservoir. We don't want this lake. They are taking a lot of family farms who have been in family for generations. **[CC: P5-1]**

Response: The USACE appreciates the submission of statements opposing the proposed action and will consider the spectrum of public opinion in its final decision on this project. The RDEIS and the FEIS address the impacts to landowners and communities in Section 4.13.

GEN-61. I want to register my strong agreement with proceeding with haste in developing this water source. Whether we like it or not, the North Texas area continues to rapidly expand its population, continuing to stress the existing water supplies. As a longtime resident of this area, I want to assure a reliable water source into the future to not only support existing residents like me, but the additional population that is coming. The time is of the essence, and I strongly urge you to move forward with utmost urgency on making this water source a reality. **[CC: P6-1]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-62. These comments are submitted in opposition to the issuance of the Clean Water Act Section 404 permit requested by the North Texas Municipal Water District ("NTMWD") for the Lower Bois d'Arc Creek Reservoir ("LBCR") project. **[CC: P7-1]**

Response: The USACE appreciates the submission of statements opposing the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEN-63. Based on our review of the RDEIS, we believe that the proposed action is inconsistent with the Section 404(b)(1) Guidelines and the permit application should be denied. **[CC: P7-3]**

Response: The USACE will review the consistency of the proposed action and alternatives with Section 404(b)(1) guidelines. The USACE and the Applicant identified a proposed action as well as over 30 alternatives for review and evaluation. The EIS presents the potential environmental impacts of the No Action Alternative, the proposed action, and a reasonable alternative, and explains the rationale for dismissal of other alternatives. The thorough alternatives analysis presented in the EIS is intended to also support the

USACE's public interest review and Section 404(b)(1) guidelines evaluation, which have not yet occurred. The USACE will identify the LEDPA in the ROD for this FEIS.

GEN-64. Despite its changes, the RDEIS is still inadequate. In fact, many of the changes in the RDEIS have made the issuance of a 404 permit less defensible. **[CC: P7-5]**

Response: The USACE will review the consistency of the proposed action and alternatives with Section 404(b)(1) guidelines. The USACE believes that the RDEIS improved upon the DEIS in response to comments received. The USACE and the Applicant identified a proposed action as well as over 30 alternatives for review and evaluation. The EIS presents the potential environmental impacts of the No Action Alternative, the proposed action, and a reasonable alternative, and explains the rationale for dismissal of other alternatives. The thorough alternatives analysis presented in the EIS is intended to also support the USACE's public interest review and Section 404(b)(1) guidelines evaluation, which have not yet occurred. The USACE will identify the LEDPA in the ROD for this FEIS.

GEN-65. The DEIS for the lower Bois d'Arc Creek Reservoir appears to be flawed in many ways. According to the DEIS, environmental analysis was performed by Freese & Nichols Engineering Group. Freese & Nichols is the group that North Texas Municipal Water District has hired to do the engineering of the reservoir. How can this be accepted? They are definitely not a non-biased group as they would have a huge financial gain if the reservoir were to be permitted. How could any environmental analysis from them be accepted? It appears that Mangi Environmental Group reviewed their findings and did not do their own evaluation. We have been told that this is not a concern, but based on what is written in the DEIS, it is clear that Freese & Nichols was the group doing the majority of the study. This is a conflict of interest and should not be allowed. **[CC: P8-1]**

Response: The USACE, its third party NEPA contractor, and other outside entities have provided independent review of the studies that informed the EIS. For example, the EPA participated in field data collection on the hydrogeomorphic (HGM) approach to the functional assessment of forested wetlands in East Texas, and fluvial geomorphology and RGA, with expertise provided by Stephen F. Austin State University and Baylor University. The EPA also assisted with HEP analysis of the proposed reservoir and mitigation sites and participated in the inter-agency instream flow studies associated with the project. In 2015 and 2016, the EPA Region 6 participated in several workshops and field data collection efforts to evaluate alternatives to the proposed LBCR.

The Texas Water Development Board reviewed NTMWD's water demand projections and concurred that the projections are reasonable. In the preliminary draft stage of the EIS, Dr. Ralph Wurbs, of the Zachry Department of Civil Engineering at Texas A&M reviewed Chapters 1 and 2 (which provide the water

supply data/numbers used throughout the rest of the EIS) of the DEIS to provide an outside opinion. Dr. Wurbs' areas of expertise are water resources planning and management, hydraulics, hydrology, and water resources system analysis.

GEN-68. Attachment 10 you can see my last water bill where I used 8,300 gallons that month. I have a family of 4 and also water ~75 whitetail deer in my deer breeding facility. I don't even have to practice conservation and my uses are way below the Region C averages. One of the differences is I don't water green grass. How can a person in Region C use more water than my family of 4 with ~75 animals be less than one person in the Dallas area? Conservation is not practiced nearly enough! **[CC: P9-41]**

Response: An evaluation of water conservation is provided in Section 2.6.1.3 of the FEIS. The USACE generally considers the Applicant's water conservation and reuse not as distinct, alternative methods or strategies of providing additional water, but rather as approaches and actions which make more efficient use of existing water supplies and thereby reduce per capita water consumption, partially offsetting the increasing municipal demand for water due to population growth. As such, in this FEIS, water conservation and reuse are not considered alongside structural alternatives to the proposed action in Chapter 2 but are considered in the context of the purpose and need discussion in Chapter 1. Conservation in and of itself does not meet the criteria of the purpose and need, namely: near-term quantity, timing (by 2025), reliability, or meaningful contribution to long-term supply. NTMWD's conservation and reuse policies, programs, and projects will be implemented regardless of the USACE's permitting decision on the proposed action and alternatives.

NTMWD has taken conservation into consideration in its long-term water supply planning process. The state of Texas, through TCEQ, requires that an Applicant for an interbasin transfer achieve the highest practicable level of conservation before issuing a permit allowing an interbasin transfer. TCEQ has made the determination that the NTMWD has achieved the highest practicable level of conservation by authorizing NTMWD to conduct an interbasin transfer.

Additionally, the USACE would like to point out that one person's specific amount of water use is not necessarily reflective of or replicable by other water users. Based on its independent review, the USACE believes that all relevant water conservation information has been taken into consideration.

GEN-69. If the CWA is allowed to be exempt from this project, it opens the door for many other projects to be exempt. This would open up many problems in the future and does not need to be used as precedence to other projects. This opens the door to allow congress or any agency to ignore the laws and regulations that protect the American people and their rights. I would urge the USACE and the EPA to obey the CWA and NEPA laws and require them to start tapping the existing water supplies now. There is no need to waiting until it is too late. This practice should be against the law. **[CC: P9-48]**

Response: The proposed project is not exempt from compliance with the CWA or NEPA. The NEPA process being carried out for the proposed LBCR project is in full compliance with federal law. The USACE is also in full compliance with Section 404(b)(1) guidelines. The USACE and the Applicant identified a proposed action as well as over 40 alternatives for review and evaluation. The EIS presents the potential environmental impacts of the No Action Alternative, the proposed action, and a reasonable alternative, and explains the rationale for dismissal of other alternatives. The thorough alternatives analysis presented in the EIS is intended to also support the USACE's public interest review and Section 404(b)(1) guidelines evaluation, which have not yet occurred. The USACE will identify the LEDPA in the ROD for this FEIS.

GEN-70. I wish to register my support for the construction of the lower Bois d'Arc Reservoir in North Central Texas. **[CC: P11-1]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

GEOLOGY AND SOILS

G&S-1. 4-14, Section 4.4.2, Construction of the Proposed LBCR Dam and Reservoir Clearing - In the third paragraph, NTMWD recommends including discussion on how TCEQ will ensure water quality is protected during construction through its Clean Water Action Section 401 Certification, including specific requirements for such certification. **[CC: NTMWD1-94]**

Response: The text in Section 4.3.2 of the FEIS was revised to discuss how the TCEQ will ensure water quality is protected during construction through its Clean Water Act Section 401 Certification for Tier II (larger) projects.

G&S-2. 4-14, Section 4.4.2, FM 1396 Relocation and New Bridge Construction -The total length of the FM 1396 relocation is approximately 6.5 miles. Of that length, approximately 1.5 miles would be a new bridge over the Reservoir. This should also be noted in Section 4.4.3 on page 4-16. **[CC: NTMWD1-95]**

Response: The length of the new bridge (approximately 1.5 miles) and the total length of FM 1396 relocation (6.5 miles) were added to Sections 4.3.2 and 4.3.3 of the FEIS.

G&S-3. 4-18, Section 4.4.3, Lower Bois d'Arc Creek Reservoir - There appears to be a duplicate discussion on sedimentation in this section. This information is repeated, beginning on page 4-24. NTMWD recommends the discussion on sedimentation under Section 4.4.3 be deleted. **[CC: NTMWD1-96]**

Response: The repeated sedimentation discussion in Section 4.3.3 was replaced with a reference to Section 4.4.2, which provides additional information regarding sedimentation rates.

G&S-4. Has the soil in these old cotton fields been tested for arsenic levels? If so, what were the levels? **[CC: P8-14]**

Response: Neither the USACE or NTMWD has tested the soils in the old cotton fields for arsenic. NTMWD tested the water of Bois d'Arc Creek for arsenic and those results were non-detect (Freese and Nichols, 2016d). As of January 23, 2016, the Environmental Protection Agency's (EPA's) National Primary Drinking Water Regulations (NPDWR) state that the safe drinking water Maximum Contaminant Level (MCL) for arsenic is 0.010 mg/L. Based on the lack of detectable arsenic in Bois d'Arc Creek, there is not a concern that arsenic is leaching into Bois d'Arc Creek and additional testing is not warranted.

G&S-5. There seems to be a hurry to speed the project with the excuse that Texas will run out of water in 50 years. In fifty years Lower Bois d 'Arc will be silted in and unusable if it is built in 2020. **[CC: P15-7]**

Response: Please refer to FEIS Section 1.5, Purpose and Need, for further information regarding the purpose and need of the proposed LBCR, including near-term and long-term criteria. The project has faced a review process spanning more than nine years and is still ongoing. The USACE is proceeding in full compliance with the NEPA.

Neither action alternative (Alternative 1 or Alternative 2) would be silted in over a 50-year period. The lake would continue to provide water supply over a 100-year or longer operating period.

As explained in detail in Section 4.4.2 of the FEIS, sedimentation rates are expected to result in the Alternative 1 LBCR losing about 3 percent of and 7.5 percent of the proposed LBCR's capacity within 40- and 100-years respectively. Sedimentation rates are expected to result in the Alternative 2 LBCR losing approximately 8 percent and 21 percent of the initial reservoir capacity within 40- and 100-years respectively. Thus, the commenter is incorrect regarding the life of the Alternative 1 and Alternative 2 reservoir based on sedimentation rate under either action alternative.

HUMAN HEALTH AND SAFETY

HHS-1. Mosquitos will breed up huge populations in the mud puddles left after water is removed, especially after the feral hogs root and wallow in the mud, and could endanger children by transmitting West Nile Virus and other communicable diseases. **[CC: P18-43]**

Response: The TPWD has the sole regulatory responsibility regarding feral hogs in Texas. Information regarding feral hogs in Texas can be obtained at https://tpwd.texas.gov/huntwild/wild/nuisance/feral_hogs/. Hogs are not known to contaminate water any more than other domestic or wild animals. Farmers will be able to continue to control them on their own property even with the reservoir in place.

Mosquitos breed naturally in wet areas all over Texas. For information regarding the control of the insect,

see: <https://www.tceq.texas.gov/assistance/industry/emergency-applications-and-the-pesticides-general-permit>. The Texas Department of State Health Services' Infectious Disease Control Unit is responsible for the dissemination of prevention and population health strategies and the enhancement of public health response to disease outbreaks. See: <http://www.dshs.texas.gov/idcu/> for more information.

Also see response to comment EJ-1.

HHS-2. I also have a concern for the health of my family. We live just a few hundred yards from the south end of the proposed reservoir. With the amount of water that will be taken out of the reservoir, the area next to my home would be a mud hole for the majority of the time. I am concerned about mosquito populations in these shallow areas of the reservoir next to my home. What studies have been done about the diseases that the increase in population of mosquitoes would bring to the shallow areas of the reservoir? **[CC: P8-16]**

Response: See responses to comments HH&S-1 and EJ-1.

LAND USE

LU-1. 3-108, Section 3.11, Environmental Contaminants and Toxic Wastes - Contrary to the statement in the first sentence of this section, and as reflected throughout the discussion in this section, both desktop analyses and field analyses were performed. **[CC: NTMWD1-86]**

Response: The text in Section 3.12, Environmental Contaminants and Toxic Waste, was revised to note that both desktop and field analyses were performed.

LU-2. 4-8, Section 4.3.2, Dam and Reservoir - As discussed above, this section needs to be revised to remove references to the "flood pool" concept. This area is not part of the Proposed Action. The acreage cited in this section goes to elevation 545 ft msl, which approximates the 500-yr floodplain. The change in flood designation only affects the ability to construct inhabitable structures and should only be discussed in appropriate sections of the Final EIS on flooding. There are no changes to habitats or wildlife in this acreage. It does not render the acreage unusable for agricultural purposes. Many acres within the floodplain are farmed or used for livestock. NTMWD therefore recommends revising or deleting this sentence regarding the inability to use this acreage for agricultural purpose. **[CC: NTMWD1-88]**

Response: The reference to the flood pool was deleted since there is no flood pool associated with the proposed action. Please refer to Section 4.2.2 and 4.2.3 of the FEIS for information regarding land use around the proposed reservoir.

NTMWD has voluntarily elected to purchase a flowage easement to elevation 545 feet msl, which approximates the 500-yr flood elevation. The flowage easement is located between the 541 feet msl and 545 feet msl elevation. As part of the flowage easement, NTMWD is restricting habitable structures and additions of fill or dirt. These actions are to provide additional flood protections to adjacent land owners and NTMWD.

Senate Bill 525, Local Government Code Section 231.132, in the 82nd Texas Legislature passed in 2011, granted the Fannin County government land use planning jurisdiction over the area within 5,000 feet of where the shoreline of the proposed LBCR would be if the reservoir were filled to its storage capacity (McCarthy, 2013). Fannin County's zoning authority in the 5,000-foot buffer excludes the area located in NTMWD's flowage easement as NTMWD's restrictions on habitable structures and additions of fill or dirt take precedence over Fannin County's zoning. Under Local Government Code Section 231.133, Fannin County can regulate land use features in the 5,000-foot buffer (excluding the flowage easement from 541 feet msl to 545 feet msl) such as:

- Height, number of stories, and size of buildings and other structures;
- Percentage of a lot that may be occupied;
- Size of yards, courts, and other open spaces;
- Population density;
- Location and use of buildings, other structures, and land for business, industrial, residential, or other purposes; and
- Placement of water and sewage facilities, parks, and other public requirements.

If Alternative 1 or 2 is selected and the proposed LBCR is constructed, the Fannin County government would possess the authority to regulate land use for almost a mile around the reservoir perimeter. However, county zoning guidelines cannot contradict NTMWD's restrictions on land uses within the flowage easement. The land located in the flowage easement would be privately owned, but permanently designated as a flowage easement and would be only infrequently and temporarily inundated. Thus, land in the flowage easement would be suitable for their predominant land use (e.g. farmland).

Fannin County Commissioners Court finalized a Comprehensive Plan on October 18, 2016 addressing land use and potential zoning regulations for the area surrounding the project site (Fannin County, 2016). The comprehensive plan follows the process outlined in the Texas Local Government Code, Chapter 231 - Subchapter G (TLGC 231.131-231.141) (Fannin County, 2016). As described in the Fannin County Comprehensive Plan, land use in the 5,000-foot buffer

surrounding the reservoir has the potential to change under new zoning regulations as determined by Fannin County. Fannin County zoning cannot contradict NTMWD's restrictions on land uses within the flowage easement. Please refer to Sections 4.2.2 and 4.2.3 for further information, including maps, of potential land use changes in the area surrounding the reservoir, as to be determined by Fannin County. Although the future zoning in the 5,000-foot buffer has not been finalized, it appears that a great amount of land will continue to be zoned as it is currently: agricultural. Portions of land in the 5,000-foot buffer currently zoned as agricultural land may be zoned as recreational areas or residential (small or large lots) according to the Fannin County Comprehensive Plan. Although the comprehensive plan does not constitute zoning district regulations or establish zoning district boundaries, the comprehensive plan notes that the conversion of land use from agricultural to residential or recreational uses is a possibility.

The Fannin County Comprehensive Plan notes that concentrated animal feeding operations (CAFOs) should not be allowed within areas zoned as agricultural land. In Texas, CAFOs are regulated by the TCEQ and defined as lots or other facilities, other than an aquatic animal production facility, where animals have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period, and in which the animal confinement areas do not sustain crops, vegetation, forage growth, or postharvest residues in the normal growing season over any portion of the lot or facility. For cattle, a CAFO holds equal to or more than 1,000 cattle other than mature dairy cattle or veal calves. Cattle includes, but is not limited to, heifers, steers, bulls, and cow/calf pairs. Prohibiting CAFOs within the LBCR will ensure that there is a high level of water quality.

LU-3. 4-9, Section 4.3.2, Water Treatment Plant, Terminal Storage Reservoir, and Related Facilities - NTMWD recommends revising this section to make clear that the construction of these facilities will result in a change in the land use. The language "unlikely to cause any further changes" and indicating land will "no longer be available for the current predominant land use" is inconsistent. **[CC: NTMWD1-89]**

Response: Section 4.2.1, No Action Alternative, was revised to state that the construction of these facilities would result in a change in the land use. This change was made consistently throughout the section.

LU-4. 4-10, Section 4.3.2, Reservoir Operations -The Fannin County Comprehensive Plan has been finalized. It was adopted on October 18, 2016 by the Fannin County Commissioners Court. Please update this section accordingly. **[CC: NTMWD1-90]**

Response: Sections 4.2.2 and 4.2.3 were revised to note that the Fannin County Comprehensive Plan was finalized by the Fannin County Commissioners Court on October 18, 2016.

LU-5. 4-11, Section 4.3.3, Dam and Reservoir - NTMWD recommends revising this section in accordance with the comment above on 4-8, Section 4.3.2, Dam and Reservoir. The acreage cited in this section goes to elevation 525 ft MSL, which approximates the 100- year floodplain. **[CC: NTMWD1-91]**

Response: Sections 4.2.2 and 4.2.3 of the FEIS were revised to delete the reference to the flood pool since there is no flood pool associated with the reservoir.

LU-6. 4-12, Section 4.3.3, FM 1396 Relocation (FM 897 Extension from U.S. 82 to FM 9779) and New Bridge Construction - The title of this section should reference the Extension from U.S. 82 to FM 1396, not FM 9779. This comment also applies to page 4- 82. **[CC: NTMWD1-92]**

Response: The titles were changed to FM 1396 Relocation (FM 897 Extension from U.S. 82 to FM 1396) and New Bridge Construction.

LU-7. Additionally, just downstream at State Highway 56 Fannin County operates a public dump within their Precinct 4 County Barn Lot; this burning dump has operated for years and also falls within the 545 ft. mark. **[CC: P1-5]**

Response: The Precinct 4 County Barn Lot is a staging area for a recycling event in Fannin County that helps to divert waste from landfills; however, landfill waste is not stored at this location so it is not considered a contamination risk to the potential LBCR.

LU-8. We have previously granted easement and believe this to be sufficient protection for the water source and the public. It is also our understanding that the demand for purchase has been required by the U.S. Army Corps of Engineers. **[CC: P2-1]**

Response: The USACE is not demanding purchase for any homes that would be inundated or located on property required for mitigation. NTMWD is working with landowners to acquire property that would be inundated by the proposed reservoir or located on property required for mitigation. The need for the additional property upstream of the proposed LBCR project is to compensate for impacts to forested wetlands associated with the project.

Within the proposed reservoir footprint, there are approximately 21 single family homes that would be demolished prior to inundation—11 of which are currently owned by NTMWD and still existing/lived in and 5 of which have already been vacated or demolished due to safety concerns with the structures. All remaining units would have to be acquired (in an arm's length transaction or through condemnation) before construction could begin (McCarthy, 2011a). These residential areas comprise a minor portion of the proposed reservoir site.

LU-9. It is my understanding that after the purchase of the land it will then be planted in trees and will be fenced then used as public hunting grounds. **[CC: P2-3]**

Response: The proposed action does not include plans to use private land surrounding the proposed LBCR to plant trees, fence land, or use as public hunting grounds. Please refer to the Proposed Lower Bois d'Arc Creek Reservoir, Fannin County, Texas Mitigation Plan for information regarding land use in and surrounding the mitigation site. The property purchased by NTMWD for the Upper BDC Mitigation Site would be planted with trees. Once initial construction of the Upper BDC Mitigation site is completed, the mitigation site would be monitored as provided in the Monitoring Requirements and Performance Standards sections of the Mitigation Plan. During monitoring events for invasive and nonnative species, particularly during the early stages of plant establishment, assessments would be made to identify areas where invasive and non-native species pose a potential threat to the success of the proposed mitigation. Assessments would also be made during monitoring events to assess herbivory (i.e., the consumption of plants by animals). Measures for controlling herbivory could include the use of tree tubes, fencing, nurse crops, trapping, hunting, chemical deterrents, attracting predators, etc. In addition to corrective actions, as may be required, maintenance of the property would likely provide for compatible uses such as hiking, bird watching, hunting, camping, etc., which do not interfere with achieving and maintaining mitigation goals and objectives and meeting performance standards. Current activities allowed on this property would be compatible with mitigation.

LU-11. It states that NTMWD could decide what can be built on the land around the lake, what farming practices could be used (insecticides, grass killers, fertilizers, etc.) and if cattle can roam on the land around the lake. They can also create a buffer zone around the lake for which they do not pay the landowner and restrict "normal" control that landowners have over their property. **[CC: P10-5]**

Response: See response to comment LU-2.

LU-12. I know what I'm talking about because..... • Our family's Texas water right is SENIOR to the one issued to LBCR. (attached) • Our family owns the land that LBCR says has an archeological site that "is considered eligible for listing on the National Registry of Historic Places." (RDEIS page 3-184). • Our land ownership deeds state that we own to the middle of Bois d'Arc, which is the Fannin/Lamar County line. **[CC: P3-1]**

Response: All senior state water rights are respected through the TCEQ water right process, and the proposed project does not impact these rights. See FEIS Appendix F-2 and F-3 for TCEQ's water availability analysis.

The land referenced by the commenter would not be impacted by the proposed project or mitigation because the land is located outside the reservoir footprint and mitigation area. The site has been studied previously and information about

the site is included in the Archeology reports for the Riverby Ranch mitigation site that are still under review by the USACE. Coordination with the THC and Caddo Nation is not yet complete. A summary of the information in these reports is provided in Appendix S of the FEIS.

LU-13. Page 3-52 Report describes Bois d'Arc Creek in context of Fannin County and state boundary. Why is Lamar County never mentioned? The Creek is as equally in Fannin as Lamar County. **[CC: P3-1]**

Response: The FEIS describes Bois d'Arc Creek in the context of Fannin County because the segment of Bois d'Arc creek potentially impacted by the proposed action is wholly or partially contained within Fannin County (from U.S. Route 82 to the county boundary). The Fannin and Lamar county line extends approximately 1.3 miles upstream from the confluence of Bois d'Arc Creek and the Red River along the centerline of the creek. The segment of Bois d'Arc Creek in Lamar County, furthest downstream from the dam and just upstream of its confluence with the Red River, is heavily influenced by the Red River, which often backs up into Bois d'Arc Creek during periods of high flow. Therefore, the hydrology and aquatic habitat of the Lamar County Bois d'Arc Creek segment would be primarily affected by the Red River rather than the presence of the reservoir, and for that reason it was not surveyed. There would be no impacts to the creek bed that lies in Lamar County because the upstream portions of Bois d'Arc Creek outside of Fannin County would not be affected by the proposed action. Impacts to Bois d'Arc Creek downstream of the dam are discussed in Section 4.4.2.

MITIGATION PLAN

MIT-1. If baseline stream conditions were excluded from the stream credit calculation, in accordance with the applicable guidance referenced above, it would appear to result in 47% fewer stream credits than the estimated stream credits listed in the RDEIS. Moreover, excluding baseline conditions from stream credit calculation appears to be the approach consistently taken by USACE for other reservoir projects over the last two decades. Therefore, the final EIS should be revised to either reflect a more consistent approach with the above-referenced documents or should examine the differences in this approach and provide a rationale supporting its use for this project. **[CC: EPA-3]**

Response: There have been no new reservoir projects permitted by the USACE Tulsa District in the last two decades and will not comment on the approach taken for reservoirs permitted in other districts. The referenced Mitigation Plan is a proposal to the USACE from the Applicant only and has not been approved as written; the USACE Tulsa District will fully evaluate the proposed mitigation in its entirety utilizing appropriate USACE mitigation guidance before any permit decision is made. Each project is and should be evaluated with specific attention to the type of project, the location of the project, the type and magnitude of the

aquatic area impacts, and other such specifics. The Mitigation Plan proposes as compensatory mitigation, for streams that NTMWD actively improves and protects through deed restrictions, the total of existing SQUs *and* improved SQUs (i.e., uplift). For streams that NTMWD would enhance in the Wetland Reserve Program (WRP) area at Riverby Ranch, which are already protected through an easement under the Natural Resources Conservation Service (NRCS) WRP, only the *uplift* in SQUs are proposed as compensatory mitigation. The rationale for taking credit for the baseline condition of the streams in all areas except the WRP is as follows: 1) The acquisition of large tracts of contiguous property provides protection from stream stability stressors including current adjacent agricultural activities such as plowing and cattle trampling. The proposed future adjacent land uses such as restored wetlands, riparian forests, and grasslands provide additional protection to these existing streams; 2) Applicable statutory and regulatory requirements allow credit for baseline conditions for stream mitigation purposes; Regulatory Guidance Letter 02-2 and USACE Tulsa District Guidelines afford preservation credit when aquatic resources, such as streams, are preserved in conjunction with establishment, restoration, and enhancement activities when the preserved resources will augment the functions of newly established, restored, or enhanced aquatic resources; 3) Mitigation guidance allows preservation credit when there is a demonstrable threat of loss from a future activity outside of the control of the permit Applicant. Most of the streams within the mitigation properties are currently degraded by past and ongoing ranching and agricultural uses, and would continue to be subjected to these activities and further degradation; 4) Existing streams provide the foundation for the proposed stream restoration and enhancement efforts, and are critical to the success of the other proposed aquatic mitigation. NTMWD proposes to take credit for the full future condition of the mitigated streams because without the existing stream, no matter its baseline condition, there would be no opportunity for stream mitigation uplift through restoration or enhancement. Unlike wetlands, streams cannot be created where the landscape does not afford a watershed to provide hydrology to support fluvial processes.

MIT-2. Forested Wetlands: We understand that four functions were used to estimate the forested mitigation credits. EPA points out that two additional functions were represented in the impacted area. Using only four out of the six representative functions yields 4,675 mitigation units. If all 6 observed functions from the impacted area were included in the mitigation calculations, it appears that only 3,500 of the needed mitigation units would be generated. The document should be revised to support the choice of only four of the six representative functions for this project. **[CC: EPA-4]**

Response: At the May 4th, 2016 interagency assessment team meeting, it was determined that a *portion* of the proposed Riverby Ranch mitigation site in Fannin County, Texas is functioning as a wetland in a flat geomorphic setting. This is due to an upstream dam (Denison Dam impounding Lake Texoma) on the Red River that flows adjacent to the mitigation site. In order for the LBCR Hydrogeomorphic Method (HGM) variable subindex (VSI) curves to be used in

the flat wetlands, adjustments were made to the low-gradient riverine models to indicate that these areas are functioning as flats (wetlands that are supported primarily by precipitation rather than riverine flooding). To be consistent with flats models in other HGM guidebooks, the models were adjusted by removing two model variables (VFREQ and VDUR). As with other HGM guidebook models, flat wetlands are not assessed for “Detain Floodwater” or “Export Organic Carbon”. The remaining functional capacity index (FCI) models (“Cycle Nutrients”, “Detain Precipitation”, “Cycle Nutrients”, and “Provide Habitat for Fish and Wildlife”) are unchanged from the riverine calculator to the flats calculator (refer to Appendix K in this FEIS). The remainder, and majority, of the site was assessed using the methods outlined in the mid-gradient riverine models in the *Regional Guidebook for Applying the Hydrogeomorphic Approach to the Functional Assessment of Forested Wetlands in Alluvial Valleys of East Texas* (Williams *et al.* 2010) adjusted specifically for Fannin County (The Modified East Texas HGM) and assessed six functions associated with forested wetlands. The interagency assessment team consisted of personnel from the following agencies: USACE, Tulsa District Regulatory Office; USACE, Environmental Research and Development Center (ERDC); U.S. Environmental Protection Agency (EPA); U.S. Fish and Wildlife Service (USFWS); U.S. Forest Service (USFS); Texas Commission on Environmental Quality (TCEQ); Texas Parks and Wildlife Department (TPWD); Waters of East Texas Center and Stephen F. Austin State University (SFASU). Refer to Appendix K of the FEIS.

MIT-3. Emergent Wetlands: EPA notes that existing conditions for emergent wetlands are being assigned low scores (existing condition assessment scores of 0). The emergent wetland mitigation areas consist of existing emergent wetlands, and therefore the baseline condition would be expected to score at some value higher than zero, as they are already functioning as emergent wetlands. If existing conditions were assessed in such a manner, the emergent wetland surplus estimate would appear to be 24% rather than the 85% presented in the RDEIS. **[CC: EPA-5]**

Response: The USACE Tulsa District disagrees with the EPA’s interpretation of the RDEIS information. Existing emergent wetlands within the proposed mitigation area have been assessed as having a 0.23 HSI score, not a score of zero. Therefore, the 85 percent presented in the RDEIS is correct. Refer to Appendix J of the FEIS.

MIT-4. The RDEIS should explain how the mitigation credit determination incorporates the factors described in the Tulsa Guidance. **[CC: EPA-6]**

Response: The referenced Mitigation Plan is a proposal to the USACE from the Applicant only and has not been approved as written. The USACE Tulsa District will fully evaluate the proposed Mitigation Plan in its entirety utilizing appropriate USACE mitigation guidance before any permit decision is made. The USACE Tulsa District evaluates each project with specific attention to the type of project, the location of the project, the type and magnitude of the aquatic area impacts, and other such specifics on

a case-by-case basis. The proposed Mitigation Plan for the LBCR project utilizes a watershed approach and includes mitigation for both uplands and wetlands over many thousands of contiguous acres within the Bois d'Arc Creek watershed where the potential impacts would occur. Per Regulatory Guidance Letter 02-2 (RGL 02-2), the USACE gives preference to mitigation projects that use watershed and ecosystem approaches when determining compensatory mitigation requirements, and the USACE Tulsa District Guidance emphasizes watershed-based mitigation and consideration of regional aquatic resource needs and priorities. The Tulsa Guidance states that the Tulsa District will accept acreage as a surrogate measure of functional loss due to a lack of widely available expertise in the assessment of the value of impacts and losses on a functional basis. Where an Applicant desires to propose mitigation below these minimum mitigation ratios, the proposed mitigation plan must be accompanied by an accepted scientific functional assessment methodology that demonstrates the reduced acreage, below the minimum mitigation ratio stated above, is adequate to replace the functional quality of the impacted aquatic resource. The Tulsa District has not adopted a stream, wetland, or aquatic resource assessment methodology at this time; however the three assessment methodologies employed for the proposed LBCR were determined by the USACE Tulsa District to be acceptable methods for assessing both impacts and mitigation. Please refer to the Tulsa Guidance, response to comment MIT-6, and the proposed Mitigation Plan (Appendix C of the FEIS) for more information.

MIT-5. The Tulsa Guidance states that where preservation is proposed, there must be a demonstrable threat of loss from some future activity that is outside of the control of the permit Applicant. The RDEIS should include a description of the threat of loss from future activity. **[CC: EPA-7]**

Response: The referenced Mitigation Plan is a proposal to the USACE from the Applicant only and has not been approved as written. The USACE Tulsa District will fully evaluate the proposed Mitigation Plan in its entirety utilizing applicable USACE mitigation guidance. The USACE Tulsa District Aquatic Resource Mitigation and Monitoring Guidelines policies are to be accomplished through an emphasis on watershed-based mitigation and consideration of regional aquatic resource needs and priorities. Restoration of previously degraded or destroyed wetlands or stream corridors is generally preferred over all other forms of compensatory mitigation due to a higher likelihood of successfully achieving meaningful ecological boost. Preservation of an existing quality aquatic resource(s) does not contribute to 'no net loss' unless preservation is only a portion of a larger mitigation plan that includes restoration or enhancement activities. It should be noted that the 'no net loss' policy applies to wetland function specifically. Where preservation is included in a multi-feature mitigation plan, the credit assigned to preservation should not exceed 50 percent of the total mitigation package. Where preservation is proposed, there must be a demonstrable threat of loss from some future activity that is outside of the control of the permit Applicant. The proposed Mitigation Plan contains no stand-alone preservation component, and therefore the requirement to demonstrate outside threat does not apply. The proposed mitigation actions for the proposed project

are designed as a watershed-based approach and are being performed throughout the three proposed mitigation sites by three approaches consisting of creation, restoration, and enhancement. On-site mitigation would occur for emergent wetlands, open water, and streams; restoration and enhancement would occur at the Riverby Ranch mitigation site for forested wetlands, shrub wetlands, emergent wetlands and open water (enhancement only); and restoration and enhancement would occur at the Upper Bois d'Arc Creek mitigation site for forested wetlands and enhancement for open water and streams. Therefore, because the watershed-based approach is being utilized, the usual criterion regarding demonstrable threat of loss from some future activity that is outside of the control of the permit Applicant is not applicable to the proposed Mitigation Plan. Nevertheless, if it did apply, that criterion would be met because most of the streams and much of the habitat within the mitigation properties are currently degraded by past and ongoing ranching and agricultural uses, and would continue to be subjected to these activities and further degradation without the mitigation activities.

MIT-6. If ecological uplift generated by synergistic effects associated with a watershed approach results in additional mitigation credit, then this lift should be measurable and reflected in the associated mitigation performance standards and calculated mitigation credits. The RDEIS should be revised to include this information. **[CC: EPA-8]**

Response: The USACE concurs that there can be ecological uplift generated by synergistic effects associated with a watershed approach which could result in additional mitigation credit to an Applicant's plan. However, the USACE is unaware of an available model to quantify such a lift, which should only be considered after fully utilizing/researching related scientific studies and using professional judgment, experience, and knowledge gained from years of field work in similar ecological settings. Currently, approaches to quantify the benefits of the watershed approach are not standardized. In 2016, the Environmental Law Institute (ELI) published a white paper entitled Assessing Stream Mitigation Guidelines at the Corps District and State Levels (Guidelines Paper) under a Wetland Program Development Grant from the EPA. The Guidelines Paper analyzed 32 stream mitigation guidelines and additional documents developed by states and USACE districts across the country to gain a better understanding of how stream mitigation varies among jurisdictions and to identify regional and general trends in stream mitigation. The results of their research indicate that the state of stream mitigation across the country is in flux and variation was found amongst states and USACE districts in almost every mitigation factor ranging from the threshold for requiring mitigation to the determination of debits and credits. For example, from a determination of stream mitigation credits perspective, the study found that roughly one-third of the states/districts include credit determination tables and/or worksheets, whereas the other two-thirds contain little or no guidance about how to determine credits. For the proposed action, the value of the streams (both debits and credits) are reflected in part through the Stream Quality Factor (SQF). The SQF, however, does not account

for the synergistic effects of the watershed approach employed by this project, nor does it reflect the overall aquatic mitigation proposal, including surplus wetland credits and the aquatic functions provided by the lake. As noted in Section 7.11 of the proposed Mitigation Plan relating to synergistic effects, streams are the beneficiaries of extensive wetland and upland habitat restoration, enhancement, and protection within a 50,000-acre contiguous project/watershed/mitigation area, as they are the lowest points within the landscape and are thus influenced by what happens in and to the watershed. Thus, even though calculated SQUs for stream restoration and enhancement show a slight deficit (5.8%) compared to stream impacts, when considered in light of the proposed watershed improvements described in the proposed Mitigation Plan that directly affect stream condition, the proposed mitigation provides more than adequate compensation for stream impacts. There has been no attempt to quantitatively compensate for impacts using out-of-kind mitigation or synergistic effects. Based on the USACE's evaluation of these synergistic effects and baseline credit, the USACE has determined that the mitigation as proposed by the Applicant would potentially provide sufficient compensatory mitigation to offset impacts associated with the proposed project in accordance with the Clean Water Act. Baseline credits are retained for all mitigation properties proposed by NTMWD except for the WRP. For the WRP, only the uplift would be credited as mitigation. Refer to the response to comment MIT-7 for more information on this topic.

MIT-7. In the application of the watershed approach, estimated surpluses for forested and emergent wetlands are proposed as mitigation for impacts to streams. It is not clear from the analysis provided in the RDEIS that this type of out-of-kind mitigation will offset the lost functions and services provided by the impacted stream resources. Please see related comment on stream and wetland credit determination. **[CC: EPA-9]**

Response: USACE recognizes the synergistic effects and baseline credit that ensure adequate compensatory mitigation is proposed for the LBCR project. Per Regulatory Guidance Letter 02-2 (RGL 02-2), the USACE gives preference to mitigation projects that use watershed and ecosystem approaches when determining compensatory mitigation requirements. Applicants are encouraged to provide compensatory mitigation projects that include a mix of habitats such as open water, wetlands, and adjacent uplands that, when viewed from a watershed perspective, provide a greater variety of functions. As such, "watershed approach" takes on two meanings. First, the mitigation should take place in the same drainage basin as the impact. Second, on a smaller scale, preference is given for restoration of connected habitats within a watershed instead of isolated components of the watershed (uplands, riparian areas, wetlands, open waters, and streams; collectively a watershed ecosystem). The proposed Mitigation Plan (Appendix C) meets both of these watershed approach parameters in that the proposed mitigation would take place in the Bois d'Arc Creek watershed and adjoining Red River watershed, either directly upstream or nearby downstream of the impact site, and is proposing to restore entire watershed ecosystems, not just

isolated components of the watershed/ecosystem. This approach is critical in evaluating potential mitigation proposals. Wyoming is an example of a district that substantially increases the credit calculation if applicants use a watershed approach, and the standard operating procedure (SOP) for Ohio states that the watershed approach should be considered in service area selection. Several districts (Little Rock, Fort Worth, Los Angeles, New England, Seattle, and Omaha) said they consider project site impacts to some degree, but these districts generally agreed that broader watershed issues have more weight than particular project impacts (Environmental Law Institute, 2016). The watershed approach to stream, wetland, open water, and terrestrial mitigation would provide a broader range of benefits and would achieve uplift beyond the simple, isolated replacement of acres, linear feet, or functions lost at a specific stream or wetland site.

MIT-8. Forested Wetlands Assessment Method: Six forested wetlands representative functions were assessed at the impact site to estimate the impacts and resulting necessary mitigation. However, only four of the six representative functions were used to estimate the mitigation credits; yielding a differing application from the impact assessment to the estimation of mitigation credits. The document should be revised to support the choice of only four of the six representative functions for this project. **[CC: EPA-10]**

Response: See response to comment MIT-2.

MIT-9. Stream Assessment Method: The current mitigation plan only includes a summary of the anticipated total post-mitigation scores for each stream reach, rather than details about which specific stream assessment variables will increase to result in the projected total scores. The mitigation plan should be revised to include the specific calculations for the variables and stream functions. The details about the mitigation uplift calculations in the final mitigation plan should clearly document the proposed stream function increases in terms of the stream assessment variables. **[CC: EPA-11]**

Response: The Rapid Geomorphic Assessment (RGA) stream assessment tool is a condition assessment of the stream that acts as a surrogate for stream functions (stream functions are not individually assessed). There is a discussion on the methodology used to calculate uplift for streams in Appendix E of the proposed Mitigation Plan. An example of the uplift calculation for the restoration of streams at Riverby Ranch is presented in Table 3 of Appendix E. The mitigated RGA score represents the expected score for the type of mitigation activities proposed for restoration and stream creation. Table 4 of Appendix E describes the mitigation activity and the resulting improved conditions of the stream. Using the uplift scores presented in Table 3 as a guideline, the streams at Riverby Ranch were assessed individually and the total RGA scores by stream reach are reported in Attachment D of Appendix E. The proposed Mitigation Plan also clearly states that the overall condition of streams with only riparian buffer plantings would have a total increase of 5 RGA points. It is the total RGA score

that represents the mitigated condition of the stream, not the individual assessment variables.

MIT-10. An explanation as to why the streams in the impact site assessed as poor quality for stability yet had high biological integrity scores should be presented in the mitigation plan since the exclusion of biological integrity also affects the accounting for critical stream water quality functions. **[CC: EPA-13]**

Response: The RGA methodology provides an assessment of stream conditions, which is a surrogate for stream function. Bois d'Arc Creek in the reservoir footprint is an intermittent stream (i.e., there are periods with little to no flow and times with very high flows). The biological integrity sampling was conducted during times of moderate flow in the stream, allowing aquatic life to migrate from downstream segments to the reservoir site. During times of no flow, there is no aquatic life in the stream. The aquatic habitats in Bois d'Arc Creek are subject to displacement due to the high flows that currently occur. The Index of Biotic Integrity (IBI) and Rapid Bioassessment (RBA) scores reflect aquatic life, not aquatic habitat. The IBI scores show the aquatic life in Bois d'Arc Creek to be limited in the upper reaches within the proposed LBCR reservoir footprint, and high at FM 1396 and downstream. The RBA scores indicate high to intermediate aquatic life. Aquatic diversity is a reflection of the number of species collected and relative abundance. During the Supplemental Instream Flow Study (IFS), which collected fish from the downstream segment of Bois d'Arc Creek, 78 percent of the fish collected were only two species: red shiner and longear sunfish. Similar findings are discussed in the May 2010 IFS. These findings of limited habitat and biotic diversity in channelized sections are consistent with the poor channel stability (RGA scores) that reflects the lack of aquatic habitats.

MIT-11. EPA recommends the stream restoration plan be revised to address: * Inclusion of reference streams, existing conditions, and design criteria ratios * Additional details about stream restoration design beyond conceptual information and basic design (hydraulic, hydrologic, and geomorphic information supporting the proposed design) * The proposed stream channel design with additional details which would support the likelihood of successful restoration of the targeted stream functions * Specifics on how the RGA will evaluate proposed riparian area planting, and the anticipated indirect improvements in stream bank/channel stability * Description of how restoration and enhancement of existing streams at the Riverby Ranch mitigation parcel will be measured and assessed * Descriptions of which mitigation activities will result in improvement to water quality parameters and how these activities will result in the proposed reductions in sediment, pesticides, bacteria, etc. **[CC: EPA-15]**

Response: This comment requests specific details regarding parts of the proposed Mitigation Plan, many of which can be found in Appendices C, E, and I of the proposed Mitigation Plan. The USACE would not require such specificity to be included in any proposed mitigation plan; however, as-builts would be a

requirement if any Department of the Army (D.A.) permit is granted. An as-built is a survey that would show approved planned mitigation components were actually built on the landscape to match the size, shape, type, and location of each wetland/stream designed component as noted in Appendix I of the proposed Mitigation Plan. The referenced mitigation plan is currently a proposal to the USACE from the Applicant and has not been approved as written.

MIT-12. In finalizing critical mitigation plan elements, EPA recommends * More details, explanation of analysis, and specific plans for mitigation should be provided to strengthen the mitigation and ensure its success, such as: a work plan, timeline, stream design, additional performance standards, etc. * A Conservation Easement with a third party holder to conduct long-term maintenance and monitoring funded by the Applicant * Performance standards be designed to assess completion and attainment of proposed goals during the monitoring period rather than only project end-mitigation scores. * Monitoring reports that include info fathered such as tree survival, percent cover of invasive species, photos, downstream biological assessment and data collection, water quality measurements, shallow monitoring wells, data, etc. *Contingency plan with discussion on how to handle unanticipated site conditions/changes, including financial assurance mechanisms that could be used to implement remedial measures to correct unexpected problems and * Long-term maintenance and management plan for use after performance standards have been met and mitigation deemed successful. **[CC: EPA-14]**

Response: This comment requests specific details regarding parts of the proposed Mitigation Plan, many of which can be found in Appendices C, E and I of the proposed mitigation plan. The USACE would not require such specificity to be included in any proposed mitigation plan; however, as-builts would be a requirement if any Department of the Army (D.A.) permit is granted. An as-built is a survey that would show approved planned mitigation components were actually built on the landscape to match the size, shape, type, and location of each wetland/stream designed component as noted in Appendix I of the proposed Mitigation Plan. The referenced Mitigation Plan is a proposal to the USACE from the Applicant only and has not been approved as written.

MIT-13. If adverse impacts are expected immediately downstream of the dam, include description of mitigation activities to offset the adverse impacts. **[CC: EPA-17]**

Response: Overall, little to no adverse downstream impacts are expected with the proposed project and this topic is discussed in Section 4.5.4 of the EIS. Regulated releases of reservoir water to Bois d'Arc Creek below the dam (environmental flow releases) would occur and would be performed to compensate for losses of stream function and wildlife habitat, and are expected to enhance instream uses below the dam. The flow regime required in the water right permit would maintain flowing water in the creek channel, reduce the magnitude and frequency of highly erosive flows, provide for connectivity between pools, maintain existing aquatic habitat and communities, and protect

water quality downstream. The proposed pulse flow regime is expected to provide sufficient flows to benefit and maintain habitat while decreasing erosion and channel degradation and meeting seasonal criteria for dissolved oxygen concentration (Watters and Kiel, 2016). Certain aspects of the riparian corridor would likely be improved as a result of the dam, including increased streambank stabilization, vegetation growth, and gain of hard mast producing woody species. In addition, there are 78 FCUs of loss associated with changes to the flooding frequency of the forested wetlands downstream of the proposed reservoir but there would be no losses to wetland acreages. The mitigation proposal includes and compensates for this functional loss. Refer to Sections 2.8 and 7.5 and Appendix F of the proposed LBCR Mitigation Plan.

MIT-14. ES-4, Mitigation Plan. The last sentence of the 2nd paragraph incorrectly suggests that NTMWD's Revised Mitigation Plan does not include all of the mitigation to which NTMWD has committed, and that other elements of the mitigation package are found elsewhere. Please clarify that all of the proposed mitigation for the Proposed Action is fully incorporated into the Revised Mitigation Plan. If USACE is referring to avoidance, minimization, and/or conservation measures that may be found in other parts of the document, we suggest that USACE explain the distinction between the mitigation and those measures. **[CC: NMTWD1-23]**

Response: The Executive Summary has been revised to state that NTMWD's Revised Mitigation Plan includes all of the mitigation to which NTMWD has committed for purposes of complying with Section 404 of the Clean Water Act and has been revised to remove text suggesting that the Reservoir Operation Plan included additional mitigation measures.

MIT-16. 1-34, Section 1.8, Mitigation Summary- In line with NTMWD's comment on the Executive Summary above, this section in the Final EIS should clarify that NTMWD developed the Revised Mitigation Plan to address potential impacts that would be associated with the Proposed Action (Alternative 1). If USACE ultimately decides to permit the smaller reservoir (Alternative 2) instead, the mitigation identified in the Revised Mitigation Plan would be reduced to be commensurate with the impacts associated with Alternative 2. **[CC: NMTWD1-37]**

Response: Section 2.5, Mitigation Summary, has been revised to clarify that if the USACE permits the smaller reservoir (Alternative 2), then the mitigation identified in the Revised Mitigation Plan would be reduced to be commensurate with the impacts associated with Alternative 2.

MIT-17. 1-36, Section 1.8.3, Mitigation Objectives - In the first bullet, mitigation for streams should be reflected as SQUs, not linear feet. In the second bullet, NTMWD recommends adding the word "adjacent" before Red River Basin. For purposes of the second and third bullets, it is important to note that the inclusion of terrestrial mitigation in the Revised Mitigation Plan is solely to comply with state requirements associated with NTMWD's state water right permit and is not required by USACE as part of the mitigation for the requested 404 Permit.

Accordingly, NTMWD suggests that USACE strike the references to terrestrial mitigation from these bullets. **[CC: NMTWD1-39]**

Response: Section 2.5.3 has been revised in the first bullet to state that stream mitigation would be provided for streams in SQUs and to add the word "adjacent" before Red River Basin. Section 2.5.3 has been revised in the second and third bullets to clarify that inclusion of terrestrial mitigation in the Revised Mitigation Plan is solely to comply with state requirements associated with NTMWD's state water right permit and is not required by the USACE as part of the mitigation for the requested 404 Permit.

MIT-18. 4-12, Section 4.3.3, Mitigation - This section should clarify that NTMWD developed the Revised Mitigation Plan to address potential impacts that would be associated with the Proposed Action (Alternative 1). If USACE ultimately decides to permit the smaller reservoir (Alternative 2) instead, the mitigation identified in the Revised Mitigation Plan would be reduced to be commensurate with the impacts associated with Alternative 2. **[CC: NMTWD1-93]**

Response: Section 4.2.3.6, Mitigation, has been revised to clarify that if the USACE permits the smaller reservoir (Alternative 2), then the mitigation identified in the Revised Mitigation Plan would be reduced to be commensurate with the impacts associated with Alternative 2.

MIT-19. TPWD has previously commented that, "To ensure that mitigation is provided for the entire suite of functions lost at the impact site, the USACE should consider requiring interim target scores be developed for each of the individual FCIs." TPWD continues to support this recommendation. **[CC: TPWD-20]**

Response: Monitoring activities are described in Section 10 of the proposed Mitigation Plan, which states that during monitoring events, mitigation areas would be assessed to determine if the mitigation is on a trajectory to meet the performance standards. If needed, adaptive management steps would be taken. The USACE will fully consider the strategy suggested by the commenter. The USACE's decision regarding any mitigation strategies or performance standards will be made within the Record of Decision (ROD) and would be part of (a special condition of) any Department of the Army Permit.

MIT-20. 2.8 Wetlands Downstream of Proposed Lower Bois d'Arc Creek Reservoir Dam: TPWD appreciates the Applicant evaluating potential impacts to wetlands along this segment as requested. Performance standards and monitoring protocols should be extended to this segment to ensure that reservoir construction and operation do not impact downstream wetlands beyond the 78 Functional Capacity Units (FCUs) concluded. **[CC: TPWD-21]**

Response: Usually, the USACE would not require performance standards or monitoring in areas outside of any designated mitigation sites approved as part of

the 404 permit after the completion of a project. This is due to the fact that lands not in control of the Applicant could be manipulated by other sources outside the control of any permittee. Downstream modeling was performed by the Applicant (Appendix F of the proposed Mitigation Plan), which showed a potential change in downstream overbank flows. The study indicated that adequate hydrology would remain to support existing wetlands and existing riparian vegetation should not change after dam construction. The USACE independently reviewed and concurs with those findings.

MIT-21. 5.2 Upper Bois d' Arc Creek Mitigation Site: TPWD supports the Applicant's attempts to pursue additional mitigation opportunities in the watershed and believes the Upper BDC Mitigation Site has significant potential to offset impacts to aquatic functions at the proposed reservoir site. **[CC: TPWD-22]**

Response: The USACE appreciates the submission of statements supporting the proposed action and will consider the spectrum of public opinion in its final decision on this project.

MIT-22. If erosion and incision processes continue, this could undermine the establishment and success of enhanced riparian zones. Therefore, the performance standards discussed below should be required of all stream mitigation areas to ensure the establishment of stable and functioning stream segments. **[CC: TPWD-23]**

Response: The USACE acknowledges this comment and believes this issue is adequately addressed in Appendix C of the FEIS. The proposed Mitigation Plan (Appendix C) contains performance standards in Section 9.0. Performance standards for streams targeted for creation, restoration, and enhancement on stream mitigation sites, which includes Riverby Ranch mitigation site, the Wetlands Reserve Program (WRP), Upper BDC Mitigation Site, and on-site tributaries, and for on-site streams within littoral zone wetlands that are expected to develop at the proposed reservoir site, would be based on the RGA methodology. RGA-based performance goals are in the proposed Mitigation Plan. Performance standards for riparian zones - forested wetlands - would be based on the Modified East Texas HGM methodology, and would assess six functions for forested riverine wetlands and four for flat wetlands. If monitoring reports comparing mitigation progress to performance standards indicate that mitigation progress is falling short of such standards, consultation with the USACE and TCEQ would be initiated regarding the need for adaptive management.

MIT-23. The Habitat Units (HUs) provided in Table 5.12 should be field verified. **[CC: TPWD-24]**

Response: Appendix J of this FEIS presents information on the methodology for the Habitat Evaluation Procedure. Page 11 of the report states that field sampling for baseline conditions was conducted in June and August of 2007 for

the determination of the Habitat Units, and the USACE has seen no evidence that those baseline conditions have since changed. Assessment forms are provided in Appendix B of the report and photographs of the assessment sites are provided in Appendix C of the report.

MIT-24. 6.4 - 6.6 Planting Plans: More information should be provided regarding long term management of shrub wetlands which are often an early successional stage of forested wetlands. The Mitigation Plan should clarify whether these areas will be kept in a shrub state indefinitely. If kept in a shrub state, the Mitigation Plan should clarify whether these areas will require perpetual management and should identify the methods to be employed to maintain the shrub state. If shrub wetlands at the impact site are demonstrated to be forested wetlands in succession, TPWD would potentially support a mitigation strategy that replaces them with forested wetlands. **[CC: TPWD-25]**

Response: The "Classification of Wetlands and Deepwater Habitats of the United States" (Cowardin et al. 1979) classification for scrub-shrub wetland includes areas dominated by woody vegetation less than 6 meters (20 feet) tall. The species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. Many scrub-shrub wetlands are in fact early successional forested wetlands. The USACE would not require any Applicant to indefinitely maintain this successional stage of wetland, but rather would allow the wetland to mature to forested wetlands if natural hydrology/soils allow.

MIT-25. 6.10.1 Riverby Ranch: In keeping with standard stream design practices, the Applicant should provide the USACE and cooperating agencies with 95% design plans for review prior to construction. As-builts should be provided following the completion of construction. **[CC: TPWD-26]**

Response: The USACE normally does not require 95 percent design plans for the approval/disapproval of any Department of the Army (DA) Authorization. A copy of the final approved Mitigation Plan would be available to the cooperating agencies after the ROD. The USACE would require as-builts after mitigation construction is complete to be provided by NTMWD to USACE if the proposed mitigation plan is determined to be large and complex.

MIT-26. 6.11 Erosion Control: For soil stabilization and/or revegetation of disturbed areas within the proposed project area, TPWD recommends erosion and seed/mulch stabilization materials that avoid entanglement hazards to snakes and other wildlife species. Because the mesh found in many erosion control blankets or mats pose an entanglement hazard to wildlife, particularly snakes, TPWD recommends the use of hydromulching and/or hydroseeding to reduce risk to wildlife. If erosion control blankets or mats will be used during this project, the products should contain no netting or should contain loosely woven, natural fiber netting in which the mesh design allows the threads to move, thereby allowing expansion of the net openings. Plastic mesh netting should be avoided. **[CC: TPWD-27]**

Response: The USACE Tulsa District normally requires that best management practices be utilized to control erosion as a condition in most DA authorizations, and standard construction BMPs are identified in the Tulsa District's Mitigation and Monitoring Guidelines. The USACE Tulsa District will consider the commenter's concern about developing BMPs.

MIT-27. 7.4 Temporal Losses: This section indicates that 120 acres of existing shrub wetlands in the Upper BDC Mitigation Site would be protected and allowed to develop into forested wetland. It is unclear whether credit is being proposed for these areas and how uplift would be calculated, as two separate methodologies are being employed for these wetland types. This should be clarified. **[CC: TPWD-30]**

Response: The 120 acres is being proposed in excess of other proposed scrub-shrub wetland acres. The USACE Tulsa District will consider the amount of credit that the referenced acres provide in uplift when evaluating temporal losses that may occur with the proposed project as the USACE Tulsa District reviews and considers the entire proposed Mitigation Plan. The existing habitat value was assessed for shrub wetlands using the HEP assessment tool. The value of the mitigated area was assessed as a forested wetland, using the HGM assessment tool. Since the initial condition of this area is not forested wetlands, it has an initial habitat value as a forested wetland of 0. For mitigation, uplift was calculated as the difference between the expected mitigated FCUs for the 120 acres of the forested wetlands in the Upper BDC Mitigation Site and the initial value of 0. The value of the existing shrub wetland is not considered for mitigation in the proposed Mitigation Plan. The USACE Tulsa District will consider the amount of credit that the referenced acres provide in uplift when evaluating temporal losses that may occur with the proposed project as the USACE Tulsa District reviews and considers the entire proposed Mitigation Plan.

MIT-28. 7.9 Stream Mitigation: staff has strong reservations regarding the tabulation of credits. The Applicant is proposing that both "the total of existing SQUs [Stream Quality Units] and improved SQUs (i.e. uplift)" be counted toward mitigation credit for the majority of the proposed stream mitigation. TPWD has expressed serious concerns with this practice throughout the development of the DEIS. **[CC: TPWD-31]**

Response: The USACE will consider this concern as we review the entire proposed Mitigation Plan. Each project is and should be evaluated with specific attention to the type of project, the location of the project, the type and magnitude of the aquatic area impacts, and other such specifics. The proposed Mitigation Plan proposes as compensatory mitigation, for streams that NTMWD actively improves and protects through deed restrictions, the *total* of existing SQUs *and* improved SQUs (i.e., uplift). For streams that NTMWD would enhance in the Wetland Reserve Program (WRP) area at Riverby Ranch, which are already protected through an easement under the NRCS WRP, only the *uplift* in SQUs are proposed as compensatory mitigation. NTMWD proposes to take credit for

the full future condition of the mitigated streams because without the existing stream, no matter its baseline condition, there would be no opportunity for stream mitigation uplift through restoration and/or enhancement. Unlike wetlands, streams cannot be created where the landscape does not afford a watershed to provide hydrology to support fluvial processes. Refer to response to comment MIT-1 for more information.

MIT-29. Proposing credit for existing functions is preservation, yet the narrative and figures consistently refer to the credit received for existing functions as "mitigated length", "enhancement", and "restoration," etc. As described in the guidance documents relevant to this mitigation plan, preservation as mitigation is the least preferable mitigation strategy. It is typically used only in exceptional circumstances for high quality resources under demonstrable threat from outside of the control of the Applicant, and it most often requires a greatly diminished ratio of lands impacted to lands preserved, generally exceeding 10:1 (8:1 in the Tulsa guidelines). Additionally, while preservation is listed by the Tulsa guidelines as a "mitigation action" for wetlands, it is not listed for streams. In general, TPWD does not support stream preservation as a mitigation strategy. **[CC: TPWD-32]**

Response: The referenced Mitigation Plan is a proposal to the USACE from the Applicant only and has not been approved as written, and the USACE Tulsa District will fully evaluate the proposed mitigation in its entirety utilizing appropriate USACE mitigation guidance before any permit decision is made. Mitigation guidance does allow preservation credit when there is a demonstrable threat of loss from some future activity that is outside of the control of the permit Applicant. Most of the streams within the mitigation properties are channelized and degraded and currently subject to degradation by ongoing ranching and agricultural uses. The streams would continue to be subjected to these activities, resulting in further degradation if NTMWD were not preserving, enhancing, and restoring such streams. With regard to the preservation of streams, one of the primary project goals of the proposed Mitigation Plan is to provide stream mitigation in the Bois d'Arc Creek watershed to offset stream impacts. Per Regulatory Guidance Letter 02-2, the USACE gives preference to mitigation projects that use watershed and ecosystem approaches when determining compensatory mitigation requirements (USACE, 2002). Applicants are encouraged to provide compensatory mitigation projects that include a mix of habitats such as open water, wetlands, and adjacent uplands and buffers that, when viewed from a watershed perspective, provide a greater variety of functions and a greater likelihood of success. The proposed Mitigation Plan for the LBCR project utilizes a watershed approach and includes mitigation for uplands, streams and wetlands over many thousands of contiguous acres within the Bois d'Arc Creek watershed where the potential impacts would occur. While these cover types are addressed separately for accounting purposes in the plan, the relative locations and functions are contiguous and interrelated.

MIT-30. It is important to the department that impacts and mitigation be calculated consistently for all projects, both as a means by which to conserve the state's natural resources

and as a way to create a fair and predictable regulatory environment. TPWD staff is unaware of an instance in the state where mitigation has been calculated using both the baseline and uplift in this manner, and does not believe it is appropriate to establish a precedent for such an approach. **[CC: TPWD-33]**

Response: The referenced Mitigation Plan is a proposal to the USACE from the Applicant only and has not been approved as written; the USACE Tulsa District will fully evaluate the proposed mitigation in its entirety utilizing appropriate USACE mitigation guidance before any permit decision is made. The Mitigation Plan proposes as compensatory mitigation, for streams that NTMWD actively improves and protects through deed restrictions, the total of existing SQUs *and* improved SQUs (i.e., uplift). For streams that NTMWD would enhance in the Wetland Reserve Program (WRP) area at Riverby Ranch, which are already protected through an easement under the NRCS WRP, only the *uplift* in SQUs are proposed as compensatory mitigation. The rationale for taking credit for the baseline condition of the streams in all areas except the WRP is as follows: 1) The acquisition of large tracts of contiguous property provides protection from stream stability stressors including current adjacent agricultural activities such as plowing and cattle trampling. The proposed future adjacent land uses such as restored wetlands, riparian forests, and grasslands provide additional protection to these existing streams; 2) Applicable statutory and regulatory requirements allow credit for baseline conditions for stream mitigation purposes; Regulatory Guidance Letter 02-2 and USACE Tulsa District Guidelines afford preservation credit when aquatic resources, such as streams, are preserved in conjunction with establishment, restoration, and enhancement activities when the preserved resources will augment the functions of newly established, restored, or enhanced aquatic resources." (USACE, 2002); 3) Mitigation guidance allows preservation credit when there is a demonstrable threat of loss from a future activity outside of the control of the permit Applicant; most of the streams within the mitigation properties are currently degraded by past and ongoing ranching and agricultural uses, and would continue to be subjected to these activities and further degradation; 4) Existing streams provide the foundation for the proposed stream restoration and enhancement efforts, and are critical to the success of the other proposed aquatic mitigation. NTMWD proposes to take credit for the full future condition of the mitigated streams because without the existing stream, no matter its baseline condition, there would be no opportunity for stream mitigation uplift through restoration and/or enhancement. Unlike wetlands, streams cannot be created where the landscape does not afford a watershed to provide hydrology to support fluvial processes.

MIT-31. TPWD believes that a mitigation strategy such as the one proposed which provides extensive watershed based enhancements to aquatic functions may ultimately be acceptable even if a 1: 1 target is not reached. However, the accounting of functions lost versus functions gained should be stated clearly and accurately and should be consistent with standard practices throughout the state. **[CC: TPWD-34]**

Response: The commenter incorrectly assumes that standard mitigation practices throughout the state are static. Mitigation practices and approaches evolve over time due to experience and lessons learned from past, ongoing and future projects, research on ecosystems and their functions, regulatory changes, and many other factors. The referenced Mitigation Plan is a proposal to the USACE Tulsa District from the Applicant only and has not been approved as written. The USACE Tulsa District will fully evaluate the proposed mitigation in its entirety utilizing appropriate USACE and Tulsa District mitigation guidance before any permit decision is made. Refer to Appendix C of the FEIS.

MIT-32. 9.0 Performance Standards: While the Mitigation Plan does set final targets for assessment scores, the performance standards should also include such elements as survival and diversity criteria for plantings (riparian and wetland), minimum allowable percent invasive species coverage, geomorphic stability criteria for streams, and interim target scores for all mitigation strategies (none are currently proposed for wetlands). **[CC: TPWD-35]**

Response: The USACE acknowledges this comment and believes this issue is adequately addressed in Appendix C of the FEIS. The proposed Mitigation Plan (Appendix C) has performance standards in Section 9.0. Performance standards for forested wetlands would be based on the Modified East Texas HGM methodology, and would assess six functions for forested riverine wetlands and four for flat wetlands. The HGM calculator evaluates species diversity within the Vtcomp variable (see Appendix D of the Mitigation Plan). Performance standards for the shrub and emergent (littoral) wetlands would be based on the USFWS Habitat Evaluation Procedures (HEP). While no stream mitigation credit is included in the mitigation proposal for Bois d'Arc Creek downstream of the dam, except for the segment that flows entirely through the WRP area on Riverby Ranch, NTMWD is required by the LBCR water right permit to monitor the biological integrity of Bois d'Arc Creek downstream of the dam, which includes water quality and biological indices. Performance standards for Bois d'Arc Creek downstream of the dam would be based on fish IBI (Index of Biotic Integrity) and macroinvertebrate RBA (Rapid Bioassessment) scores. In addition, the proposed plan would measure plant diversity. If monitoring reports comparing mitigation progress to performance standards indicate that mitigation progress is falling short of such standards, consultation with the USACE and TCEQ would be initiated regarding the need for adaptive management. However, the USACE will consider this as we review the proposed Mitigation Plan. The USACE Tulsa District will fully evaluate the proposed mitigation in its entirety utilizing appropriate USACE mitigation guidance before any permit decision is made.

MIT-33. Performance standards should be applied to individual stream and wetland assessment areas and should not be based on an aggregate or average of the assessment scores for each mitigation strategy. This could potentially overvalue high functioning areas at the expense of underperforming mitigation areas in need of adaptive management for long term success. **[CC: TPWD-36]**

Response: The USACE disagrees with this comment. If one function for a forested wetland measured 0.95 (which is very high) and another measured 0.05 (which is very low) the overall score for the wetland would be 0.50. This score is below baseline for any wetland function, and would therefore not meet the performance measure for the wetland. The USACE Tulsa District will fully evaluate the proposed mitigation in its entirety utilizing appropriate USACE mitigation guidance before any permit decision is made.

MIT-34. Finally, before mitigation is considered complete, a delineation/jurisdictional determination should be performed to determine whether restored or created aquatic features (e.g. littoral wetlands and newly established streams) are functioning as waters of the United States. **[CC: TPWD-37]**

Response: The USACE disagrees with this comment. No such requirement for a delineation/jurisdictional determination exists in any mitigation guidance (specifically RGL 02-02 or the Tulsa District Mitigation and Monitoring Guidelines). The USACE Tulsa District will fully evaluate the proposed mitigation in its entirety utilizing appropriate USACE mitigation guidance before any permit decision is made. The USACE would require sufficient performance standards to ensure that the mitigation areas all perform as intended.

MIT-35. With respect to geomorphic stability criteria for streams, TPWD typically recommends that all stream mitigation areas employ the use of specific and measurable performance standards outlined in "A Function-Based Framework for Stream Assessment & Restoration Projects - EPA 843-K-12-006." **[CC: TPWD-38]**

Response: The USACE will consider this as we review the proposed Mitigation Plan. The referenced Mitigation Plan is a proposal to the USACE from the Applicant only and has not been approved as written; the USACE Tulsa District will fully evaluate the proposed mitigation in its entirety utilizing appropriate USACE mitigation guidance before any permit decision is made. Geomorphic stability of the mitigation streams will be evaluated using the RGA methodology, which is the tool used to assess baseline conditions and to project mitigation uplift.

MIT-36. Mitigation Plan 10.0 Monitoring Requirements: HGM, HEP, and Rapid Geomorphic Assessment (RGA) data should continue to be collected and reported for the duration of the monitoring period. Mitigation is an inherently uncertain endeavor and setbacks are commonly encountered. **[CC: TPWD-39]**

Response: The USACE will consider this concern as we review the entire proposed Mitigation Plan.

MIT-37. Mitigation Plan 10.0 Monitoring Requirements: This section states that the monitoring period for streams at the reservoir site will not begin until the water surface elevation reaches

534 ft. msl. A similar stipulation should be made for littoral wetland monitoring. **[CC: TPWD-40]**

Response: Section 10 of the Mitigation Plan (Appendix C of the FEIS) has been revised to state that the monitoring period for littoral wetlands at the reservoir site would not begin until the water surface elevation reached 534 feet msl.

MIT-38. Mitigation Plan 14.3.1 Terrestrial Habitat Unit (Credit) Determination: Regarding the summary of impacts to terrestrial resources and proposed mitigation, TPWD previously recommended that the impacts to cropland, evergreen forest, and tree savannah be included in the summary Table 14.6 for transparency to the public regarding terrestrial habitat impacts. Instead of adding the impacts to the table, a footnote to the table was provided stating that "mitigation for cropland, evergreen forest, and tree savanna cover types are not an objective of this mitigation plan and are not included in this table." For additional transparency, TPWD recommends that the note identify 1,649 HUs of impact and read, "Mitigation for 1,649 Habitat Units (HUs) of impact to cropland, evergreen forest, and tree savanna cover types are not an objective of this mitigation plan and are not included in this table." **[CC: TPWD-41]**

Response: Section 14.3.1 has been revised to state that "Mitigation for 1,649 Habitat Units (HUs) of impact to cropland, evergreen forest, and tree savanna cover types are not an objective of this Mitigation Plan and are not included in this table."

MIT-39. 14.3.3 Monitoring and Success Criteria: Restored grasslands should have a five year performance standard to meet an HSI score of 0.73 and restored riparian/bottomland should have a twenty year performance standard to meet an HSI score of 0.61. Areas of enhancement should also have performance standards, including a deciduous forest twenty year score of 0.76 HSI, and a riparian woodland/bottomland hardwood twenty year score of 0.63 HSI. **[CC: TPWD-42]**

Response: The referenced proposed terrestrial (upland) mitigation (grasslands and forests) is a requirement of the TCEQ water right permit. Though these areas are not required to be mitigated, like unavoidable impacts to waters of the U.S. are (RGL 02-02), the USACE Tulsa District may consider these lands as part of an "overall watershed approach" and allow them to add "value" to the overall proposed Mitigation Plan. As such, the USACE Tulsa District may consider the referenced HSI scores (within the proposed monitoring and success criteria of the Mitigation Plan) during the decision process within the ROD.

MIT-40. Mitigation Plan Appendix A: Figure 13 could be made clearer if dikes are labeled as existing and the berm/plug labeled as proposed. **[CC: TPWD-43]**

Response: The USACE will consider the commenter's suggested figure alteration in future potential revisions to the Mitigation Plan appendices.

MIT-41. Mitigation Plan Appendix C: The section contains a memo which demonstrates that at year five the restored shrub wetlands are predicted to have one potential nest cavity per acre for the wood duck. It is not clear how any cavity trees of a size suitable for the wood duck would establish naturally after planting native shrub wetland species from Table 6.3 in a cropland or grassland area with zero nest cavities per acre in year zero. The HSI model for the wood duck states that wood ducks generally nest in tree species that have a mature size of at least fourteen to sixteen inches diameter-at-breast height. For the wood duck, shrub species provide cover, security, and loafing habitat. TPWD suggests that the number of potential cavities per acre be reduced to zero for shrub wetlands at year five. This would affect the calculations for shrub wetland mitigation HUs. **[CC: TPWD-44]**

Response: The Applicant has agreed to install nest boxes for wood ducks within these areas. The boxes would be maintained until natural nesting habitat develops. Wood ducks will utilize nest boxes located in and around most water bodies such as marsh ponds, catfish and crawfish ponds, rice fields, borrow pits, and urban recreational ponds; therefore, the nest boxes would be placed in appropriate brood habitat in the immediate vicinity of or directly within highest quality wetlands containing an abundance of emergent aquatic vegetation such as cattails, pond lilies, lotus, sedges and rushes, and shrub cover such as has developed. In addition, the entire north side of the proposed shrub wetland restoration site is bordered by restored upland deciduous forest and restored wetlands that would provide additional habitat for potential nest cavities.

MIT-42. Chapter 4- Environmental Consequences, page 4-73 & 4-74, Mitigation Objectives the last paragraph, states the mitigation plan will encompass approximately 50,170 acres along a 42 mile long corridor adjacent to and connected to Bois d' Arc Creek. Pintail Farms and the Caddo National Grasslands cannot be counted as part of the mitigation plan because they already exist. Therefore the mitigation total for the LBCR is only 17,464 acres derived from the 14,959 acre Riverby Ranch, 1,900 acres from Upper Bois d'Arc Creek south of Bonham and 605 acres of littoral wetlands. **[CC: P17-21]**

Response: The text has been revised to state that mitigation for the proposed project would consist of the 14,959-acre Riverby Ranch mitigation site, 1,900 acres from Upper Bois d'Arc Creek mitigation site south of Bonham, and 605 acres of on-site littoral wetlands. Substantial additional benefit to the mitigation site and to the ecology of the area would be gained by the fact that between the proposed reservoir site and the downstream Riverby Ranch mitigation site is the Bois d'Arc Unit of the Caddo National Grasslands (approximately 13,370 acres), managed by the U.S. Forest Service (USFS). With implementation of the proposed Mitigation Plan (Appendix C) and the continued protection and management of the Caddo National Grasslands by the USFS, approximately 50,170 acres of contiguous aquatic and terrestrial habitat along an approximately 42-mile-long corridor adjacent to and connected by Bois d'Arc Creek would be protected in perpetuity.

MIT-43. Is NTMWD going to be required to postpone construction for 1 year to give the mitigation site a head start? Can a reasonable mitigation project be functional in a 3 year period? **[CC: P17-24]**

Response: As stated in the Executive Summary of the Mitigation Plan (Appendix C), mitigation activities can begin prior to or concurrent with impacts, if permitted, thus minimizing temporal losses of aquatic resources. In addition, the construction of the dam is expected to take approximately three years to complete, and following construction of the dam and spillways, it is anticipated that it would take an additional three years for the proposed reservoir to reach its conservation pool elevation of 534 feet msl. This expected six-year period for dam construction and reservoir filling would allow the enhanced and restored emergent and shrub wetlands on Riverby Ranch to reach maturity and provide the anticipated habitat value uplift (819 HUs). This would more than compensate for the 531 HUs of impacts to emergent and shrub wetlands. For forested wetlands, in anticipation of the issuance of the Section 404 permit, NTMWD has acquired 500,000 native, hard mast producing trees grown from local seed sources. Having the needed plant materials in hand and planting plans and specifications complete prior to issuance of the permit allows NTMWD to implement forested wetland restoration prior to, or commensurate with, impacts at the proposed reservoir site. This significantly shortens the time between anticipated impacts and implementation of the mitigation work plan. Refer to Section 7.3 of the Mitigation Plan (Appendix C).

MIT-44. If CWA rules are applied uniformly, then why was Cooper Lake in neighboring Delta County mitigated at a gross rate (ratio of the total number of acres of mitigation required to the total number of acres inundated by the project) of about 2.5:1 and LBCR will only be mitigated at a gross rate of less than 1:1? **[CC: P18-11]**

Response: The referenced Mitigation Plan is a proposal to the USACE from the Applicant only and has not been approved as written; the USACE Tulsa District will fully evaluate the proposed mitigation in its entirety utilizing appropriate USACE mitigation guidance before any permit decision is made. There is no consistent mitigation standard; each project is and should be evaluated with specific attention to the type of project, the location of the project, the type and magnitude of the aquatic area impacts, and other such specifics. Cooper Lake's mitigation ratios were determined based upon the consideration of factors specific to that project and included acreage surrogates. The use of acreage surrogates does not apply to LBCR per USACE Regulatory Guidance Letter RGL 02-02 and the Tulsa District Mitigation Monitoring Guidelines (October 2004) because functional assessment methods were used to evaluate impacts associated with the proposed LBCR project and proposed mitigation lands. Furthermore, Cooper Lake is within the USACE Fort Worth District and is not within the USACE Tulsa District. The USACE Fort Worth District has its own guidelines. Mitigation is determined on a case-by-case basis and are based upon USACE consideration of factors relevant to a specific mitigation proposal.

The USACE Tulsa District Aquatic Resource Mitigation and Monitoring Guidelines policies are to be accomplished through an emphasis on watershed-based mitigation and consideration of regional aquatic resource needs and priorities.

MIT-45. We think that the same methods should be used and feel that the gross mitigation ratios should be very similar and evidently so did NTMWD because they at first, thought 30,000 acres of mitigation would be required (see exhibit B). What kind of 'deal' was struck to lower the mitigation by over half? Even with the added 1900 acre upper Bois d' Arc Creek mitigation there are actually only 14,200 acres of mitigation because 2600 acres of Riverby Ranch was already in a federal wetlands program before NTMWD purchased the property and can't be counted as mitigation for LBCR. Enhancements to the property already in the wetlands program should not be counted as mitigation for LBCR because the owners were receiving payments to establish and maintain the wetlands. If they need enhancing now, then the owners have been neglect in their contract to maintain the wetlands. The law requires no net loss of habitat and wildlife already had this habitat so it should not be counted as mitigation for LBCR in any way, shape or form. **[CC: P18-12]**

Response: The 30,000 acres cited by the commenter is a placeholder that is commonly used in regional water planning for cost purposes only. For a project with no detailed analysis, a cost for mitigation is estimated at approximately 2x the acreages for the reservoir. The 30,000 acres was never intended to represent a specific amount of acreage for mitigation. The referenced Mitigation Plan is a proposal to the USACE from the Applicant only and has not been approved as written; the USACE Tulsa District will fully evaluate the proposed mitigation in its entirety utilizing appropriate USACE mitigation guidance before any permit decision is made. There has been extensive coordination with state and federal resource agencies throughout the permitting process for this project. Interagency teams have participated in the collection and analysis of data from the proposed reservoir site and the proposed mitigation sites. The proposed Mitigation Plan for the LBCR project utilizes a watershed approach and includes mitigation for both uplands and wetlands over thousands of contiguous acres within the Bois d'Arc Creek watershed where the potential impacts would occur. The USACE Tulsa District Aquatic Resource Mitigation and Monitoring Guidelines are typical minimum mitigation ratio replacement acres for impacted aquatic resources. The actual replacement acre ratios are on a case-by-case basis and determined based upon USACE consideration of factors relevant to a specific mitigation proposal. As proposed, the LBCR project is defined as including the project components and the mitigation components and encompasses approximately 36,200 acres of habitat within the Bois d'Arc Creek watershed and adjacent Red River watershed (excluding the dam footprint), which includes the 16,641-acre reservoir site, 2,700 acres of shoreline (between elevations 534 feet msl and 541 feet msl), a 14,959-acre mitigation site (Riverby Ranch mitigation site) downstream of the proposed reservoir, and a 1,900-acre mitigation site (Upper Bois d'Arc Creek mitigation site) located upstream of the proposed reservoir. Construction of the reservoir and related facilities would

result in permanent impacts to approximately 4,602 acres of forested wetlands, 1,223 acres of emergent wetlands, 49 acres of scrub shrub wetlands, 78 acres of open waters, and 123.3 miles of intermittent and ephemeral streams, in addition to impacts on upland habitats. Through a watershed approach to mitigation, on-site mitigation would be provided at the proposed reservoir site and near-site mitigation would be provided on the Riverby Ranch and Upper Bois d'Arc Creek (BDC) mitigation sites. Embedded between the proposed reservoir site and the downstream Riverby Ranch mitigation site is the Bois d'Arc Unit of the Caddo National Grasslands (approximately 13,370 acres), managed by the U.S. Forest Service (USFS). Therefore, with implementation of the proposed Mitigation Plan in combination with the Caddo National Grasslands, approximately 50,170 acres of aquatic and terrestrial habitat along an approximately 42-mile-long corridor adjacent to and connected by Bois d'Arc Creek would be protected in perpetuity.

MIT-46. The RDEIS mentions the 15,000 acre Riverby Ranch (actually 14,900 acres of which 2600 are already in a federal wetlands program and can't be counted as mitigation for LBCR). Even with the additional 1900 acre Upper Bois d' Arc Creek Site, the plan still has a less than 1:1 ratio of mitigation. Cooper Lake, in neighboring Delta County, had a mitigation ratio of about 2.5:1. NTMWD originally figured 30,000 acres of mitigation for LBCR which is comparable to Cooper Lake. Why is there now a much smaller amount of mitigation, actually only 14,200 acres? **[CC: P18-21]**

Response: The referenced Mitigation Plan (Appendix C) is a proposal to the USACE from the Applicant only and has not been approved as written; the USACE Tulsa District will fully evaluate the proposed mitigation in its entirety utilizing appropriate USACE mitigation guidance before any permit decision is made. Each project is and should be evaluated with specific attention to the type of project, the location of the project, the type and magnitude of the aquatic area impacts, and other such specifics. The mitigation requirement for Cooper Lake Dam (Jim Chapman Lake, impounded in 1991) was 35,500 acres, which results in a ratio of 1.85:1 for the conservation pool and 1.56:1 for reservoir and flood pool (not 2.5:1 as noted by the commenter). Other lake reservoirs, Lake Alan Henry (impounded in 1986) and Richland Chambers Lake (impounded in 1987) had mitigation ratios of 1:1. For the proposed project, there has been extensive coordination with state and federal resource agencies throughout the permitting process, and interagency teams have participated in the collection and analysis of data from the proposed reservoir site and the proposed mitigation sites. The USACE Tulsa District Aquatic Resource Mitigation and Monitoring Guidelines identify typical minimum mitigation ratio replacement acres for impacted aquatic resources. Mitigation for projects is determined on a case-by-case basis is based upon USACE consideration of factors relevant to a specific mitigation proposal. The USACE Tulsa District Aquatic Resource Mitigation and Monitoring Guidelines policies are to be "accomplished through an emphasis on watershed-based mitigation and consideration of regional aquatic resource needs and priorities." The proposed Mitigation Plan for the LBCR project utilizes a watershed approach and includes mitigation for both uplands and wetlands over

thousands of contiguous acres within the Bois d'Arc Creek watershed where the potential impacts would occur. No restrictions regarding the use of WRP lands exist in any mitigation guidance pertaining to this action (specifically RGL 02-02 or the Tulsa District Mitigation and Monitoring Guidelines).

MIT-47. The discrepancy between the first estimate of the amount of required mitigation, 30,000 acres and the final mitigation plan in the RDEIS, 14,200 acres has not been explained. This needs to be explained and redone by a truly unbiased and unvested, 3rd party contractor because something smells rotten. **[CC: P18-23]**

Response: The 30,000 acres cited by the commenter is a placeholder that is commonly used in regional water planning for cost purposes only. For a project with no detailed analysis, a cost for mitigation is estimated at approximately 2x the acreages for the reservoir. The 30,000 acres was never intended to represent a specific amount of acreage for mitigation. There has been extensive coordination with state and federal resource agencies throughout the permitting process for this project. Interagency teams have participated in the collection and analysis of data from the proposed reservoir site and the proposed mitigation sites. The proposed Mitigation Plan for the LBCR project utilizes a watershed approach and includes mitigation for both uplands and wetlands over thousands of contiguous acres within the Bois d'Arc Creek watershed where the potential impacts would occur. As proposed, the LBCR project is defined as including the project components and the mitigation components and encompasses approximately 36,200 acres of habitat within the Bois d'Arc Creek watershed and adjacent Red River watershed (excluding the dam footprint), which includes the 16,641-acre reservoir site, 2,700 acres of shoreline (between elevations 534 feet msl. and 541 feet msl.), a 14,959-acre mitigation site (Riverby Ranch mitigation site) downstream of the proposed reservoir, and a 1,900-acre mitigation site (Upper Bois d'Arc Creek mitigation site) located upstream of the proposed reservoir. Construction of the reservoir and related facilities would result in permanent impacts to approximately 4,602 acres of forested wetlands, 1,223 acres of emergent wetlands, 49 acres of scrub shrub wetlands, 78 acres of open waters, and 123.3 miles of intermittent and ephemeral streams, in addition to impacts on upland habitats. Through a watershed approach to mitigation, on-site mitigation would be provided at the proposed reservoir site and near-site mitigation would be provided on the nearly 15,000-acre Riverby Ranch and the 1,900-acre Upper Bois d'Arc Creek (BDC) mitigation sites. Embedded between the proposed reservoir site and the downstream Riverby Ranch Mitigation Site is the Bois d'Arc Unit of the Caddo National Grasslands (approximately 13,370 acres), managed by the U.S. Forest Service (USFS). Therefore, with implementation of the proposed Mitigation Plan in combination with the Caddo National Grasslands, approximately 50,170 acres of aquatic and terrestrial habitat along an approximately 42-mile long corridor adjacent to and connected by Bois d'Arc Creek would be protected in perpetuity.

It is common practice for the USACE to require applicants applying for Department of the Army authorization to furnish environmental information necessary for the preparation of an EIS. The USACE has a responsibility to independently evaluate the information submitted by an applicant and shall be responsible for its accuracy. The intent of the agency responsibility under NEPA is that acceptable work submitted by an applicant not be redone, but that it is verified by the USACE [40 CFR 1506.5(a)]. For the LBCR project, the applicant (NTMWD) and their consultant (FNI) were requested by the USACE to provide information that was then used by the USACE to help prepare the EIS.

The USACE selected Solv LLC as a third-party contractor to help prepare the EIS pursuant to the requirements of 40 CFR 1506.5(c). Solv LLC and its subcontractors have assisted the USACE in preparing the DEIS, RDEIS, and FEIS. To help ensure that the preparation of the EIS was conducted in an objective manner, Solv was required to execute a disclosure statement prepared by the USACE verifying that the firm has no financial or other interest in the outcome of the project.

MIT-48. Page 5-11. There is a great deal of poorly researched information on the TransCanada pipeline. This many threats to land and water are listed including hazardous spills, changes in stream morphology and stability, streambed degradation. Then stated "Mitigation measures would address these impacts." This is almost laughable. This pipeline was drilled underneath Bois d'Arc Creek. It is a huge threat to the waterway, and all they can state about preventive measures is 6 words, Mitigation measures would address these impacts". This is burying one's head in the sand. If there were a spill, and the public sees that "mitigation" was the only plan of prevention, there will be an uproar. **[CC: P3-25]**

Response: The TransCanada pipeline is not part of this proposed action and was evaluated in an EIS for that project.

MIT-49. Based on our review of the RDEIS, we believe that the proposed action is inconsistent with the Section 404(b)(1) Guidelines and the permit application should be denied. Specifically, the RDEIS fails to comply because (1) there is a practicable alternative to the proposed discharge that would have less adverse effect on the aquatic ecosystem; (2) the proposed discharge will result in significant degradation of the aquatic ecosystem; and (3) the proposed discharge does not include all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem. See 40 C.F.R. § 230.12(a). **[CC: P7-4]**

Response: The comment that the proposed action does not appear to be complying with USACE Section 404 regulations is noted. The USACE believes that its analysis of the proposed action is consistent with Section 404(b) (1) guidelines. The USACE reviewed and evaluated over 40 alternatives including the Applicant's proposed action, which is also the Applicant's preferred alternative. The EIS presents the potential environmental impacts of the proposed action and another reasonable alternative, and explains the rationale

for dismissal of the other alternatives. The alternatives analysis presented in the EIS is intended to support the USACE's public interest review and Section 404(b) (1) guidelines evaluation. The USACE will identify the LEDPA for this Section 404 permit application in the ROD for this FEIS. Additional information can be found in responses to comments ALT-128, MIT-65, and PUR-29.

MIT-50. The proposed action will result in significant degradation of the aquatic ecosystem, and the proposed mitigation will not adequately compensate for the wetland functions lost due to the action. The revised mitigation plan fails to comply with current federal regulations, even though the application was complete after these rules went into effect. The plan fails to comply even with old regulations and guidance, including the Tulsa District's own guidelines. It also continues to rely on unreliable methodologies for wetland and stream impacts. Even if one assumes these methods are reliable and accurate, the proposed mitigation still fails to meet the no-net-loss policy of the United States and fails to achieve required and recommended mitigation ratios. Finally, the proposed on-site and off-site mitigation is speculative, unreliable, more likely than not to fail, and should not be approved by the Corps. **[CC: P7-6]**

Response: The USACE disagrees with the comment that the proposed plan does not comply with current Federal regulations. There has been extensive coordination with state and federal resource agencies throughout the permitting process for this project. Interagency teams have participated in the collection and analysis of data from the proposed reservoir site and the proposed mitigation sites. NTMWD presented the mitigation concepts to the state and federal resource agencies in multiple meetings and workshops, and has considered the agencies' input during the development of the plan. The federal no-net-loss policy applies only to wetland function. The proposed mitigation results in a surplus of mitigation credits for all three types of wetlands impacted by the proposed project based on acres as well as functional units (HUs and FCUs). The USACE considers the plan to be within existing mitigation guidance that applies to this action, specifically the Regulatory Guidance Letter 02-2, "Guidance on Compensatory Mitigation Projects for Aquatic Resource Impacts Under the Corps Regulatory Program Pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 (RGL 02-02)" and the "Aquatic Resource Mitigation and Monitoring Guidelines," Department of the Army Regulatory Program, Tulsa District USACE, October 2004. Regarding the proposed on-site and off-site mitigation, the proposed Mitigation Plan has performance standards (Section 9.0) and regular monitoring schedules; if monitoring reports comparing mitigation progress to performance standards indicate that mitigation progress is falling short of such standards, consultation with the USACE and TCEQ would be initiated regarding the need for adaptive management. The USACE Tulsa District will fully evaluate the proposed mitigation in its entirety utilizing appropriate USACE mitigation guidance before any permit decision is made. Please refer to the responses to comments MIT-1 and MIT-55 for additional details on project impacts and mitigation.

MIT-51. Because the permit application was only complete after the effective date of the 2008 Compensatory Mitigation Rule, the NTMWD Section 404 permit application must be subject to this 2008 Rule. **[CC: P7-7]**

Response: As stated in the Preamble (Transition to the New Rule) to the 2008 Mitigation Rule, the final rule applies to permit applications received after the effective date of these new rules, unless the District Engineer has made a written determination that applying these new rules to a particular project would result in a substantial hardship to a permit Applicant. Permit applications received prior to the effective date are processed in accordance with the previous compensatory mitigation guidance. The application for the LBCR project was received by the USACE on June 3, 2008, prior to the June 9, 2008 effective date of the regulations governing compensatory mitigation for losses of aquatic resources provided in 33 CFR Part 332 and 40 CFR Part 230 (Final Mitigation Rule, 73 Fed. Reg. 19593, 19608). Therefore, the permit application is not subject to these regulations. Although this mitigation plan is not subject to the Final Mitigation Rule, the outline presented in the Final Mitigation Rule was considered in the development of the proposed Mitigation Plan. The rules that apply to the proposed LBCR project are those that existed prior to issuance of the 2008 mitigation rule.

MIT-52. Due to alleged deficiencies in the mitigation plan submitted in support of its DEIS, NTMWD revised its plan to include a modified East Texas Hydrogeomorphic Method to assess the functions of forested wetlands. But NTMWD and the Tulsa District of the USACE have refused to require that the mitigation plan comply with the 2008 Compensatory Mitigation Rule, in contravention of USACE regulations. **[CC: P7-8]**

Response: As discussed above in response to comment MIT-51, the Lower Bois d'Arc Creek application is not subject to the 2008 Mitigation Rule as the application was received by the USACE on June 3, 2008 (prior to the June 9, 2008 effective date for the 2008 Mitigation Rule).

MIT-53. An Applicant may not simply submit a placeholder application for a new permit for the sole purpose of avoiding new regulatory requirements. Because the NTMWD Section 404 permit application was only made complete after the effective date of the 2008 Compensatory Mitigation Rule, the mitigation requirements of this later rule are fully applicable to the permit application. The Corps must require NTMWD to fully comply with the 2008 Compensatory Mitigation Rule. The permit application is subject to the 404(b)(1) Guidelines (40 C.F.R. Part 230). The purpose of these Guidelines is to restore and maintain the chemical, physical, and biological integrity of waters of the United States. From a national perspective, the "degradation or destruction of special aquatic sites, such as filling operations in wetlands, is considered to be among the most severe environmental impacts covered by [the] Guidelines." **[CC: P7-9]**

Response: As discussed above in response to comments MIT-51 and MIT-52, the Preamble (Transition to the New Rule) to the 2008 Mitigation Rule states that permit applications received prior to the effective date are processed in accordance with the previous compensatory mitigation guidance. The Lower Bois d'Arc Creek Section 404 permit application is not subject to the 2008 Mitigation Rule as the application was received by the USACE on June 3, 2008, prior to the June 9, 2008 effective date for the 2008 Mitigation Rule.

MIT-54. Among other things, the requirements for compensatory mitigation makes clear that the “level of information and analysis needed to support a watershed approach”—as is proposed in this application—“must be commensurate with the scope and scale of the proposed impacts requiring a DA permit, as well as the functions lost as a result of those impacts.”¹¹ The proposed impacts under this permit application are very significant: NTMWD proposes to directly impact 5,874 acres of forested, shrub, and emergent wetlands; 78 acres of open waters; and 651,140 linear feet of streams. According to “The Mitigation Rule Retrospective,” a review undertaken by the USACE, EPA, and Institute for Water Resources, the total yearly average wetlands impacts for all Section 404 Permits nationwide is 13,338 acres. This means that the proposed permit application impacts nearly half of the average number of acres for all wetlands impacted nationwide on an annual basis. Consequently, the “level of information and analysis” required is commensurately significant. This is the standard under which the revised mitigation must be measured. For the reasons outlined in these comment, the revised mitigation plan fails to include the level of information and analysis required by the 404(b) (1) Guidelines. 4. **[CC: P7-10]**

Response: The USACE Tulsa District will fully evaluate the proposed mitigation in its entirety utilizing appropriate USACE mitigation guidance before any permit decision is made. Per Regulatory Guidance Letter 02-2, the USACE gives preference to mitigation projects that use watershed and ecosystem approaches when determining compensatory mitigation requirements (USACE, 2002). Applicants are encouraged to provide compensatory mitigation projects that include a mix of habitats such as open water, wetlands, and adjacent uplands and buffers that, when viewed from a watershed perspective, provide a greater variety of functions and a greater likelihood of success. The proposed Mitigation Plan for the LBCR project utilizes a watershed approach and includes mitigation for uplands, streams, and wetlands over many thousands of contiguous acres within the Bois d'Arc Creek watershed where the potential impacts would occur. While these cover types are addressed separately for accounting purposes in the plan, the relative locations and functions are contiguous and interrelated.

The USACE believes that its analysis of the proposed action is consistent with Section 404(b) (1) guidelines. The USACE reviewed and evaluated over 40 alternatives including the Applicant's proposed action, which is also the Applicant's preferred alternative. The EIS presents the potential environmental impacts of the proposed action and another reasonable alternative, and explains the rationale for dismissal of the other alternatives. The alternatives analysis

presented in the EIS is intended to support the USACE's public interest review and Section 404(b) (1) guidelines evaluation. The USACE will identify the LEDPA for this Section 404 permit application in the ROD for this FEIS.

MIT-55. In the RDEIS and the Revised Mitigation Plan, the Applicant has elected to use a methodology for non-forested wetlands that assesses impacts to wildlife habitat, but does not assess impacts of the many functions and values that wetlands have, as required by the 2008 Rule and recommended by the 2002 guidance. The RDEIS does not prove, therefore, that the proposed compensatory mitigation will “replace functional losses”—including physical, chemical, and biological losses—to the impacted wetlands. Instead, the Applicant's method only assesses wildlife habitat and then uses this assessment to mitigate with similar habitat in other wetlands. This method simply abstracts from one limited assessment to compensate for the wildlife impacts to specific indicator species of birds and mammals. This assessment does not and cannot act as a functional assessment for the loss all of the functions and values of aquatic resources. **[CC: P7-11]**

Response: Three functional assessment tools were used to assess the existing conditions of the various habitats at the proposed project site and associated facilities and the proposed mitigation sites and were conducted with participation by the USACE, USEPA, USFWS, USFS, TCEQ, TPWD, TWDB and NTMWD, including development of impact study scoping and field data collection. The HEP methodology is recommended by the USFWS as an appropriate tool to assess project impacts to wildlife habitat and for developing mitigation recommendations and is also identified by the state of Texas (30 TAC §297.53) as an appropriate tool for impact assessment and mitigation. It has also been used to evaluate impacts and develop mitigation for several major USACE permitted reservoir projects in Texas, including Lake Alan Henry, O.H. Ivie Reservoir, and Applewhite Reservoir, and it was used to evaluate the impacts and mitigation of the six-foot pool rise of USACE's Lake Waco to augment the city of Waco's water supply. HGM models are designed for and are regionally specific to the local biota; in this region of Texas, there are currently no vetted HGM models for emergent and scrub shrub wetlands. At the request of the USEPA and other federal and state resource agencies, the East Texas HGM functional assessment tool was modified specifically for this project (a joint effort between the Tulsa USACE District, the USACE Research and Development Center and Stephen F. Austin State University) to assess impacts and mitigation for forested wetlands, as forested wetlands is the habitat that would be the most affected by the project because it is the largest habitat present within the project footprint. The Modified East Texas HGM assesses six functions associated with forested wetlands: 1) Detention of Floodwaters, 2) Detention of Precipitation, 3) Cycle Nutrient Cycling, 4) Export of Organic Carbon, 5) Plant Community Maintenance, and 6) Habitat for Fish and Wildlife. The RGA was selected as the method to assess the quality of streams within the reservoir site; and is similar to other geomorphic assessment methods used in various regions of the U.S., which generally use measures of erosion, channel stability, riparian habitats, instream habitats, and other visual attributes of stream channels to evaluate and

measure stream conditions. The USACE believes that these assessments fully meet the standards and policies underlying applicable guidance for this project (and reiterate that the 2008 Rule is inapplicable). Refer to Chapter 2 and Appendices C through E of the proposed Mitigation Plan (Appendix C of the FEIS) and Appendices J, K, and L of the FEIS.

MIT-56. The HEP methodology measures only a portion of the functions lost at the impact site. We believe that this methodology should be replaced with a functional analysis that assesses a larger suite of wetland functions. However, if NTMWD is allowed to use HEP, then, if nothing else, it would be appropriate to increase the mitigation ratio to more fully compensate for the loss of wetland functions that are not being adequately assessed in the Revised Mitigation Plan. **[CC: P7-16]**

Response: As stated in MIT-55 and MIT-56, the existing conditions at the proposed project site and associated facilities and the proposed mitigation sites were assessed using three functional assessment tools that assess a variety of wetland functions.

MIT-57. The Applicant should be required to fully comply with the 2008 Rule. But the Revised Mitigation Plan fails to adequately mitigate the project's impacts even under the earlier guidance. **[CC: P7-17]**

Response: The USACE disagrees with the comment regarding the statement that the proposed plan does not comply with the applicable authority. The USACE considers the plan to be consistent with existing mitigation guidance that applies to this action (specifically RGL 02-02 and the Tulsa District Mitigation and Monitoring Guidelines). As stated in the Preamble (Transition to the New Rule) to the 2008 Mitigation Rule, the final rule applies to permit applications received after the effective date of these new rules, unless the District Engineer has made a written determination that applying these new rules to a particular project would result in a substantial hardship to a permit Applicant. Permit applications received prior to the effective date are processed in accordance with the previous compensatory mitigation guidance. The application for the Lower Bois d'Arc Creek project was received by the USACE on June 3, 2008, prior to the June 9, 2008 effective date of the regulations governing compensatory mitigation for losses of aquatic resources provided in 33 CFR Part 332 and 40 CFR Part 230 (Final Mitigation Rule, 73 Fed. Reg. 19593, 19608). Therefore, the permit application is not subject to these regulations. Although the proposed Mitigation Plan is not subject to the 2008 Final Mitigation Rule, the outline presented in the Final Mitigation Rule was considered in the development of the proposed Mitigation Plan. The rules that apply to the proposed LBCR project are those that existed prior to issuance of the 2008 mitigation rule.

MIT-58. These ratios fall grossly short of those in the Tulsa District's 2004 Mitigation and Monitoring Guidelines. These Guidelines were developed to ensure that permit applicants

provided appropriate, viable, adequate, and practicable mitigation proposals that will successfully replace lost functions and the values of the aquatic ecosystem. **[CC: P7-18]**

Response: The USACE disagrees with the statement that the proposed plan does not comply with the applicable authority. The USACE considers the plan to be within existing mitigation guidance that applies to this action (specifically RGL 02-02 and the Tulsa District Mitigation and Monitoring Guidelines). However, the USACE Tulsa District will fully evaluate the proposed mitigation in its entirety utilizing appropriate USACE mitigation guidance before any permit decision is made. Mitigation for projects is determined on a case-by-case basis and is based upon USACE consideration of factors relevant to a specific mitigation proposal. The mitigation ratios discussed in the USACE Tulsa District Aquatic Resource Mitigation and Monitoring Guidelines identify typical minimum mitigation ratio replacement acres for impacted aquatic resources. Mitigation for the proposed project is not in terms of acre ratios, but rather in terms of habitat units (HUs), functional capacity units (FCUs), and stream quality units (SQUs).

MIT-59. The proposed project will have significant adverse impacts on a thousands of acres of wetlands. Despite impacting 4,602 acres of forested wetlands, the Applicant is not even proposing to meet the minimum mitigation ratio of 1.5 replacement units for each acre of impacted forested wetlands, let alone a higher ratio often required for impacts to wetlands that are difficult to replace. **[CC: P7-19]**

Response: The USACE disagrees with the statement that the proposed plan does not comply with the applicable authority. The USACE considers the plan to be within existing mitigation guidance that applies to this action (specifically RGL 02-02 and the Tulsa District Mitigation and Monitoring Guidelines). However, the USACE Tulsa District will fully evaluate the proposed mitigation in its entirety utilizing appropriate USACE mitigation guidance before any permit decision is made. Mitigation for projects is determined on a case-by-case basis and is based upon USACE consideration of factors relevant to a specific mitigation proposal. The mitigation ratios discussed in the USACE Tulsa District Aquatic Resource Mitigation and Monitoring Guidelines identify typical minimum mitigation ratio replacement acres for impacted aquatic resources. As stated in the Tulsa Guidance, while methods exist to measure value of impacts and losses on a functional basis, the expertise required to assess this accurately is not widely available at this time, and the Tulsa District accepts acreage as a surrogate measure of functional loss. Where an Applicant desires to propose mitigation below these minimum mitigation ratios, the proposed Mitigation Plan must be accompanied by an accepted scientific functional assessment methodology. Mitigation for the proposed project is not in terms of acre ratios, but rather in terms of HUs, functional capacity units FCUs, and SQUs. While the Tulsa District has not adopted a stream, wetland, or aquatic resource assessment methodology at this time, for the proposed project forested wetlands were assessed with HGM methodology specially modified for the region, shrub and emergent wetlands were assessed with HEP methodology, and streams

were assessed with RGA methodology. These were determined by the USACE Tulsa District to be acceptable methods for assessing both impacts and mitigation. Future evaluation of methodologies may result in the endorsement of a specific methodology(ies) for particular types of aquatic resources. Please refer to the Tulsa Guidance and the response to comment MIT-6 for more information.

The USACE Tulsa District Aquatic Resource Mitigation and Monitoring Guidelines policies are to be accomplished through an emphasis on watershed-based mitigation and consideration of regional aquatic resource needs and priorities. The proposed mitigation actions for the proposed project are designed as a watershed-based approach and are being performed throughout the three proposed mitigation sites by three approaches consisting of creation, restoration, and enhancement.

MIT-60. Further, we believe that this minimum mitigation ratio should be corrected upward due to the ecological significance of these aquatic resources, the length of time—twenty years—required for functional maturity on the mitigation site and the associated time lag between construction impacts and completion of mitigation, and the use of preservation and enhancement for portions of the mitigation credit. According to the 2004 Guidance, these factors could easily require the mitigation ratio to be increased by 400-500%. However, instead of requiring the Applicant to meet a mitigation ratio of 6.0 or 7.5 to 1, the Revised Mitigation Plan proposes a 1.16:1 ratio. And the plan fails to even require a 1:1 ratio for stream impacts. These ratios fail to ensure that the aquatic ecosystem is protected. **[CC: P7-20]**

Response: The USACE disagrees with the comment that the proposed plan does not comply with current applicable authority. The USACE considers the plan to be within existing mitigation guidance that applies to this action (specifically RGL 02-02 and the Tulsa District Mitigation and Monitoring Guidelines). The USACE Tulsa District will fully evaluate the proposed Mitigation Plan in its entirety utilizing USACE mitigation guidance before any permit decision is made. The mitigation ratios discussed in the USACE Tulsa District Aquatic Resource Mitigation and Monitoring Guidelines are typical minimum mitigation ratio replacement acres for impacted aquatic resources. The replacement acre ratios are on a case-by-case basis and determined based upon USACE consideration of factors relevant to a specific mitigation proposal. As stated in the Tulsa Guidance, while methods exist to measure value of impacts and losses on a functional basis, the expertise required to assess this accurately is not widely available at this time. The Tulsa District accepts acreage as a surrogate measure of functional loss. Where an Applicant desires to propose mitigation below these minimum mitigation ratios, the proposed Mitigation Plan must be accompanied by an accepted scientific functional assessment methodology that demonstrates the reduced acreage, below the minimum mitigation ratio stated above, is adequate to replace the functional quality of the impacted aquatic resource. The Tulsa District has not adopted a stream, wetland, or aquatic resource assessment methodology at this time. Future

evaluation of methodologies may result in the endorsement of a specific methodology(ies) for particular types of aquatic resources. Please refer to the Tulsa Guidance and the response to comment MIT-6 for more information.

The USACE Tulsa District Aquatic Resource Mitigation and Monitoring Guidelines policies are to be accomplished through an emphasis on watershed-based mitigation and consideration of regional aquatic resource needs and priorities. The proposed mitigation actions for the proposed project are designed as a watershed-based approach and are being performed throughout the three proposed mitigation sites by three approaches consisting of creation, restoration, and enhancement.

MIT-61. We request that the Applicant and/or the Tulsa District clarify how the proposed mitigation ratios comply with the 2004 Guidelines, including the mitigation ratios provided in those guidelines and the factors that can require the ratio to be increased. We request that this information be provided for each type of wetland included in the Revised Mitigation Plan. We ask for explanations for each factor for which the mitigation ratio has or has not been increased in conformity with this document and other guidance documents on which the Tulsa District has relied. **[CC: P7-21]**

Response: See responses to comments MIT-4, MIT-5, and MIT-6.

MIT-62. NTMWD states that it will minimize temporal losses associated with the project. However, the proposed mitigation assumes that the forested wetlands will take twenty years to mature and provide the wetland functions that form the basis of the proposed mitigation. We request that additional mitigation be required to help offset these temporal losses to account for those functions lost between the beginning of construction impacts and the maturity of restored aquatic resources. **[CC: P7-22]**

Response: The USACE will consider this concern as we review the entire proposed Mitigation Plan. Refer to Section 7.4 of the proposed Mitigation Plan, which includes a detailed description of actions that NTMWD will implement to minimize temporal losses of aquatic resources. Also refer to the response to comment MIT-43 for more information regarding plans to minimize temporal losses.

MIT-63. The Applicant's proposed mitigation for impacts to terrestrial resources is also insufficient. Table ES-2 in the Revised Mitigation Plan demonstrates that there will be a net loss of three of 9 (+20-50%); reliance on preservation strategy (increase ratio to minimum 8:1); use of out of kind mitigation for impacts (+100%). The proposed project will have significant adverse impacts on a thousands of acres of wetlands. Despite impacting 4,602 acres of forested wetlands, the Applicant is not even proposing to meet the minimum mitigation ratio of 1.5 replacement units for each acre of impacted forested wetlands, let alone a higher ratio often required for impacts to wetlands that are difficult to replace. Further, we believe that this minimum mitigation ratio should be corrected upward due to the ecological significance of

these aquatic resources, the length of time—twenty years—required for functional maturity on the mitigation site and the associated time lag between construction impacts and completion of mitigation, and the use of preservation and enhancement for portions of the mitigation credit. According to the 2004 Guidance, these factors could easily require the mitigation ratio to be increased by 400-500%. However, instead of requiring the Applicant to meet a mitigation ratio of 6.0 or 7.5 to 1, the Revised Mitigation Plan proposes a 1.16 : 1 ratio. And the plan fails to even require a 1 : 1 ratio for stream impacts. 10 four types of terrestrial resources: upland deciduous forest (loss of 316 HUs); grassland (loss of 503 HUs); and shrubland (loss of 23 acres). NTMWD has previously committed to terrestrial habitat mitigation of equal or greater value than that which is impacted in a 2011 mitigation plan for its water right permit. The Applicant should be required to fully mitigate, at a minimum of 1 : 1 mitigation ratio, for the losses to terrestrial resources. Further, an explanation should be given for any differences in accounting between the 2011 mitigation plan submitted to TCEQ for the water right and this Revised Mitigation Plan for the 404 permit. **[CC: P7-23]**

Response: The USACE disagrees with the comment that the proposed plan does not comply with the applicable authority. The USACE considers the plan to be within existing mitigation guidance that applies to this action (specifically RGL 02-02 and the Tulsa District Mitigation and Monitoring Guidelines). However, the USACE Tulsa District will fully evaluate the proposed mitigation in its entirety utilizing appropriate USACE mitigation guidance before any permit decision is made. Refer to responses to comments MIT-57, MIT-58, and MIT-59 for more information.

MIT-64. ...if the water levels are going to be below the conservation pool for a significant period of time, then the exposed land is going to be an issue. Although the RDEIS claims that the land will be “fringe wetlands,” it is far more likely to be a big mud hole. The use of these “wetlands” as mitigations needs to be re-evaluated. If the water level is fluctuating as much as is described, then the exposed land would probably not grow wetland vegetation. On some portions of the land, the vegetation would die for being not inundated enough; and at other portions (the lower end), the vegetation would have too much water. **[CC: P7-29]**

Response: The littoral wetlands lie entirely within the footprint of the proposed LBCR conservation pool. The primary sources of water for the wetlands would be the proposed LBCR and tributary streams and the water levels in the LBCR would fluctuate over time, depending upon inflow and withdrawals. Even with these fluctuations, direct precipitation and inflow from the tributary streams would provide the required hydrology to the wetlands. Wetlands, contrary to their name, do not always contain water. Many seasonal and temporary wetlands experience periods of drought at some point in time. Such wetlands tend to flood or recharge during winter months and hold water into the spring or early summer before drying out in the hot summer months; this is a natural process frequently observed in wetlands in this area of Texas. These wet/dry cycles are beneficial as they discourage development of a monoculture of plant species such as cattail and bulrush and encourage seed production from many of the emergent wetland

plant species. In 2014, a study of the lake margins of five reservoirs in northeast Texas was conducted for the proposed LBCR project in order to better predict the species expected to develop within the littoral zone/fringe wetland areas of the proposed LBCR and to evaluate the expected plant response during extended periods of low water elevations within the reservoir. This information may be found in Appendix G of the proposed Mitigation Plan. All five of the reservoirs surveyed had functioning littoral zone/fringe wetlands along their shorelines that extended for some distance into the reservoir pool that supported high plant diversity. It is expected that the proposed LBCR would develop the same or similar conditions within the littoral zone/fringe wetlands that were observed at the five reservoirs surveyed in this study, and it is likely that a wide variety of different plant species would establish within the littoral zone/fringe wetlands that would develop around the proposed LBCR. It is also likely that there would be extended periods of low water levels within the LBCR that would preclude constant inundation of these wetlands and would create muddy conditions during certain periods; however, this drying out is expected to increase plant diversity.

MIT-65. Under the 404(b)(1) Guidelines, if a project will cause or contribute to “significant degradation” of waters of the United States, then the project should not be permitted. For all the reasons described above, there will be significant degradation resulting from this project. Among these significant impacts are the substantial loss of wetlands or special aquatic sites; the significant loss of fish and wildlife habitat; and the loss of economic values with the loss of farmland.²⁴ The RDEIS fails to adequately capture the significant impacts and the mitigation plan fails to adequately compensate for the loss of the special aquatic sites. At every step in the analysis of baseline conditions and proposed mitigation, there is an attempt by the Applicant to do less than what is required under existing law, regulations, and guidance. The aggregate result is clearly inadequate given the proposed adverse impacts to important aquatic resources. **[CC: P7-30]**

Response: The USACE believes that its analysis of the proposed action is consistent with Section 404(b) (1) guidelines. The USACE reviewed and evaluated over 40 alternatives including the Applicant’s proposed action, which is also the Applicant’s preferred alternative. The EIS presents the potential environmental impacts of the proposed action, the No Action Alternative, and another reasonable alternative, and explains the rationale for dismissal of the other alternatives. The alternatives analysis presented in the EIS is intended to support the USACE’s public interest review and Section 404(b) (1) guidelines evaluation. The USACE will identify LEDPA for this Section 404 permit application in the ROD for this FEIS.

MIT-66. What happened to the 5000-acre buffer that was in the first DEIS? Is the USACE going to require more mitigation around the perimeter of the lake? We have been informed that landowners would own the land down to 541’ elevations and would only being restricted down to 545’ elevation. Has this changed? **[CC: P9-35]**

Response: NTMWD is purchasing land from elevation 534 feet msl (conservation pool elevation) up to elevation 541 feet msl, which is the elevation of the emergency spillway (seven feet above the conservation pool). This is approximately 3,324 acres. Flowage easements would be purchased for land from 541 feet msl up to elevation 545 feet msl. Approximately 2,217 acres would be included in the flowage easements. Development restrictions within the flowage easements would help avoid flood damage to habitable structures and minimize the secondary impacts of development (such as degradation of water quality by unauthorized septic systems) adjacent to the reservoir. This would avoid or minimize indirect impacts to approximately 5,541 acres of land contiguous with the conservation pool of the proposed reservoir. Except for the proposed Upper Bois d'Arc Creek mitigation site and tributaries to the littoral wetlands, NTMWD has not calculated specific credit units for this area or claimed any preservation credits. However, these restrictions would minimize water quality impacts and secondary development impacts by establishing a buffer area surrounding the reservoir.

MIT-102-2015. 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 rules and guidance of the Corps for the following reasons: a proper analysis of the mitigation proposed was not completed. **[CC: TCA1-7]**

Response: The commenter has not substantiated their comment. As previously stated, the USACE has not completed its review of the proposed Mitigation Plan. The referenced Mitigation Plan is a proposal to the USACE from the Applicant only and has not been approved as written. The USACE Tulsa District will fully evaluate the proposed Mitigation Plan in its entirety to ensure that it is consistent with USACE regulations and guidance utilizing applicable USACE mitigation guidance, as informed by its professional judgment, experience, and knowledge gained from years of field work in similar ecological settings, before any permit decision is made.

MIT-103-2015. Almost every reference to avoidance or minimization of impacts refers to the water treatment plant, the pipeline, new bridges, or other ancillary facility, not the reservoir itself. Section 7.3.1 of the Mitigation Plan states that avoidance of impacts to waters of the U.S. by inundation within the reservoir footprint is not possible. Guidelines for developing a DEIS require that steps be taken to minimize impacts. There is no mention of minimization of impacts at the reservoir site. **[CC: TCA1-49]**

Response: The USACE believes that its analysis of the proposed action is consistent with Section 404(b) (1) guidelines. The USACE reviewed and evaluated over 40 alternatives including the Applicant's proposed action, which is also the Applicant's preferred alternative. The EIS presents the potential environmental impacts of the proposed action, the No Action Alternative, and another reasonable alternative, and explains the rationale for dismissal of the

other alternatives. The alternatives analysis presented in the EIS is intended to support the USACE's public interest review and Section 404(b) (1) guidelines evaluation. The USACE will identify the LEDPA for this Section 404 permit application in the ROD for this FEIS.

MIT-104-2015. Throughout the DEIS, undue credit has been given to the benefits accruing from development of the reservoir. The balance of benefits in ecological uplift and enhancement of streams of the proposed mitigation versus impacts caused by the reservoir is not supported by the analysis of Dr. Hayes in his report on the mitigation plan, which is attached and incorporated in these comments. **[CC: TCA1-54]**

Response: The referenced mitigation plan is a proposal to the USACE from the Applicant only and has not been approved as written. The USACE Tulsa District will fully evaluate the proposed mitigation in its entirety to ensure that it is consistent with USACE regulations and guidance, as informed by its professional judgment, experience, and knowledge gained from years of field work in similar ecological settings, utilizing USACE mitigation guidance before any permit decision is made.

MIT-29-2015. One school of thought holds that mitigation activities should be conducted on highly degraded habitats which can be restored to functional wetlands. The Riverby Ranch mitigation area certainly qualifies, as it is significantly altered due to historical intensive agricultural use; consequently plant and animal diversity on the Riverby Ranch are relatively low and ecological function impaired. However, it is difficult and costly to restore degraded habitats to natural condition and restoration properties often do not regain the biodiversity of natural habitats. Furthermore, the paucity in Texas of available funding, public or private, for acquiring and preserving relatively unaltered wetland habitats suggest that mitigation dollars could more appropriately be spent on conserving relatively intact and diverse habitats rather than restoring lands which have been converted to agricultural uses and are perhaps most appropriately managed for agricultural production. A process by which the conservation community could be engaged prior to selection of the mitigation property, and allowed to participate in selecting mitigation properties containing high-quality examples of affected habitats, would be preferable to accepting land as mitigation that was purchased before the EIS was written. **[CC: TCA1-56]**

Response: The USACE understands the value of acquiring and preserving relatively unaltered wetland habitats. One of the primary project goals of the mitigation for the reservoir is to provide mitigation within the same watershed as the impacts. Managing scattered stream mitigation segments across several counties, which would be geographically fragmented stream mitigation, would not be practicable or ecologically desirable, nor would it compensate for impacts within the Bois d'Arc Creek watershed. Having both terrestrial and aquatic mitigation sites located together on one tract would provide synergistic ecological uplift to both ecosystems and avoid fragmentation of habitat. The remaining terrestrial mitigation area is located adjacent to the project site. The proximity of these sites

to each other, including lands enrolled in the Pintail Farms Wetlands Reserve Program (WRP) area and the nearby Caddo Grasslands, also offers synergistic ecological uplift at a watershed/landscape scale, increases long-term habitat connectivity, and reduces habitat fragmentation. The stream mitigation proposal at the Riverby Ranch maximizes the opportunities for enhancement and restoration within the Bois d'Arc Creek watershed as the ranch currently contains cleared and degraded stream and riparian corridors and increases the potential for a successful mitigation site in comparison to sites where entire subwatersheds are not under the permittee's control and protection. The USACE Tulsa District will fully evaluate the proposed mitigation in its entirety to ensure that it is consistent with USACE regulations and guidance utilizing appropriate USACE and Tulsa District mitigation guidance before any permit decision is made.

NEPA PROCESS

NEPA-1. Please send our office one copy of the Final EIS when it is electronically filed with the Office of Federal Activities. **[CC: EPA-2]**

Response: The USACE sent a copy of the FEIS to EPA Region 6 as requested.

NEPA-2. 1-21, Section 1.4.2, Revised Draft EIS -- NTMWD recommends updating this section, such as with a bulleted list, to identify all the substantial revisions that were made to the DEIS when USACE prepared the RDEIS. **[CC: NTMWD1-32]**

Response: As requested, two bullets have been added to Section 1.4.2 identifying the two substantial differences between the DEIS and the RDEIS: the addition of a new alternative (Alternative 2), which was considered reasonable and the effects of which were analyzed in Chapter 4, and the use of a new functional assessment methodology (HGM) to analyze effects to forested wetlands. In addition, Section 1.4.3, Final Environmental Impact Statement, has been expanded slightly.

NEPA-3. Chapter 4 of the RDEIS analyzes impacts based on a "Construction Phase" and an "Operation Phase." Analyzing the impacts in this manner is confusing and incorrect. Inundation of the reservoir, which causes the impacts to Waters of the U.S., is the result of construction, not operation-and authority for construction is what is sought by the 404 Permit Application. To correct this issue, NTMWD recommends analyzing all of the short and long-term effects associated with construction, including inundation associated with the dam, in the appropriate context, rather than incorrectly considering every impact that may occur after the dam is built to be part of reservoir operation. **[CC: NTMWD1-87]**

Response: In the FEIS, impacts are not broken out into construction and operation phases. Rather, they are identified and characterized as effects of specific project components. The duration of impacts is one aspect that is characterized.

NEPA-4. The inadequacies described above regarding Purpose and Need and analysis of Alternatives make it improper for USACE to choose any but the No Action Alternative. Therefore, Texas Conservation Alliance, Natural Resources Defense Council, Audubon Texas, Caddo Lake Institute, Ward Timber, Ltd, and Ward Timber Holdings decline to analyze specific environmental impacts of Alternatives 1 and 2, neither of which should be selected. TCA, NRCD, Audubon Texas, CLI, and Ward Timber wish to make it clear that this does not imply that we agree with the analysis of environmental impact, or with the mitigation plan or the conservation plan. TCA, NRCD, Audubon Texas, CLI, and Ward Timber incorporate the comments we submitted on the previous DEIS in 2015 and reaffirm our concerns with any issues that have not been addressed. We urge the USACE to deny a permit to either version of Lower Bois d'Arc Reservoir and to choose the No Action Alternative. **[CC: NGOs-30]**

Response: The USACE has not yet selected any alternative. Based on its independent review, the USACE believes that all relevant information has been taken into consideration in assessing impacts of the alternatives for the RDEIS and FEIS.

NEPA-5. If a consulting firm is aware that it has such an intent in the decision on the proposal, it should be disqualified from preparing the EIS, to preserve the objectivity and integrity of the NEPA process. Therefore the DEIS and RDEIS is null and void because Freese and Nichols, Inc. has a vested interest in the construction of the proposed LBCR. **[CC: P17-9]**

Response: It is common practice for the USACE to require applicants applying for Department of the Army authorization to furnish environmental information necessary for the preparation of an EIS. The USACE has a responsibility to independently evaluate the information submitted by an applicant and shall be responsible for its accuracy. The intent of the agency responsibility under NEPA is that acceptable work submitted by an applicant not be redone, but that it is verified by the USACE [40 CFR 1506.5(a)]. For the LBCR project, the applicant (NTMWD) and their consultant (FNI) were requested by the USACE to provide information that was then used by the USACE to help prepare the EIS.

The USACE selected Solv LLC (formerly Mangi Environmental) as a third-party contractor to help prepare the EIS pursuant to the requirements of 40 CFR 1506.5(c). Solv LLC and its subcontractors have assisted the USACE in preparing the DEIS, RDEIS, and FEIS. To help ensure that the preparation of the EIS was conducted in an objective manner, Solv was required to execute a disclosure statement prepared by the USACE verifying that the firm has no financial or other interest in the outcome of the project.

NEPA-6. The CWA and NEPA processes are supposed to have alternatives studied in detail but we got just about what we expected, another document designed to grant the Applicant his desired action. We had hoped at least to get equal consideration and a fair assessment of

impacts to all parties for the Proposed Action, many sensible and feasible Alternatives and No Action. We do not feel that has occurred. **[CC: P18-47]**

Response: The USACE followed a good-faith, exemplary NEPA process that has taken nine years to date, and has involved many stakeholders and numerous studies. The USACE reviewed and evaluated over 40 alternatives including the Applicant's proposed action, which is also the Applicant's preferred alternative. The EIS presents the potential environmental impacts of the proposed action, the No Action Alternative, and another reasonable alternative, and explains the rationale for dismissal of the other alternatives.

NEPA-7. When I look on the Tulsa COE website for the Revised DEIS, I find that the Archeology study will not open, and that I would have to contact the USACE for that information. Why was this left out for the normal review process? I would like the USACE to mail me a copy of that report. Also, I would request a time extension to accurately examine that part of the revised DEIS for comments. **[CC: P9-9]**

Response: The original cultural resources and archeological surveys and studies that were used in the DEIS and RDEIS and to fulfill the USACE's Section 106 obligations under the National Historic Preservation Act contain sensitive information concerning the location and extent of historic properties, and therefore access is restricted.

Both volumes of the RDEIS were made publicly available at a central location during the public comment period, and all interested parties were encouraged to contact the USACE with questions and comments. The USACE is confident that ample time was given for review of the RDEIS.

NEPA-8. Since the first EIS, I was informed that there should be public comments and cooperation given from the public. As a landowner and many other landowners, we were never invited to give our opinions, and studies have not been performed on our property. How can information be left out on the revised DEIS? I would like to hear comments of where and who got to be included in the public comments for the revised DEIS. **[CC: P9-34]**

Response: All members of the public have been invited to participate in the NEPA process, in particular during scoping and upon release of the DEIS and the RDEIS, and both the Applicant and the USACE have frequently met with landowners upon request. Section 1.6 of the FEIS describes the public participation process. In conducting surveys and studies of such a large area, it is not necessary to visit each and every property.

NEPA-9. Also, we are working people, and the DEIS is a lengthy document that needs to be studied more. Due to our work and the length of the draft revised DEIS it is hard to look over every aspect of it. If there were a final draft formed I would ask the USACE to give a longer response time for comments. If I have missed any of the information listed in the revised DEIS it

be due to not having enough time to look over every fact listed. A bigger time frame should have been allowed on comments of the revised DEIS. I believe since we are losing a big part of our land, and in some cases people are losing everything, we should have the right to more time for comment periods. A ninety-day comment period would not be enough, but would allow for greater depth analysis of the Final EIS. I would like to request an email response the day that the final EIS is published. During the release of the revised DEIS, it was several days before anyone was notified that it had been published. **[CC: P9-50]**

Response: The USACE advised the public of the release of the RDEIS by several methods – publication of a Notice of Availability in the *Federal Register*, publication of notices and display ads in two newspapers available online and in hard copy in Fannin County, and sending of letters and emails to interested individuals – to ensure as complete and timely a notification process as possible. The NEPA process has been ongoing for nine years. The USACE will make every effort to ensure timely notification upon publication of the FEIS. Overall, the USACE has followed current NEPA guidance and associated public review timelines.

The information in the RDEIS has been developed and shared with the public over the last nine years. The USACE is confident that ample time was given for review of the RDEIS. The NEPA and CWA processes will conclude when the USACE is satisfied that all requirements have been met and the ROD is issued.

NEPA-10. In attachment 5, you will see a letter that I have obtained. It shows in my opinion how the politics are playing a role in this decision. How can a member of an agency show that he will do everything in his power to assist the Applicant. Also they have been providing assistance in advance, before receiving the revised EIS. This was a letter that had “cc” many political representatives including the ones that have been trying to bypass the CWA. Are the lead agencies not supposed to give unbiased examination of these kinds of projects? Recently, there has been Congressional support to speed this process up. This is all over the Internet. They have asked to be exempt from the CWA. This in by itself shows they are in violation of CWA and NEPA. By the way, I can't find any Senate approval on this action, so I guess it is not law to be exempt. There is no doubt that the revised DEIS is in violation of CWA and NEPA and should not be permitted without being in accordance with the law. Even President Trump said “We are a nation of laws” and they need to be enforced. Also my understanding of NEPA, there cannot be a timeline placed on a project like this. We need time to study all the facts of the DEIS, wetland impacts, ecological impacts, alternatives, etc. It appears that a pre-decisional decision has been made. It also appears a deadline of September 30, 2017 has been set. This should not be allowed under NEPA. How does the USACE plan on dealing with this? **[CC: P9-38]**

Response: The proposed project is not exempt from compliance with the CWA or NEPA. The NEPA process being carried out for the proposed LBCR project is in full compliance with federal law. The USACE and the Applicant are complying with CWA Section 404(b)(1) guidelines. The Applicant submitted their proposed

action and almost 40 alternatives for the USACE's review and evaluation. The USACE identified additional alternatives for consideration on its own. The USACE has independently evaluated these alternatives as well as every other alternative identified by commenters, agencies, and any other party. The EIS presents the potential environmental impacts of the No Action Alternative, the proposed action, and a reasonable alternative, and explains the rationale for dismissal of other alternatives. The thorough alternatives analysis presented in the EIS is intended to be thorough enough to support the USACE's public interest review and Section 404(b)(1) guidelines evaluation. The USACE will identify the least environmentally damaging practicable alternative (LEDPA) in the Record of Decision (ROD) for this FEIS. The information in the RDEIS has been developed and shared with the public over the last nine years. The USACE is confident that ample time was given for review of the RDEIS. The NEPA and CWA processes will conclude when the USACE is satisfied that all requirements have been met and the ROD is issued.

NEPA-10-2015. Finally, the above-named parties urge the Tulsa Corps to follow the rules and guidelines that set out the strict test for issuance of a Section 404 permit. It is incumbent on the USACE to scrupulously perform an independent assessment of the impacts of and alternatives to constructing Lower Bois d'Arc Creek Reservoir. The Tulsa Corps must not rely solely upon the analysis of the Applicant, the Texas Water Plan, or upon past decisions by the Texas Commission on Environmental Quality for any aspect of the decision on the application. **[CC: TCA1-12]**

Response: The USACE and its contractors and subcontractors have independently assessed all information and data supplied by the Applicant and its agents. The analysts in question have combined many decades of experience in assessing water resource development projects. The USACE has not yet selected any alternative.

NEPA-9-2015. Based on the inadequacies reflected in the DEIS for the Lower Bois d'Arc Creek Reservoir project described below, Texas Conservation Alliance, Natural Resources Defense Council, Audubon Texas, Ward Timber, Ltd, and Ward Timber Holdings request that the District Engineer of the Tulsa District of the U.S. Army Corps of Engineers either deny the permit or withdraw the DEIS and restart the NEPA process. **[CC: TCA1-10]**

Response: The USACE appreciates the submission of statements opposing the proposed action and will consider the spectrum of public opinion in its final decision on this project. The NEPA process being carried out for the proposed LBCR project is in full compliance with federal law. The USACE has not yet selected any alternative.

PROPOSED ACTION

PA-1. It is not discussed how sufficient e-flows will be delivered in between the dam and the confluence of Honey Grove Creek and Lower Bois d'Arc Creek. Please discuss potential impacts to the 1,500-foot area immediately downstream of the dam, or clarify if those impacts are included in the discussion elsewhere in the RDEIS. **[CC: EPA-16]**

Response: Approximately 1,006 linear feet of Bois d'Arc Creek downstream of the proposed dam site are located outside of the area of direct impact (i.e., the footprint of the dam and reservoir). These 1,006 linear feet (0.19 mile) of stream would not receive environmental flows passed through the dam. This segment of the creek would receive flows from the runoff from the dam itself as well as from the immediately adjacent watershed. The runoff from the dam would be collected through a drain system that would discharge to the upper end of this reach. This segment of Bois d'Arc Creek would continue to act as a stream, remain a water of the U.S. with an ordinary high-water mark, and receive runoff from the adjacent watershed. Impacts downstream of the dam are discussed in Sections 4.4.2.5 and 4.4.3.5, Surface Hydrology, for Alternatives 1 and 2, respectively; and Sections 4.4.2.7 and 4.4.3.7, Surface Water Quality, for Alternatives 1 and 2, respectively.

PA-2. The RDEIS does not include a description of how the water will get from the Leonard WTP to the existing water supply distribution system. While it is not necessary to know each individual hook-up or later of a water distribution system, the scope of the project should include a brief description of major distribution components, especially if there will be permanent impacts associated with the major components. **[CC: EPA-18]**

Response: The Leonard WTP (the North WTP) is considered to be part of the No Action Alternative in the FEIS because NTMWD has indicated that they will build the North WTP regardless of the USACE's decision on the Section 404 permit application. The treated water distribution lines from the North WTP are not included in the No Action Alternative because the location and extent of the distribution lines are not known. The treated water distribution lines would be reasonably foreseeable future actions with negligible to slight impacts similar to the raw water pipelines evaluated in the FEIS. Treated water distribution lines would be part of the overall development and related utilities infrastructure required as the population of Fannin County increases. The effects of the future growth of Fannin County on utilities are considered in Chapter 5, Cumulative Effects.

PA-3. The RDEIS includes varying descriptions of what NTMWD applied for in its Clean Water Act Section 404 Permit Application for the Reservoir Project. These descriptions are inconsistent and, in some cases, inaccurate. NTMWD's 404 Permit Application seeks authorization for the construction of the LBCR, including the dam and reservoir, service spillway, and outlet works, and the raw water pipeline and the TSR. In certain instances, however, the RDEIS incorrectly suggests that the 404 Permit Application also seeks

authorization for construction of the North WTP (for example, see RDEIS, Abstract, 1). As discussed on page 2-16 of the RDEIS, the North WTP is a WTP that NTMWD will construct to address customer demands for potable water even if the Reservoir is not constructed. NTMWD therefore requests that USACE include revisions in the Final EIS to appropriately reflect that that 404 Permit Application seeks authorization only for the construction of the LBCR, including the dam and reservoir, service spillway and outlet works, and the raw water pipeline and TSR.

[CC: NTMWD1-1]

Response: The FEIS has been revised accordingly. The North WTP has been removed as a component of the proposed action (Alternatives 1 and 2) and is discussed instead under the No Action Alternative, since the applicant indicates that it would be constructed irrespective of the USACE's decision on the Section 404 permit application for the LBCR.

PA-4. Similarly, further revision is needed in the Final EIS to clarify that the authorization sought by the 404 Permit Application is for construction of the proposed project only. Section 2.2.6 correctly reflects this, but other sections in the RDEIS suggest that NTMWD is seeking the 404 Permit for reservoir operation as well. USACE has no jurisdiction over operation of the Reservoir, and such jurisdiction lies solely with TCEQ. NTMWD therefore requests that USACE make clear in the Final EIS that the 404 Permit, if issued, is only for authorization of construction, not operation. **[CC: NTMWD1-2]**

Response: The Section 404 permit only authorizes placement of fill into waters of the United States for the purpose of constructing the proposed LBCR dam and reservoir. However, to comply adequately with NEPA, the EIS prepared by the USACE must consider all types of environmental consequences that result from implementing Alternative 1 or Alternative 2. The entire EIS has been reviewed to ensure that wherever the Section 404 permit is mentioned, it is clear that it authorizes construction but not operation.

PA-5. The RDEIS incorrectly suggests in numerous places that the North WTP and a potential rail spur to it are part of the proposed project, and analyzes Alternative 1 and Alternative 2 accordingly. The North WTP is a standalone project that NTMWD needs for its existing operations irrespective of the proposed reservoir. The North WTP does not depend on the reservoir for its justification and vice versa. NTMWD plans to develop and operate the North WTP to serve customer needs regardless of whether the reservoir is built. As a result, it is inaccurate to characterize the proposed project as including the North WTP. That said, NTMWD certainly understands if USACE, for the sake of efficiency and comprehensiveness, would like to analyze potential effects from developing the North WTP as part of the impacts assessment in the Final EIS and/or evaluate the North WTP as a cumulative impact. But we urge USACE to make clear that the North WTP is not a component of the proposal or of any action alternatives carried forward for detailed analysis. **[CC: NTMWD1-5]**

Response: The EIS has been revised. In the FEIS, the North WTP is not part of the proposed action but is included in the No Action Alternative. The rail spur

has been eliminated altogether as a component of the North WTP. It is no longer included as part of any alternative.

PA-6. NTMWD requests that USACE remove all references to the possible rail spur. The rail spur, if developed, would connect existing rail lines to the North WTP to allow shipments of materials to and from the plant. Just like the North WTP, the rail spur is not part of the proposed reservoir project and would be developed irrespective of whether the reservoir is built. Unlike the North WTP, however, it currently is uncertain whether the rail spur will be built in the future. USACE may want to analyze potential effects from the rail spur as part of its cumulative impacts analysis. **[CC: NTMWD1-6]**

Response: Discussion of the rail spur has been deleted from the FEIS.

PA-7. Since the proposed project is not designed to have flood control as a purpose, it does not have storage dedicated to retaining and controlling flood waters. Once the conservation storage of the reservoir fills, flood water will remain above storage only as long as it takes to flow out. NTMWD will have no ability to retain flood water. Accordingly, neither "flood pool" nor "flood storage" should be included as part of the description of the proposed action/alt 1 in the FEIS. **[CC: NTMWD1-8]**

Response: The USACE concurs and references to flood storage and flood pool have been removed from the description of the proposed action.

PA-8. The incorporation of a "flood pool" in the RDEIS resulted in the document incorrectly describing the total footprint acreage of the Proposed Action. The correct footprint should be 18,032 acres, which includes 17,068 acres for the dam and reservoir, 860 acres for the raw water pipeline, TSR, WTP, and 104 acres associated with relocation of FM 1396. **[CC: NTMWD1-10]**

Response: Acreages affected by the proposed action have been corrected in the FEIS.

PA-9. ES-2, Proposed Action - Alternative 1 - The use of the word "purpose" in the first sentence of the second paragraph could cause confusion in light of the term's legal meaning under NEPA. NTMWD recommends rewording this sentence to remove that word: "The proposed project would impound..." **[CC: NTMWD1-21]**

Response: The description of Alternative 1 in the Executive Summary has been revised and that sentence is no longer included.

PA-10. 1-11, Section 1.2.6, Texas Commission on Environmental Quality- The last sentence of this section should be revised to indicate that TCEQ staff also assisted in conducting the RGA analysis. **[CC: NTMWD1-30]**

Response: The sentence has been revised per the commenter's suggestion in Section 1.2.7, Texas Commission on Environmental Quality.

PA-11. 1-18, Section 1.3, Section 404 Permit Application Process, Figure 1.3-1 - In the Figure, 40 CFR 1500.1 (e) is the incorrect reference regarding reasonable alternatives. It should be revised to 40 CFR 1500.2(e). **[CC: NTMWD1-31]**

Response: The CFR reference has been corrected in Figure 1.3-1.

PA-12. 1-34, Section 1.8.1, Project Footprint- As discussed above, the project footprint does not include flood storage lands. (Note: the area between 534' and 541' is about 3,300 acres, rather than the identified 2,700 acres). **[CC: NTMWD1-38]**

Response: The text has been revised to remove reference to storage lands to Section 2.5.1, Project Footprint, in the FEIS.

PA-13. 2-11, Section 2.2.4, Road Realignment and Bridge Construction - NTMWD recommends that this section refer to and cite NTMWD's Transportation Plan. Also, in the last sentence of this Section "blue line" should be revised to "green line" for the proposed alignment of FM 897 extension. **[CC: NTMWD1-42]**

Response: The text has been revised per the correction in Section 2.3.4, Road Realignment and Bridge Construction.

PA-14. 2-23, Section 2.2.6, Reservoir Operation - Following the first sentence of the first paragraph of this section, NTMWD recommends that USACE further clarify that "TCEQ will have sole jurisdiction over operation of the Reservoir once it is constructed." **[CC: NTMWD1-43]**

Response: The USACE would not regulate operation of the reservoir upon its completion. The sentence in question has been revised in Section 2.3.6, Reservoir Operation, to reflect the fact that reservoir operation would abide by the stipulations and conditions of the water right permit for the facility that NTMWD has already obtained from TCEQ.

PA-15. 2-27, Section 2.2.6, Reservoir Operation, Figure 2.2-20- The text discussing Figure 2.2-20 is not correct and does not match the information presented in Figure 2.2-20. NTMWD recommends revising either the text or the Figure. **[CC: NTMWD1-44]**

Response: The text in question has been corrected in Section 2.3.6, Reservoir Operation, of the FEIS, which discusses what is now Figure 2.3-15.

PA-16. The future of North Texas depends on this next water source, and we need the supplies provided by the full-sized version of the Reservoir (Alternative 1). **[CC: Frisco-4]**

Response: The USACE appreciates the submission of statements either supporting or opposing the proposed action and will consider the spectrum of public opinion in its final decision on this project.

PA-17. The future of North Texas depends on this next water source, and we need the supplies provided by the full-sized version of the Reservoir (Alternative 1). **[CC: Mayor Terrell-3]**

Response: Please see response to comment PA-16.

PA-18. The future of North Texas depends on this next water source, and we need the supplies provided by the full-sized version of the Reservoir (Alternative 1). **[CC: Mayor Pruitt-3]**

Response: Please see response to comment PA-16.

PA-19. Alternative #1 is NOT currently viable because of its reliance on the Upper Bois d'Arc Creek Mitigation (UBDCMA) land area to meet the design's mitigation requirement. In my opinion NTMWD and their consultants have misled the USACE regarding their ability to secure the UBDCMA to meet their Alt #1 mitigation requirement. It is also my opinion that there is no legal remedy for NTMWD to guarantee to the USACE that the UBDCMA can be secured through future efforts. Therefore, if Alt #1 relies on the UBDCMA to garner approval, then Alt #1 cannot be approved. **[CC: P13-2]**

Response: The applicant is responsible for obtaining the right (either through an arms-length transaction or condemnation), via fee title or easement, to use the proposed properties for mitigation purposes; NTMWD would not be allowed to impound water prior to demonstrating that this has occurred. If NTMWD were to fail to secure the properties in question, then it could potentially be out of compliance with the conditions of the Section 404 permit, if issued.

PA-20. [Formerly GEN-36]. Flooding of Highway 82 east of Bonham. The highway is not much higher than the emergency spillway of the lake. A rain like the one in 1982 when 10-14 inches of rain fell in one day, will definitely flood Highway 82. The expense to Fannin County citizens, travelers, and county government will be substantial. It is not outside of reality to suggest lives will be lost in the flooding. Who is going to pay for this? Is FEMA willing to assume responsibility for this loss waiting to happen? Will citizens be allowed to sue NTMWD for the loss of property and lives when this happens due the false information they have presented to the public? **[CC: P15-8]**

Response: Please see response to comment T&U-4. The USACE and NTMWD have not presented false information to the public, and the comment identifies none.

PA-13-2015. The Tulsa District should also require the applicant to identify all adverse impacts and all reasonable alternatives to the reservoir. **[CC: TCA1-11]**

Response: The USACE, not the applicant, prepares the EIS. The USACE will continue to comply with NEPA in identifying all reasonable alternatives and adverse impacts in the FEIS.

PA-14-2015. The information provided to the U.S. Army Corps of Engineers by the applicant for a permit under Section 404 of the Clean Water Act for the Lower Bois d'Arc Reservoir project, as reflected in the Draft Environmental Impact Statement for the project, does not provide an adequate basis to grant the permit. The discussion and analyses in the DEIS fall far short of the standards for assessing purpose and need, alternatives, and environmental impacts. **[CC: TCA1-57]**

Response: The USACE will continue to comply with NEPA. Since publication of the DEIS, the USACE has collected additional information from the applicant and performed additional analyses. This effort, which included substantial collaboration with cooperating federal and state agencies, led the USACE to issue a RDEIS that included an additional action alternative. The information provided in the RDEIS has been further revised and improved for the FEIS. Based on its independent review, the USACE believes that all relevant information has been taken into consideration in assessing purpose and need, alternatives, and environmental impacts for the RDEIS and FEIS.

PURPOSE AND NEED

PUR-1. NTMWD recommends that each time a reference is made to the purpose and need in the Final EIS, the description should more consistently and faithfully reflect how the purpose and need is defined in Section 1.5 to avoid misunderstanding. **[CC: NTMWD1-7]**

Response: References to Section 1.5, Purpose and Need, have been added throughout the FEIS.

PUR-2. ES-2, Purpose and Need- The text incorrectly suggests that the North WTP is part of the purpose and need for the Proposed Action. The North WTP is needed by NTMWD regardless of whether the Proposed Action is approved, and NTMWD plans to develop the North WTP irrespective of the reservoir. The North WTP therefore should not be identified as part of the purpose and need for the Proposed Action. **[CC: NTMWD1-20]**

Response: Discussion of the North WTP has been added to the No Action Alternative and removed from the proposed action and purpose and need discussions throughout the FEIS.

PUR-3. USACE should ensure that each element of the purpose and need used in the RDEIS is accurately captured in Section 1.5 of the Final EIS. In particular, NTMWD recommends that the purpose and need section more clearly address the needed amount of water, including reserve supplies, and the timing for obtaining that needed amount. Included with these comments as Attachment A is a verified statement from NTMWD that appropriately describes and sets out

NTMWD's purpose and need for the proposed project. Given that each of these elements already is represented in the RDEIS and relied on by USACE to perform its NEPA analysis, NTMWD recommends that USACE consolidate them all clearly in its formulation of the purpose and need in the Final EIS to avoid any misunderstanding about the actual scope of the purpose and need. Alternatively, but less preferable, USACE should state that certain elements of the purpose and need are presented in other areas of the Final EIS, as was the case in the RDEIS.

[CC: NTMWD1-33]

Response: The USACE has revised the purpose and need statement for the FEIS to more clearly address the Applicant's water supply needs including amounts, timing, and reliability. The purpose and need are presented in Section 1.5 of the FEIS.

PUR-4. 1-22, Section 1.5, Purpose and Need of the Proposed Action - In the same vein, NTMWD recommends that USACE more directly incorporate all elements of the purpose and need from Appendix N into Section 1.5 of the Final EIS. At a minimum, NTMWD recommends that Section 1.5 better explain the need for a reserve supply. **[CC: NTMWD1-34]**

Response: Please see response to comment PUR-3. Additionally, the revised purpose and need statement includes the need for a reserve supply, and Appendix N of the FEIS presents detailed information on NTMWD's water supply planning process.

PUR-5. 1-23, Section 1.5.2, Overall Purpose of Applicant's Proposed Action, Table 1.5-1 - Footnote 1 in Table 1.5-1 incorrectly references Section 2.2.5.1. The discussion on the Main Stem Pump Station was moved to Appendix N, and is discussed on page N-40. **[CC: NTMWD1-36]**

Response: Footnote 2 in Table 1.1-1 has been revised to reference Appendix N, page N-40 for a description of the Main Stem Pump Station.

PUR-6. 2-29, Section 2.2.6, Reservoir Operation - In line with the comments above regarding purpose and need, NTMWD recommends that USACE include discussion in this section in the Final EIS regarding how the Proposed Action - Alternative 1 will address NTMWD's need for a reliable supply and reserve supplies, both critical elements of the purpose and need. **[CC: NTMWD1-45]**

Response: Chapter 2 of the FEIS includes a discussion of the Applicant's need for a reliable water supply and reserve supplies. This discussion is presented in Section 2.3.6, Reservoir Operation, for Alternative 1.

PUR-7. Relying on the 2013 CIP projections, particularly the quantities of water supply needed every 5 years through 2060, USACE should consider the following purpose and need statement for the Reservoir Project: "To ensure that NTMWD has an additional, reliable supply of water to meet its near term needs through 2025, including during drought and other reduced-

availability conditions, and to provide for a portion of its projected long-term water needs through 2060." This statement incorporates a number of terms requiring further explanation. "Additional" refers to a supply of water that NTMWD has not already accounted for in its long-term plans. This would include water NTMWD does not already have rights to use or that is above the current supply available to NTMWD from its existing sources. Because the projected demands or needs for water during the planning period from 2020 to 2060 take into account the expected supplies currently available to NTMWD from its existing sources, an "additional" supply must be developed to address NTMWD's projected water demands beginning in near term. The term "reliable" describes water supplies having a high level of certainty as to their amount and long-term availability to NTMWD in perpetuity as NTMWD's service population continues to grow as projected. By way of example, outright ownership of a water supply would be "reliable" because it provides a high level of certainty that such supply will be perpetually available to NTMWD over the long-term. By contrast, long-term water supply contracts would not be "reliable" because they are subject to contract terms and termination, and sellers of water pursuant to contracts are not obligated to renew or extend such contracts. In the circumstance where an applicant like NTMWD has projected supply deficits and needed reserves continuing to grow over time, certainty as to the availability of losing critical supplies when demands are growing and ongoing. "Reliable" also means that the supply of water is free from competing and third party uses, which make the amount of water supply available to NTMWD uncertain. **[CC: NTMWD2-1]**

Response: Please see response to comment PUR-3.

PUR-8. As evaluated by NTMWD at the request of USACE and EPA, the 2013 CIP Projections reflect increasing demands for NTMWD's water supplies over the planning period, with a water supply deficit beginning in 2020. Accordingly, the purpose and need statement should make clear that the project must provide a sufficient supply of water to meet NTMWD's near term projected demand and meet a portion of its long-term demand. The 2013 CIP Projections are presented below in Table 1 and identify the quantities of water required to allow NTMWD to meet its projected demands from 2020 (the first year with a projected water supply deficit) to 2060. USACE should incorporate this information into the purpose and need. **[CC: NTMWD2-2]**

Response: Please see response to comment PUR-3. The revised purpose and need statement includes the need for near-term and long-term supplies. Table 1.1-1 of the FEIS presents NTMWD's water supply and demands for 2020 to 2060 including the 2013 CIP demands.

PUR-9. The analysis underlying the RDEIS is not adequate to meet the legal standards and guidelines set forth in Section 404 of the Clean Water Act and rules and guidance of the Corps because it inaccurately depicts purpose and need. **[CC: NGOs-3]**

Response: The USACE is performing the analysis of the proposed LBCR project in full compliance with NEPA, CWA, and USACE requirements. The revised purpose and need statement was developed based upon the USACE's thorough

and independent review of all available information. Please see response to comment PUR-3.

PUR-10. The RDEIS starts from a statement of purpose that is based on a flawed accounting of NTMWD's future demands and an inaccurate counting of existing supplies. **[CC: NGOs-8]**

Response: The USACE has thoroughly and independently reviewed NTMWD's accounting of future demands and counting of existing supplies. Please see response to comment PUR-3.

PUR-11. The apparently dire situation depicted in Table 1.5-1 does not exist in reality, however, but is rather the result of a seriously-flawed accounting of present and future supply and demand. If properly corrected for the real-world situation, NTMWD's water supply and demand table would read as follows: (the NGOs letter included a table with data on page 3). **[CC: NGOs-9]**

Response: The commenters' assertion does not account for:

- a. Limitations of the source and quantities of reuse;
- b. Capacity to assimilate poorer quality wastewater in Lavon Lake; and
- c. Inability to meet the projected demands without new water supplies.

Limitations of Reuse Amounts. In this response, water that is returned to a stream or lake as treated wastewater is called "return flow," rather than "non-consumptive water use." Over the last 17 years, the amount of return flows associated with NTMWD customers ranged from 40.2% to 63.7% of the total water diverted for use. The higher percentage amounts occurred during wet years (e.g., 2015) and reflect Infiltration and Inflow (I/I) from large rain events into the sewer collection systems. The lower percentage (40%) of return flows occurred during dry periods (e.g., 2006 and 2011), with typically lower I/I. Because it is impossible to reliably forecast long-term precipitation trends (e.g., wet years vs. dry years), and since supplies must be available to meet dry year (drought) demands, NTMWD can only plan on having 40% of the water used in dry years available for reuse as return flows. This approach is consistent with prudent water supply planning protocols, and is consistent with planning requirements for the Texas State Water Plan (31 TAC §357.32, 31 TAC §357.34, and TWDB, 2016a).

It is important to recognize that not all the return flows generated by NTMWD customers are available for reuse. Wastewater that is treated at treatment facilities, such as the Floyd-Branch WWTP and the Sabine Creek WWTP, either discharges to streams below the diversion locations for reuse, discharges to lakes not controlled by NTMWD, or is committed to other purposes.

Under Texas water law, return flows become state water once the water is returned to a stream or lake. This means the return flows are subject to use by

existing water right holders unless the state grants a reuse permit. NTMWD is not permitted to use the above return flows.

The amount of reuse that is available to NTMWD is much less than asserted by the comment. If 100% of the theoretical amount of return flows generated from NTMWD's existing water sources could be diverted by NTMWD, the maximum amount of reuse would be approximately 117,000 AFY. Taking the projected 2060 supplies from current sources shown in Table 10 of Appendix N of the EIS, the amount of return flows is estimated at 40% of these supplies, which is the quantity available during drought. For Lavon Lake, the return flows are adjusted to 70% of the calculated amount to account for the permit conditions described above. Return flows that are not available for reuse include Bonham WWTP (Lake Bonham), Sabine Creek WWTP, Terrell WWTP, Kaufman WWTP, Floyd-Branch WWTP, and return flows purchased from TRA (MSPS). Water returned from the Sabine Creek, Terrell and Kaufman WWTPs originates from the Upper Sabine supply (Lake Tawakoni). It is assumed that the remaining reuse supplies can generate additional return flows for subsequent reuse. (This assumes the reuse water is beneficially used and returned to a WWTP for which there is an existing reuse permit. This assumption provides the theoretical maximum amount of return flow from this source.) If new supplies like Lower Bois d'Arc Creek Reservoir are not developed, reuse will not reach the levels projected in Appendix N.

Assimilative Capacity of Lavon Lake. NTMWD cannot count on unlimited additional wastewater discharges to Lavon Lake as a reliable future water supply for a few reasons. Treated wastewater (return flow) has a higher biochemical oxygen demand and contains higher levels of dissolved solids and nutrients than natural inflows to Lavon Lake. The ability of Lavon Lake to assimilate return flows is limited under current regulatory requirements. It is expected that water quality standards would continue to become more stringent, making it even more difficult to discharge additional return flows to Lavon Lake in the future.

Inability to Meet the Projected Demands without New Water Supplies. Using a 40% return flow factor, the comment that there would be 250,000 AFY of return flows available to NTMWD by 2060 assumes that NTMWD can supply 626,436 AFY to meet the projected demands. However, without new freshwater supplies, the total amount of supply available to NTMWD is 338,901 AFY. The available return flows calculated by the commenter are incorrect and do not account for the source water to generate such return flows. Also, the source water amounts do not accurately reflect the limitations on these supplies. This is discussed further under responses PUR-12, PUR-13, and PUR-14.

PUR-12. Under supply, RDEIS consistently understates the firm yield of Lake Lavon, historically determined to be 105,000 AFY. This is justified in the RDEIS on the grounds that over time the lake will accumulate sediment and on NTMWD's desire to substitute "safe" yield for firm yield. It is true that lakes accumulate sediment over time, which somewhat reduces their firm yield.

Areas of rapid urbanization, however, experience increased flows over time due to expanding impervious cover and increased run off. This effect can be dramatic, as much as doubling natural inflows, and should be studied in any proper accounting of the yield of any reservoir in an urban area, especially an area growing as fast as North Texas. The increase in flows due to run-off should more than offset the sedimentation effect, and justify retaining Lake Lavon's firm yield number over time. As for substituting safe yield for firm yield, the desire to "be on the safe side" does not justify misrepresenting the actual water supply. Virtually all of NTMWD's return flows discharge into lakes or streams which are part of NTMWD's water supply system. Therefore, almost 100% of those return flows are currently available for reuse. This is not likely to change in the future. NTMWD is obligated to release a portion of its return flows downstream into the Trinity River, owing to an agreement with the City of Houston and others. This mandatory release should not exceed 30,000 AFY (30% of the yield of Lake Lavon), in accordance with the agreement's stipulation that 30% of NTMWD's wastewater discharge originating in the Trinity Basin be released downstream. If total demand for water in NTMWD's service area does in fact reach the 626,436 AFY projected in the RDEIS for 2060, then NTMWD's water supply available from reuse should increase from approximately 110,000 AFY currently to approximately 250,000 AFY in 2060. **[CC: NGOs-10]**

Response: The EIS does not understate the firm yield of Lavon Lake. The supply amount for Lavon Lake is the maximum amount that can be withdrawn during a repeat of the drought of record with a minimum elevation of 467 feet msl. This is the lowest lake level at which the raw water pumps in Lavon Lake can operate.

All supply estimates for NTMWD are based on firm yield. In the case of Lavon Lake, the reliable supply reported in Table 10 of Appendix N of the EIS also accounts for infrastructure limitations of the intake structure and pump station. The supply amount for Lavon Lake is the maximum amount that can be withdrawn during a repeat of the drought of record with a minimum elevation of 467 feet msl.

Increased urbanization and related runoff is not expected to increase the yield of Lavon Lake, nor would any increases occur within the timeframe needed for this project. The available information does not show that Lavon Lake has experienced (or will experience within the foreseeable future) discernable increases of inflows because of urbanization. The ability to correlate urbanization to runoff in a large watershed is difficult in part because there are many factors that can affect runoff and ultimately reservoir yield.

The reliable supply of a reservoir is contingent upon multiple factors, including hydrological inflows, evaporative loss, watershed factors, and physical constraints on diversions. The firm yield of Lavon Lake is based on the hydrologic record from 1940 to 2014. The lowest inflow to Lavon Lake occurred in 2014 after substantial increases in development within the watershed. The available information does not show increased runoff patterns in the Lavon Lake

watershed over time (FNI, 2015). The inflows to Lavon Lake are more directly related to hydrological factors than urbanization. Urbanization appears to have a negligible, if any, effect on inflows to Lavon Lake.

Sedimentation of Lavon Lake will continue as projected, with a concomitant incremental loss of storage capacity and reduction in firm yield because the majority of the land surface within its watershed will remain unpaved and uncovered by impervious surfaces even after development, and thus the lake will be exposed to erosion.

PUR-13. NTMWD has a contract with the Sabine River Authority (SRA) for 50,707 AFY from Lake Tawakoni, and the infrastructure is in place to convey this water to NTMWD's service area. This contract will expire in 2025, but has provision for two 10-year contract extensions, which would make that water available until 2045. The RDEIS lists only 10,629 AFY from Lake Tawakoni beginning in 2030, but all that is needed to continue the full 50,707 AFY supply until 2045 is extending the contract. Extending the Tawakoni contract greatly increases the flexibility of alternatives available to NTMWD and renders as practicable the various alternatives that were dismissed because they did not meet the time frame stipulated in the inappropriately-structured statement of purpose. It is important to note that while NTMWD's contract with SRA for water in Lake Tawakoni may expire, the infrastructure connecting Lake Tawakoni to NTMWD's service area will still be in place. It is anticipated that the 40,078 AFY not currently contracted by NTMWD beyond 2025 (or 2045 with the extensions allowed in the contact) will be in future conveyed to the City of Dallas. A trade between NTMWD and the City of Dallas where the water from Tawakoni is traded to NTMWD for some of NTMWD's Lake Texoma water right would be beneficial to both parties. There are water providers in the western part of the DFW area (west and south of Collin County) who have substantial fresh water supplies that could be blended with Lake Texoma water to produce high-quality drinking water. It would be in the interest of all parties, and certainly in the public interest, for the area water providers to make whatever trades are useful to optimally allocate the existing supplies. NTMWD may argue that a water trade depends on an arrangement with the City of Dallas or another area entity, and is thus dependent on mutual agreement, but the RDEIS cannot be deemed to have fully investigated the alternatives until this option is explored with those entities. **[CC: NGOs-11]**

Response: NTMWD's contract with SRA for Upper Sabine Basin supplies is an interim water supply contract pursuant to which NTMWD's rights to certain quantities of water are expressly subordinate to the right of SRA's existing customers. SRA has indicated that during times of drought NTMWD supplies may be reduced to ensure SRA is fully capable of supplying its existing customers with contractual water supplies.

Subject to such subordination in the contract, SRA expects the available water supply quantities to be not less than 40,000 AFY in years one to five, 30,000 AFY in years six to 10, 20,000 AFY in years 11 to 15, and 10,000 AFY in years 16 to 20. The contract does have an option for SRA to increase the supplies available

to NTMWD if additional water is available, but there are no guarantees that such additional water will be available. The contract also contemplates the possibility of two 10-year extensions when the quantity of water, cost, and fees would be renegotiated, rendering those possible extensions far from certain. Given the interim nature of the current contract and its subordination provision, and the unreliability of the water supply, prudent water supply planning prevents NTMWD from considering this additional supply to be available after 2025.

NTMWD has not negotiated with Dallas regarding a trade for Lake Tawakoni supplies in exchange for some of NTMWD's Lake Texoma supplies because Dallas has no financial incentive or immediate supply needs that would necessitate such a swap. Dallas would derive little to no benefit from such a swap, particularly in light of the salinity issues and zebra mussels with Texoma water supplies. Furthermore, Dallas has no infrastructure to be able to obtain Texoma water supplies from NTMWD. Dallas would have no reason to enter into a contract with NTMWD to pay for water from Lake Texoma and develop facilities to treat or blend the poorer quality water, which would be more expensive than its own existing raw water supplies from Lake Tawakoni.

PUR-14. Such a trade is not essential, however, for NTMWD to use more of its permitted water supply from Texoma than the 77,000 AFY used as a planning number in the RDEIS. NTMWD's existing permitted water supply is dominated by the 197,000 AFY supply from Lake Texoma. The RDEIS acknowledges that this water is economical and practicable when properly blended with fresher water to meet water quality standards. The RDEIS assumes that this limits NTMWD's water supply from Lake Texoma to 77,000 AFY, only 39% of the permitted supply. Determining the actual water supply from Lake Texoma by blending would require a careful simulation using real-world values of Lake Texoma salinity, the salinity of other supply sources, and realistic pumping rates from the various supply sources in accordance with actual salinity at the moment of pumping. The RDEIS mentions a salinity value for Lake Texoma of 1100 ppm, which necessitates a 3:1 blending ratio assuming the blending water sources to be 300 ppm. Actual salinity values for Lake Texoma have been difficult to obtain, but the available data does not support the alleged 1100 ppm in the RDEIS. A water supply study of Texoma done by HDR, Inc., for Dallas Water Utilities in 2005 used Storet data and gave an average value for water at Denison Dam of 795 ppm. A 2010 study by the USACE concerning the impact of the Red River Control Project on Lake Texoma assumed a value at the dam of approximately 800 ppm. An earlier study by the USACE (April 2003) of the Wichita Basin Chloride Control Project gave an average figure of 966 at the dam. This study indicates that salinity is below 766 ppm 20% of the time and exceeds 1100 ppm only 20% of the time. Recent data obtained from TCEQ indicated an average level of total dissolved solids near the Denison Dam between 2001 and 2014 of 985 ppm. NTMWD may argue that it should use the highest measured salinity for its planning number, but this is not necessary if the pumping rates are varied. If the pumping rates for the existing pipeline from Texoma to NTMWD's Wylie treatment plant provide a 3:1 blend ratio during peak pumping times in the summer, and at other times are varied to make maximum use of Lake Texoma water consistent with meeting water quality standards, and if in the future NTMWD's demand does reach values above 500,000 AFY, then approximately 150,000 AFY of

that water could come from Lake Texoma. It should be noted that when Texoma salinity is 800 ppm or less, and the blending water is 200 ppm or less, blending ratios can be as low as 1:1. The assumptions incorporated in the TCA table above reflect the aggregate results of the analysis of supply and demand above. **[CC: NGOs-12]**

Response: Salinity levels in Lake Texoma vary over time depending on quantities and sources of inflow. Historical levels of total dissolved solids (TDS) in Lake Texoma from 2001 to 2016 (TCEQ, 2017) show TDS levels ranging from less than 500 mg/l to over 1,300 mg/l with a median value of 1,015 mg/l. Higher salinity levels typically occur during drier periods as evaporative losses and little fresh water inflows tend to increase salinity levels. It is during these times that NTMWD would need to rely on Texoma water to meet its demands. Therefore, planning for the TDS levels during drought, when the Texoma water is really needed, is a prudent planning approach, not an overly cautious approach as implied by the comment.

The comment incorrectly suggests that Texoma could supply 150,000 AFY with no new supplies for blending. The sources of existing fresh water supply available to NTMWD in 2020 for blending are about 274,500 AFY, including reuse supplies from the Wilson Creek WWTP and East Fork Raw Water Supply Project, and 40,000 AFY from the Upper Sabine supplies. To use 150,000 AFY of water from Lake Texoma without advanced treatment, the blend ratio would be 1.8 to 1. This blend ratio would exceed the federal TDS secondary drinking water standard (500 mg/l) and does not meet the needs of NTMWD's customers. Also, as more reuse water is used for blending, the TDS concentrations of the fresh water supply is expected to increase, further affecting the blend ratio and resulting blended water quality.

NTMWD has several customers (e.g., electronic industries and medical facilities) with water quality needs that require the water to have TDS levels less than 500 mg/l. NTMWD has tried varying the blend ratio of these sources while maintaining the water quality criteria and found that a 4:1 blend ratio (4 parts Lavon Lake to 1 part Texoma) is required during dry periods. During wet periods, NTMWD can blend Lake Texoma water at a 3:1 ratio and meet the 500 mg/l standard. For prudent planning, water supply is based on the supply available during drought; TDS concentrations of Texoma water during drought are approximately 1,100 mg/l or higher and must be blended at a 4:1 ratio.

The comment also asserts that the blending ratio could be as high as 1:1 (i.e., more Texoma water to fresh water) when the TDS in Lake Texoma is below 800 mg/l and the blend source water is below 200 mg/l. TDS concentrations in Lake Texoma are below 800 mg/l only during wet periods, which occur about 18% of the time over the historical record and not when water from Lake Texoma is needed the most. Other considerations, such as chlorides, must also be balanced in the blending process. Again, while higher blend ratios may be

possible at times, this supply cannot be counted on during drought. NTMWD is responsibly planning for reliable supplies and is not being overly cautious.

The Texoma pump station contains seven constant-speed pumps (2,000-6,100 HP w/ 125 MGD combined capacity, 2,000-4,000 HP with 90 MGD combined capacity, and three smaller pumps used by GTUA to supply the Sherman WTP and Panda Energy when the NTMWD is not pumping to the Howe Balancing Reservoir). NTMWD does not have the capability to vary the pumping frequency (i.e., pumping rates) with salinity levels in Lake Texoma at the pump station. From the Texoma balancing reservoir near Howe, Texas where water from the Texoma pump station is delivered, the water is transported by gravity to the Wylie WTP. Varying the flow from the balancing reservoir using a system of valves at the WTP allows NTMWD to match the blended supply with the demand over time. The existing blending facility is designed for a 3:1 blend ratio, and the existing pipeline to the Wylie WTP has a maximum capacity of 120 MGD. Adding variable pumps to the Texoma pump station would not change the operations of the system since NTMWD already varies the amount of water received from Texoma. Even if operations were modified and additional infrastructure was constructed to deliver greater quantities of water from Texoma, the amount of supply is still limited by the required blend ratio during drought and the available supply from freshwater sources.

PUR-15. As noted above [in Table 1.5-1 of the RDEIS], the RDEIS water demand projection for NTMWD for 2025 is 457,056 AFY, and 626,436 AFY for 2060. While the 2060 figure is speculative, but possible, the 2025 figure, on which the RDEIS says the decision about LBCR is to be based, is certainly incorrect. **[CC: NGOs-13]**

Response: Please see the response to comment PUR-11. The USACE has independently evaluated NTMWD's water demand projections and concurs with the amounts.

This comment infers that future total water use is simply an extension of current water use with a growth factor applied. This approach does not account for dry year per capita water use versus normal or wet year per capita use. Nor does it address artificial restrictions on water use – namely mandatory conservation measures – due to severe drought. Using historical water use when watering restrictions are effective understates the projected water demands. The commenters attempt to justify historical water demands during wet periods as the basis for future demands. Instead, prudent water supply planning is based on dry year demands and dry year supplies (i.e., firm yield), and the USACE concurs that the demands developed for the EIS reflect an accurate assessment of the dry year water use and growth for the NTMWD service area.

Water demands are developed from both population growth projections and per capita water use. Population in NTMWD's service area continues to increase at a rapid pace. NTMWD has an obligation to reliably provide supplies during a dry

year, when water demands tend to be higher. Thus, for water supply planning, water demand is based on the use during dry years. During the implementation of drought plan related restrictions, such as limitations on outdoor watering, per capita water demand is suppressed. NTMWD implemented these restrictions starting in late 2011 and they continued through early 2015. Furthermore, wetter years like 2015 and 2016, which did not have use restrictions, are also not representative of dry year demand. Historically, higher usage is correlated with drier conditions (independent of drought restrictions). In the 1990s, wet weather prevailed and per capita use was lower. Per capita use increased markedly from 1998-2000 when drier conditions dominated the area. This happened again later in the 2000s. The lower per capita usage, and thus lower demands, seen in recent years are not indicative of the projected dry year demand.

To provide reliable water service, the water demand projections in the EIS reflect the population growth that is actually occurring in the NTMWD service area as well as historical dry year per capita usage. The water demand projections developed for the EIS were reviewed by the TWDB, as well as the USACE, and were determined to be consistent with the standard practice used for state water planning (TWDB, 2016b).

PUR-16. When accurate water supply figures and reasonable water demand projections are used, it becomes clear that the “needs” of 2025 are not a reasonable basis on which to dismiss alternatives from consideration in the RDEIS. Instead of doing an independent assessment of projected demand, the RDEIS accepts the demand projections in Table 1.5-1 and states flatly that it will base its decision on NTMWD’s alleged “need” in 2025. **[CC: NGOs-15]**

Response: The USACE conducted an unbiased, independent review of the alternatives in the EIS. The USACE also independently assessed NTMWD’s existing water supply estimates and determined that such estimates were calculated with acceptable methodologies and are scientifically accurate.

Please also see response to comment PUR-15.

PUR-17. An unbiased independent review of the alternatives would find solutions to NTMWD’s future water supply demands that avoid the need for building a new reservoir. An analysis of NTMWD’s supply and demand reveals:...That the demand for water projected in the RDEIS for NTMWD for 2020 is grossly exaggerated compared with actual water use, causing the 2025 demand projections to be seriously inflated **[CC: NGOs-31]**

Response: The USACE conducted an unbiased, independent review of the alternatives in the EIS. The data presented in Table 1.1-1 continue to be valid as they present the most recent information. The highest total water use (in AFY) in NTMWD recent history occurred in 2011, but total water use is not the single basis for developing and projecting water supply demands. Consistent with standard engineering practice, water demand projections are developed from population projections and per capita water use. To ensure that NTMWD has

sufficient supplies to meet water demands during drought, projected water demands are developed from the highest recent per capita water use (dry year demand) and projected population. This is consistent with the planning requirements for the State Water Plan (TWDB, 2016a). Also, since NTMWD is a wholesale water provider, the losses in treatment and transmission are not captured in the per capita water use. Therefore, these losses are included in the total demands for NTMWD.

The comment infers future total water use is simply an extension of current water use with a growth factor applied. This approach does not account for dry year per capita water use versus normal or wet year per capita use. Nor does it address artificial restrictions on water use – mandatory conservation measures – due to severe drought. The year 2011 was a very dry year with exceptionally hot temperatures, and the per capita water use that year was one of the higher recent water use years with the total water use the highest reported. However, water use in subsequent years was depressed due to watering restrictions or very wet conditions, which reduce outdoor water use. Using historical water use when watering restrictions are effective incorrectly assesses the projected water demands. The commenter attempts to justify historical water demands during wet periods as the basis for future demands. Instead, prudent water supply planning is based on dry year demands and dry year supplies (i.e., firm yield). The demands developed for the EIS reflect an accurate assessment of the dry year water use and growth for the NTMWD service area.

Please also see the response to comment PUR-15.

PUR-18. An unbiased independent review of the alternatives would find solutions to NTMWD's future water supply demands that avoid the need for building a new reservoir. An analysis of NTMWD's supply and demand reveals:...That the RDEIS undercounts NTMWD's existing supply
[CC: NGOs-32]

Response: The USACE conducted an unbiased, independent review of the alternatives in the EIS. The USACE also independently assessed NTMWD's existing water supply estimates and determined that such estimates were calculated with acceptable methodologies and are scientifically accurate.

Estimates of NTMWD's existing water supplies now and in the future were developed based on: 1) what can be reasonably used during a repeat of the drought of record, 2) what is legally and physically available, and 3) what meets or exceeds the water quality criteria of NTMWD's customers. These considerations are consistent with Texas state water planning requirements and reflect actual limitations to water availability.

PUR-19. An unbiased independent review of the alternatives would find solutions to NTMWD's future water supply demands that avoid the need for building a new reservoir. An analysis of NTMWD's supply and demand reveals:...That the RDEIS relies heavily on the timing of

NTMWD's projected demand for 2025, that both the available supply and the projected demand for 2025 are inaccurate, and that the simple act of executing an existing contract option can delay NTMWD's water demands by decades. **[CC: NGOs-33]**

Response: The USACE conducted an unbiased and independent review of the available supply, timing, and potential of existing contracts in the EIS.

With regard to the timing of NTMWD's projected water demand in 2025, as indicated in earlier responses, the population of NTMWD's service area is one of the fastest growing populations, not just in Texas but in the entire country. To date, population projections used in the 2013 CIP are in keeping with the growth that has actually occurred in these four years (see please see response to comment PUR-15). With regard to per capita water consumption measured by GPCD, which is multiplied by population to determine expected demand in any given future year, well-supported assumptions as to future levels of conservation, efficiency, and reuse have been used in the projections. The projected water demand within NTMWD's service area for 2025 and subsequent years out to 2060 is thus both reasonable and accurate.

With regard to "executing an existing contract option", presumably the Lake Texoma contract which NTMWD is not able to use to its fullest because of high TDS concentrations, both the EIS and earlier responses (see in particular the response to comment PUR-14), explain the practical, real-world limitations on use of this existing water source.

PUR-20. Why has NTMWD pushed to construct the LBCR when the USACE had already determined the site was too shallow, with poor water quality? NTMWD has been stating that the District needs drinking water, instead they will only have toilet water and lawn water from the LBCR. **[CC: P17-11]**

Response: The USACE conducted studies of Bois d'Arc Creek decades ago. However, that earlier USACE study was for a site in the upper end of the Bois d'Arc Creek watershed and received water from only a portion of the overall watershed. That potential project was evaluated for flood control, while the current LBCR study is for a site downstream in the watershed which is not shallow and is for water supply. Hydrological studies using accepted models and methodologies show that it would provide more than enough drinking water to meet the purpose and need.

Newer studies and surveys by the state (TCEQ) and the applicant, presented in Chapter 3 of the EIS, indicate that water quality is neither compromised nor impaired; existing water quality is generally, good, not inadequate, and would by no means interfere with NTMWD's plans to develop a water supply reservoir on Bois d'Arc Creek.

PUR-21. Who, as an independent entity not vested with NTMWD, checked the stated 'need and time' constraints for accuracy or exaggeration? Again 'new water supplies' are discussed without any mention of first utilizing existing available supplies and the time frame of 'by 2020' is purely a NTMWD and FNI desire, but who checked to see that it is a realistic or absolute date? **[CC: P18-15]**

Response: It is common practice for the USACE to require applicants applying for Department of the Army authorization to furnish environmental information necessary for the preparation of an EIS. The USACE has a responsibility to independently evaluate the information submitted by an applicant and shall be responsible for its accuracy. The intent of the agency responsibility under NEPA is that acceptable work submitted by an applicant not be redone, but that it is verified by the USACE [40 CFR 1506.5(a)]. For the proposed LBCR project, the applicant (NTMWD) and their consultant (FNI) were requested by the USACE to provide information that was then used by the USACE to help prepare the EIS.

The USACE selected Solv LLC (formerly Mangi Environmental) as a third-party contractor to help prepare the EIS pursuant to the requirements of 40 CFR 1506.5(c). Solv LLC and its subcontractors have assisted the USACE in preparing the DEIS, RDEIS, and FEIS. To help ensure that the preparation of the EIS was conducted in an objective manner, Solv was required to execute a disclosure statement prepared by the USACE verifying that the firm has no financial or other interest in the outcome of the project.

A key part of the analysis concerning future water need was to ascertain whether all existing and future water supplies to which NTMWD already has access would be able to provide an adequate volume of water to NTMWD's members and customers in a timely manner in view of the projected population growth within NTMWD's service area. It is documented in the RDEIS and again in the FEIS that this is one of the fastest growing areas in the country. The EIS shows that NTMWD's current water supplies, in conjunction with conservation and reuse, are insufficient in and of themselves to meet future needs.

PUR-22. The RDEIS states that the USACE is responsible for defining the basic purpose of the proposed project. Did the Tulsa District do anything to determine the purpose other than take NTMWD or FNI's word that it was needed? Where are the figures and calculations for the 'purpose and need'? **[CC: P18-16]**

Response: The purpose and need evaluation under NEPA was reviewed by the USACE and independently by Dr. Ralph Wurbs, P.E., Arthur McFarland Professor in the Zachary Department of Civil Engineering at Texas A&M University. Dr. Wurbs is an acknowledged expert in water resources planning and management, hydraulics, hydrology, and water resources systems analysis, particularly in the state of Texas. Both the USACE and Dr. Wurbs concurred on the purpose and need evaluation. Please also see response to comment PUR-21.

PUR-23. The RDEIS states that the purpose is to develop an 'additional water supply'. Why not use existing water supplies first and save environmentally sensitive areas, such as Bois d' Arc Creek drainage basin? **[CC: P18-17]**

Response: Section 1.5 describes the development and elements of purpose and need. Section 2.6, Alternatives Dismissed from Detailed Consideration, and Appendix O in the FEIS discuss other alternatives that were evaluated but are not carried forward for detailed consideration in the EIS. An explanation is included with each alternative as to why it does not meet the purpose and need. Alternatives that utilize existing water sources were considered as part of Section 2.6 of the EIS.

PUR-24. The purpose and need statement in the RDEIS is flawed and renders the RDEIS analysis of alternatives inadequate. **[CC: P7-31]**

Response: The USACE's analysis of purpose and need and alternatives in the RDEIS and FEIS complies with NEPA. In Section 1.5 of the FEIS, the framing of the purpose and need (but not the underlying purpose and need itself) has been slightly modified from the RDEIS. The purpose of the Lower Bois d'Arc Creek Reservoir project is to meet a future water supply deficit and need expected to occur within the NTMWD service area. The water supply deficit and need would be met by securing a new source of drinking water. To accomplish this, the Applicant has proposed constructing a water supply reservoir located on Bois d'Arc Creek in Fannin County, Texas. The most recent demand and supply information was independently reviewed and confirmed by the USACE. See responses to PUR-16 and PUR-18.

The above-stated water supply deficit is expected to occur no later than 2025. The proposed project would be operational by 2025. The proposed project would enhance water supply reliability within the NTMWD service area by increasing firm yield and water supply reserves and adding to NTMWD's water supply portfolio a permitted new water source solely under its control. In addition to the near-term 2025 needs, water supplied by the proposed project would contribute a meaningful portion of the NTMWD long-term water supply needs estimated through 2060. The USACE determined that an alternative involving a smaller reservoir and blending with Lake Texoma would also meet purpose and need. Finally the USACE retained the No Action Alternative as required by NEPA.

PUR-25. The USACE and/or NTMWD have defined the overall purpose of the action in terms of a specific quantity of water and a specific date that that quantity is needed. However, most EISs for water reservoirs, including the DEIS in this case, have purpose and need statements that are more general: e.g., to develop a new supply of water to meet projected needs. Through the adoption of a very narrow, specific, and more-difficult-to-justify project purpose, alternatives are considered and rejected simply because they cannot singularly meet the Applicant's own demand projections by a specific date, even though different demand assumptions suggest that

the Applicant's need is much more speculative. Case law makes clear that when an agency constricts the definition of the project's purpose and thereby excludes reasonable alternatives, the EIS "cannot fulfill its role." **[CC: P7-32]**

Response: The USACE's analysis of purpose and need in the RDEIS and FEIS complies with NEPA. Section 1.5 describes the development and elements of purpose and need. The most recent demand and supply information was independently reviewed and confirmed by the USACE. Please see responses to comments PUR-16 and PUR-18.

The comment suggests that the purpose and need formally stated in Section 1.5 of the EIS artificially constrains alternative means of meeting that purpose and need, but this is incorrect. Chapter 2 and Appendix O analyze a wide range of alternatives, many of which are not new reservoirs and some of which are not reservoirs at all (e.g., desalination of Gulf of Mexico water, groundwater from several different aquifers). Overall, the nuances of water supply projects require specificity as to timing and amount, but such specificity in no way precludes any alternatives that can meet specific purpose and need criteria from being evaluated.

PUR-26. NTMWD's summary of the supply and demand calculations include a "recommended reserve supply" that grows from 43,020 in 2020 to 66,540 in 2060. These reserve supply numbers clearly inflate the purported supply needed. Without this reserve supply requirement, it would be much easier for NTMWD to bridge any supply-demand gap through alternative means. **[CC: P7-33]**

Response: The USACE has independently reviewed this issue and concluded that the recommended reserve supply of 10 percent is a reasonable planning tool. The FEIS does not inflate the needed supply. As detailed in Appendix N of the RDEIS, cautious water supply planning should acknowledge uncertainty with regard to the continued availability of particular water supplies in the future. As an approach to this uncertainty that the USACE considers prudent in light of recent experience, NTMWD also seeks to develop a reserve or contingency supply of water for emergency situations and for droughts worse than the drought of record. In recent years, NTMWD has experienced the urgent need for emergency supplies when USACE's Lake Texoma was forced offline due to the discovery of zebra mussels in the lake and the need to prevent their propagation to Lavon Lake and the Trinity River Basin. Lake Texoma, which provided about 28 percent of NTMWD's water supply at the time, was unavailable for five years. Fortunately, in response, NTMWD was able to implement interim contracts for water from other wholesale water providers and could accelerate other projects. NTMWD's water supplies were also adversely affected by a severe drought from 2010 to 2013; drought-imposed watering restrictions were not lifted until 2015."

However, neither interim water supplies from third parties nor projects that can be accelerated will always be available...relying on these does not represent

prudent, cautious long-term water supply planning. Therefore, NTMWD looks to develop sufficient water supplies to provide for a critical reserve capacity of at least 10 percent of its demands.

PUR-27. As far as we can tell, this “recommended reserve supply” was not included in the original DEIS for this proposed action. We are concerned that this reserve supply is simply included in the RDEIS to arbitrarily and artificially inflate the supply-demand gap in support of the purpose and need for the project. **[CC: P7-34]**

Response: Please see response to comment PUR-26. Reserve supply is a prudent planning tool and is a part of, rather than ancillary to, total needed supply. The commenter is correct that the DEIS, released in 2015, did not include a recommended reserve supply. At the time of the Section 404 application, the severe drought of 2011-2015 and the critical consequences of losing access to Lake Texoma water because of zebra mussel infestation had not occurred. As the impacts of these outside factors became clear, the need for a reserve supply was added to NTMWD’s needs. This is why the recommended reserve supply was added in the 2017 RDEIS.

The 10 percent reserve supply recommended in the case of the LBCR is comparable to or lower than reserve supplies in other recent water supply projects evaluated by the USACE in NEPA documents and Section 404 permit applications (Rickman, 2017):

- The City of Fort Collins (CO) Utilities identified a 20 percent reserve factor as an “additional layer of protections for emergency situations” in its 2014 Fort Collins Water Supply and Demand Management Policy Revision Report.
- The Orange Water and Sewer Authority (NC) specified a 20 percent storage reserve “believed to provide adequate time to implement emergency supply measures during extreme drought” in its 2009 Draft Long-Range Water Supply Plan Update.
- The Riverside County (CA) Integrated Project, General Plan, Final Program, Environmental Impact Report (EIR) and Environmental Assessment (EA) identified a 15-20 percent reserve supply.
- The Antelope Valley (CA) Integrated Regional Water Management Plan identified a target reserve supply of 29-34% of annual demand.
- The Northern Colorado Water Conservancy District identified the use of a 10 percent safety factor for firm yield demand projections in its 2008 Northern Integrated Supply Project, Draft Environmental Impact.
- The Metropolitan Water District of Southern California identified the use of a 10 percent supply buffer in its 2003 Draft Integrated Water Resources Plan Update.

PUR-28. It is not clear why the USACE would authorize the use of a “reserve supply” in a 404 application that includes significant impacts to the Bois d’Arc Creek ecosystem. This “reserve supply” appears to address potential risks to NTMWD’s entire water supply system—including risks that should already be included in the demands calculations—but the impacts are borne by one local ecosystem that includes valuable aquatic resources. This is indefensible. **[CC: P7-35]**

Response: Please see responses to comments PUR-26 and PUR-27. Reserve supply is a prudent planning tool and is a part of, rather than ancillary to, total needed supply. As noted, in terms of water need projections, all the recommended reserve supply does is slightly advance the date at which a given new water supply source would be needed to accommodate growing demand. Removing the recommended reserve supply from the need projections would not obviate the need for new water sources, merely slow down the rate at which these new supplies would need to be made available to accommodate projected population growth and related water demand.

PUR-29. Similarly, it is not clear how increasing significant and adverse impacts to aquatic resources in order to create a non-mandatory “reserve supply” is allowed given the requirement to “avoid and minimize” impacts to aquatic resources under Section 404 of the Clean Water Act and the 404(b)(1) Guidelines. See, e.g., 40 C.F.R. § 230.12(a)(3)(iii) (stating that a proposed discharge can be specified as failing to comply with the Guidelines where the discharge “does not include all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem”). If NTMWD is recommending a non-mandatory, system-wide reserve supply, this reserve supply must be created from sources that do not involve the destruction of thousands of acres of wetlands and miles of stream. If the reserve supply requires the destruction of the aquatic ecosystem, as it does in this case, then the proposed action fails to include all appropriate and practicable measures to minimize harm to aquatic resources. **[CC: P7-36]**

Response: Please see responses to comments PUR-26 and PUR-27. The USACE considers the recommended reserve supply to be a legitimate, prudent planning tool in view of recent, well-documented supply interruptions with which NTMWD has been confronted. Reserve supply is a part of, rather than ancillary to, total needed supply. Its inclusion has no additional environmental impacts; the comment appears to be a non-sequitur. The RDEIS and FEIS sufficiently analyze all aspects of purpose and need, reasonable alternatives, and environmental impacts. The USACE has not yet conducted the 404(b)(1) Guidelines evaluation but will do so in the ROD. Also, please see responses to comments ALT-31 and ALT-71.

PUR-30. We request that additional explanation be given for the calculation and inclusion of the recommended reserve supply in Table 1.5-1. **[CC: P7-37]**

Response: Please see response to comment PUR-26.

PUR-31. We also request explanation for why this “reserve supply” is included to justify the overall purpose of the action when other water management strategies that do not involve the significant and adverse impact to wetlands are available during drought and other reduced-availability situations. **[CC: P7-38]**

Response: The recommended reserve supply would be included in water demand and need projections regardless of which alternative or alternatives were ultimately chosen. Any alternatives capable of timely providing the needed amount of water identified in the purpose and need (Section 1.5) were carried forward for detailed review (Chapter 4). Any alternatives incapable of doing that were eliminated from further consideration. Please see responses to comments PUR-26 and PUR-29.

PUR-32. We request clarification from the USACE on whether other 404 permit applications for water reservoirs have included a “reserve supply” to justify the overall purpose of the action and how the inclusion of a “reserve supply” is reconcilable with the requirement to avoid and minimize impacts to aquatic resources. **[CC: P7-39]**

Response: The USACE will not compare this water-supply project to previously permitted projects across the nation; however, please see the response to comment PUR-27, which indicates that reserve supplies are not uncommon. The USACE is reviewing this proposal specific to NTMWD needs, current supplies, location, climate, and other data as found in Chapters 1 and 2 and Appendices N and O of the FEIS. Please see also responses to comments PUR-29, PUR-30, and PUR-31.

PUR-33. In the original DEIS for this project, NTMWD provided tables that quantified NTMWD’s existing water supplies and prospective water management strategies.³⁰ The water management strategies recommended by the Region C Water Planning Group included a number of expected projects that would supply water to NTMWD. This table indicated that, even without the Lower Bois d’Arc Creek Reservoir, NTMWD would be operating with a reserve in 2030, 2050, and 2060.³¹ The DEIS made clear that NTMWD was proposing to impact 17,000 acres, including 5,874 acres of wetlands, in order to meet a relatively small need. NTMWD has omitted these tables (Table 1.6 and 1.7) from the RDEIS without explanation. In other words, NTMWD’s included calculations simply take the current supplies and adds it to a single other supply (the Main Stem Pump Station) and deducts this amount from the demands, as calculated in the 2013 Capital Improvement Plan for NTMWD. This calculation results in a supply needed that does not include any other sources of water, or combination of sources, through 2060. This supply calculation is misleading, as evidenced by the very different calculation provided in the original DEIS. **[CC: P7-40]**

Response: The tables have been modified somewhat between the DEIS in 2015 and the FEIS in 2017, but the inferences and fundamental conclusions to be drawn from these tables have not changed. In contrast to the assertions in this

comment, Tables 1.6 and 1.7 in Chapter 1 (pp. 1-26 and 1-27) of the DEIS demonstrate that by as early as 2020 there would be a potential net need (demand minus supply) of 91,665 AFY without the addition of a new water source.

Similarly, Table 1.1-1 of the FEIS shows a “supply deficit” of 6,031 AFY by 2020, growing to 58,694 AFY by 2025 and 106,649 AFY by 2030. None of these deficits includes the recommended reserve supply or the addition of the new proposed water source. As pointed out in the FEIS (especially Figure 6 in Appendix N), projected growth in demand and need are somewhat lower than the projections shown and used in the DEIS two years earlier; nonetheless, the growth rate remains pronounced. As demonstrated in the FEIS and other responses herein, the most recent demand and supply information was independently reviewed and confirmed by the USACE.

PUR-34. We request clarification for why additional sources, including those recommended by the Region C Water Planning Group, are not included in the RDEIS supply and demand calculation. We request that these tables be included the any future revised DEISs or the final EIS. **[CC: P7-41]**

Response: Virtually all of the recommended water management strategies for NTMWD included on pages 5C.22 to 5C.31 of the *2016 Region C Water Plan* were evaluated in Chapter 2 and Appendix O of the RDEIS, as well as some alternative strategies. Some of the recommended strategies in the 2016 plan have been implemented (e.g., dredging Lavon Lake and silt removal for Chapman), and the supplies from these strategies are included in the current supply values in the RDEIS. As demonstrated in the FEIS and other responses herein, the most recent demand and supply information was independently reviewed and confirmed by the USACE.

PUR-35. The previous DEIS used the 2011 Region C Water Plan as its source for projected demands. The RDEIS, however, relies on NTMWD’s own 2013 Capital Improvement Plan. We request that the RDEIS be required to rely on the 2016 Region C Water Plan because its demand calculations include more defensible assumptions and because it would introduce less bias into the RDEIS. **[CC: P7-42]**

Response: As demonstrated in the FEIS and other responses herein, the most recent demand and supply information was independently reviewed and confirmed by the USACE. The information presented in the RDEIS and FEIS is based on accurate, unbiased assumptions and analysis. Moreover, as stated on p. N-28 in Appendix N of the EIS, the TWDB, which has authority over development of water demand projections for regional water planning in Texas, concurs with the use of the methodology used in the 2013 CIP demand projections. Appendix N contains a direct quote from the executive administrator of the TWDB from 2016 stating concurrence with the projections.

PUR-36. The Texas Water Development Board (TWDB) requires that the demand calculations included in the regional water plans include certain assumptions (e.g., regional population held constant). Instead of using these available demand calculations, NTMWD has included calculations from its own CIP. But these calculations rely on population growth numbers that do not adhere to TWDB standards. The CIP calculations also rely on other assumptions that increase demand calculations. In fact, Appendix N notes that TWDB staff did not agree with basing dry-year per capita demands on the highest per capita use in recent years and then reducing these demands over time to reflect savings from low-flow water fixtures.³³ Despite these comments by TWDB staff, NTMWD elected to use the “highest per capita water use between 2006 and 2011” when they calculated demand projections in the 2013 CIP.³⁴ Consequently, the demand calculations in the RDEIS are unreliable and are likely inflated by NTMWD. **[CC: P7-43]**

Response: Please see response to comment PUR-35.

PUR-37. The 2016 Regional Water Plan for Region C is available on the TWDB website. Table 5C.7 and Table H.23 in this plan include projected demands based on TWDB methodology. The projected demands for NTMWD are significantly lower than those found in the RDEIS (projected acre-feet demand): (See Table on Page 16) For 2020 alone, NTMWD’s demand calculation exceeds that found in the Regional Water Plan by 50,401 AFY; for 2030, NTMWD’s demand calculation exceeds those in the Regional Water Plan by 69,719 AFY; and for 2040, it exceeds it by 69,143. If the 2016 Regional Water Plan demand calculations were used in the RDEIS, then no supply deficit would exist in 2020 – in fact, there would be excess supply exceeding even the “recommended reserve supply.” **[CC: P7-44]**

Response: As indicated in p. N-24 of Appendix N of the RDEIS, FNI prepared the 2013 CIP projections for NTMWD using the TWDB population projections developed for the proposed *2016 Region C Water Plan* as the initial population basis. Based on more recent demographic data, population projections were increased for 16 customers and decreased for three customers, resulting in a net increase of five to eight percent in the total population served from 2020 to 2040.

In addition, also based on newer information, the 2013 CIP demand projections include higher estimates of loss in treatment and delivery for treated water supplies than either the 2011 or 2016 regional water plans.

By 2050 and especially by 2060, the demand curves for the 2013 CIP and the 2016 Region C Water Plan have begun to converge. Please also see response to comment PUR-35.

PUR-38. More importantly, the overall purpose of the proposed action, as stated in the RDEIS, is to develop a sufficient water supply to account for NTMWD’s needs in 2025. The RDEIS, relying on NTMWD’s own calculations, states that the district needs 105,804 AFY by 2025. But the 2016 Regional Water Plan indicates that NTMWD’s demand is between 379,792 (2020) and 437,185 (2030); assuming demand is relatively linear, this means that the demand in 2025 is

approximately 408,000. According to their own calculations, NTMWD has 398,362 AF of water supplies in 2025. Conservation and water loss reduction “creates” an additional 14,000 AF of water, meaning that NTMWD already has enough supplies to meet its 2025 demand. Based on these supply-demand calculations, NTMWD is proposing to adversely impact thousands of acres of wetlands to meet a need that does not exist in 2025. This is simply indefensible in light of other available water management strategies, existing alternatives with far lower impacts on aquatic resources, bridging efforts, and other sources that will be available in the future. **[CC: P7-45]**

Response: The commenter is incorrectly comparing numbers from two different water need projection methodologies (2013 CIP projections and 2016 Region C projections), taking a supply projection in a given year from one and comparing it with the demand projection for that same year from the other. Looking only at the 2016 Region C Water Plan projections (Table 5C.7 on p. 5C.27 of the 2016 Region C Water Plan) shows that in 2020 the need (demand minus supply) is 30,540, which has risen to 103,975 AFY by 2030. As noted earlier and in Chapter 1 and Appendix N of the RDEIS, the 2016 Region C projections lag behind the 2013 CIP projections (and the USACE is satisfied that the 2013 CIP projections more accurately reflect reality), but both are headed inexorably upward to the planning horizon of 2060, and likely beyond. Demand does not stop growing in 2025, and the purpose and need of the proposed action has been restated slightly in the FEIS to indicate that whatever alternative is chosen must not only meet the net need of 105,804 AFY in 2025, but also supply “a meaningful portion of the NTMWD long-term water supply needs estimated through 2060.”

PUR-39. We request that NTMWD be required to use the available 2016 Regional Water Plan demand calculations in its supply-demand calculations. This would help ensure that the calculations are less biased, rely on more reliable methodology, and are not artificially inflated through the use of the highest per capita use between 2006 and 2011. We request that the overall project purpose be recalculated based on this new data to ensure that an accurate supply-demand calculation is used as the basis of the project purpose. We ask that the alternatives analysis be edited to account for the fact that a much smaller amount of additional supply can meet NTMWD’s demand in 2025. **[CC: P7-46]**

Response: Please see response to comment PUR-35.

The 2016 Region C Water Plan projections (Table 5C.7 on p. 5C.27 of the 2016 Region C Water Plan) show that in 2020 the need (demand minus supply) is 30,540, which has risen to 103,975 AFY by 2030. As noted earlier and in Chapter 1 and Appendix N of the RDEIS, the 2016 Region C projections lag behind the 2013 CIP projections (and the USACE is satisfied that the 2013 CIP projections more accurately reflect reality), but both are headed inexorably upward to the planning horizon of 2060, and likely beyond. Demand does not stop growing in 2025, and the purpose and need of the proposed action has

been restated slightly in the FEIS to indicate that whatever alternative is chosen must not only meet the net need of 105,804 AFY in 2025, but also supply “a meaningful portion of the NTMWD long-term water supply needs estimated through 2060.”

The USACE believes that the supply and demand projections presented in the RDEIS and the FEIS are accurate and unbiased.

PUR-40. Third, as discussed in detail above, the actual demand in 2025 is much lower than that calculated by NTMWD. In our calculations, supply actually exceeds demand in 2025 when the “recommended reserve supply” is excluded. These calculations strongly suggest that the 2025 date is arbitrary and that the purpose and need for this project is not nearly as time-sensitive as NTMWD suggests. **[CC: P7-61]**

Response: Please see responses to comments PUR-26, PUR-27, PUR-28, PUR-35, and PUR-39.

PUR-41. We ask that the USACE take a “hard look” at the demand calculations in the 2016 Region C Water Plan and the assumptions made by NTMWD in their own calculations. We ask that the “recommended reserve supply” be excluded from the supply needed calculation; alternatively, more explanation is needed to justify this additional supply. We ask that additional alternatives analysis be undertaken that focuses on all water management strategies available to NTMWD that could provide additional water by 2025 and 2030. **[CC: P7-70]**

Response: Please see response to comment PUR-26. The USACE has reviewed both supply and demand projections and alternative water management strategies. Based on its independent review, the USACE believes that all relevant information has been taken into consideration in determining water supply and demand and analyzing alternatives.

PUR-42. I would respectfully note that over the past five years, residents of this area have through conservation measures reduced demand for water by upwards of 25%. This suggests that both demand and supply are being addressed in a sensible way by the citizens and our governmental and utility providers to address the importance of this plan. **[CC: P11-2]**

Response: The USACE acknowledges this comment and believes this issue is adequately addressed in Section 2.6.1.3 and Section 10 of Appendix N of the FEIS.

PUR-43. There is no mention if NTMWD will require the other municipalities in Fannin County to transfer their underground water rights to NTMWD if they become customers. The underground water rights of the municipalities in Fannin County were not counted as a supply for NTMWD but their estimated future needs were counted as a need for NTMWD. **[CC: P18-45]**

Response: Groundwater is a property right in Texas. NTMWD has no intentions of acquiring groundwater rights in Fannin County. If a municipality contracts for water from NTMWD, NTMWD would not require the entity to relinquish its existing supplies. The USACE has no regulatory authority over existing or future groundwater rights in Fannin County or the state of Texas.

PUR-44. In viewing some water facts that I've pulled from the Internet, I have circled a fact that the average water use for a resident in region C is billed for about 100,000 gallons of water per year. Think about this, this calculates to 8,333.3 gal/month or 277.8 gal/day. In San Antonio, Attachment 9, you can see from this data that in 1982 there average was 225 gal/day, but due to conservation, it is now down to 140 gal/day. Why has Region C failed to reach these levels? One reason San Antonio has come down is because it used water cost and conservation. NTMWD seems to have a problem doing this. Their job is to sell water and as much as possible. This is a big problem, and if this conservation were truly implemented, there would not be the need for new reservoirs. I would like to see the gal/day use per person in the Region C in the revised DEIS. How was this calculated for water needs for the year 2020, 2025, and 2030? This should give an extended timeframe of water needs if true conservation was implemented with the San Antonio methods for conservation. Also, I believe conservation of water is a requirement of the CWA. Please send me those calculations and facts to support their water needs in your response. **[CC: P9-40]**

Response: Comparisons in the per capita water consumption or water conservation between different cities and water planning regions of the state are often misleading because of hidden or unstated factors. NTMWD's water conservation efforts have been acknowledged by TCEQ, which has determined that NTMWD achieves the highest practicable level of conservation. TCEQ made this determination in authorizing NTMWD to conduct an interbasin transfer of water. Section 10.B in Appendix N discusses NTMWD's water conservation and reuse efforts in some depth. Table 20 in Appendix N shows per capita water consumption (GPCD) for NTMWD every decade from 2020 to 2060, with a decline in GPCD from 186 in 2020 to 171 in 2060. GPCD is calculated, estimated, and projected by dividing the expected water consumption by the population size. Estimates are made of market penetration by more efficient appliances, fixtures, lawn watering devices, and so forth. The 2013 CIP projections, upon which these GPCD estimates in Table 20 are based, represent the demand that is anticipated to occur in a dry year, but not one so dry that drought restrictions have been implemented. Thus, typical consumption in an average year would be somewhat less than these amounts. The USACE properly considered water conservation and reuse as part of the baseline for analysis of alternatives in the RDEIS and FEIS.

PUR-10-2015. It is anticipated that the projections of the 2016 State Water Plan will be lower than those of the 2011 State Water Plan used in the DEIS. As noted above, information from the State Water Plan is not adequate for permitting processes. In addition, information from

the 2011 State Water Plan is outdated and the DEIS should rely on the most current information available. **[CC: TCA1-16]**

Response: The RDEIS and FEIS fully consider the data provided in the *2016 Region C Water Plan* and the *2017 State Water Plan*, which are the most current information available. Many other planning sources are utilized to the fullest extent to inform the permitting process. These sources are cited throughout the FEIS and in Chapter 6, References Cited.

For both the RDEIS and FEIS, the projected demands were developed specifically for NTMWD, using the initial 2016 Region C demands. It is common practice for the USACE to require applicants applying for Department of the Army authorization to furnish environmental information necessary for the preparation of an EIS. The USACE has a responsibility to independently evaluate the information submitted by an applicant and shall be responsible for its accuracy. The intent of the agency responsibility under NEPA is that acceptable work submitted by an applicant not be redone, but that it is verified by the USACE [40 CFR 1506.5(a)]. For the proposed LBCR project, the applicant (NTMWD) and their consultant (FNI) were requested by the USACE to provide information that was then used by the USACE to help prepare the EIS.

The USACE selected Solv LLC (formerly Mangi Environmental) as a third-party contractor to help prepare the EIS pursuant to the requirements of 40 CFR 1506.5(c). Solv LLC and its subcontractors have assisted the USACE in preparing the DEIS, RDEIS, and FEIS. To help ensure that the preparation of the EIS was conducted in an objective manner, Solv was required to execute a disclosure statement prepared by the USACE verifying that the firm has no financial or other interest in the outcome of the project. The demands developed for the RDEIS and FEIS have been reviewed by USACE and deemed to have been developed with acceptable methods; they are scientifically accurate.

PUR-11-2015. Analysis of future water needs requires verification by more detailed analysis than the applicant has provided to the USACE for the DEIS. **[CC: TCA1-16]**

Response: Consistent with standard engineering practice, water demand projections are developed from population projections and per capita water use. To ensure that NTMWD has sufficient supplies to meet water demands during drought, projected water demands are developed from the highest recent per capita water use (dry year demand) and projected population. This is consistent with the planning requirements for the State Water Plan. Also, since NTMWD is a wholesale water provider, the losses in treatment and transmission are not captured in the per capita water use. Therefore, these losses are included in the total demands for NTMWD. This approach is consistent with prudent water supply planning protocols, and is consistent with planning requirements for the Texas State Water Plan (31 TAC §357.32, 31 TAC §357.34, and TWDB, 2016a).

The RDEIS and FEIS contain the USACE's more detailed independent analysis and verification of water demand projections.

PUR-12-2015. According to the DEIS, NTMWD's 2060 water supply without LBCR would be 421,405 AFY. This counting of supply omits a portion of NTMWD's current Lake Texoma water right and a portion of NTMWD's permitted diversion into the East Fork Wetland including those permitted amounts in NTMWD's future water supply yields the following accounting of supply. Please refer to Table 1: NTMWD Water Supply 2060. **[CC: TCA1-18]**

Response: Please see response to comment PUR-14. Without LBCR or some other source of new water that can be used to blend with additional water from Lake Texoma, only a portion of NTMWD's existing water right to Lake Texoma can be used due to its excessive TDS levels. Similarly, the amount of water that can be obtained via reuse from the East Fork Wetland is constrained by the aggregate amount of water that enters the NTMWD system. Without a new water source, the total amount of water flowing through the system and the amount available from reuse, such as from the East Fork Wetland, would be lower. Also, please see response to comment PUR-11, especially "Limitations of Reuse Amounts."

PUR-13-2015. In recent years NTMWD has used between 250,000 and 300,000 AF of water per year. Comparison with the total on the table above suggests that, if fully developed, NTMWD's current permitted supply will likely be sufficient for 2060, and is unquestionably adequate for several decades. It should be noted that the discharge from all of NTMWD's wastewater treatment plants winds up in either a water supply lake or the East Fork Wetland. Should water usage in the NTMWD service area increase as much as the demand projections in the DEIS predict, there would be approximately 350,000 AFY of return flows discharged into the above-mentioned lakes and wetland (calculated as 50% of the post-conservation demand projected for NTMWD in 2060). The DEIS credits NTMWD's future supply with only 176,000 AFY from return flows. If return flows equal as much as 350,000 AFY, the roughly 229,000 AFY of future reuse reflected in the above table would be conservative. Given that all return flows are discharged into water supply sources, the DEIS should explain why credited reuse is less than future return flows. **[CC: TCA1-19]**

Response: NTMWD considers the relationship between the water quality of the treated water and the water quality of the wastewater return flows in the operations of its water and wastewater systems. Higher TDS levels in the treated water supply results in higher TDS levels in the wastewater return flows. Discharge of the return flows back into Lavon Lake can violate TCEQ discharge standards and increase TDS levels in Lavon Lake (and subsequently in NTMWD's treated water). This operation can impact both the source water and the wastewater treatment facilities. Blending additional Texoma water could result in the inability of existing wastewater treatment plants to meet discharge limits.

Return flows are contingent upon the amount of water supplied to NTMWD customers. Until NTMWD develops new sources, the return flows are limited to 40% of its current sources. Also, please see responses for PUR-11 and PUR-12.

PUR-4-2015. These organizations request that the application of North Texas Municipal Water District (NTMWD) to construct Lower Bois d'Arc Creek Reservoir be denied for the following reasons: A) The application on which this DEIS is based is deficient in providing adequate information for the analysis required, because it relies on planning documents which were not designed to provide full analysis of need and impacts of a project. **[CC: TCA1-1]**

Response: Regulations at 33 CFR 320 and 325 specifically address what constitutes a complete Section 404 application. The information and analyses furnished by the applicant and its agencies, which were thoroughly and independently reviewed by the USACE and its third-party contractor consultants (Solv and ICF), are adequate for the purpose of evaluating the permit application.

PUR-5-2015. These organizations request that the application of North Texas Municipal Water District (NTMWD) to construct Lower Bois d'Arc Creek Reservoir be denied for the following reasons: A) The application on which this DEIS is based is deficient in providing adequate information for the analysis required, because it fails to analyze practicable alternatives, combinations of alternatives, and the Least Environmentally Damaging Practicable Alternative (LEDPA). **[CC: TCA1-2]**

Response: Please see response to comment ALT-69.

PUR-6-2015. 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 rules and guidance of the Corps for the following reasons: it inaccurately depicts purpose and need. **[CC: TCA1-5]**

Response: Please see responses to comments PUR-24 and PUR-11-2015.

PUR-7-2015. The DEIS for LBCR relies heavily on the 2012 Texas State Water Plan in determining need for the reservoir for water supply. The Texas Water Development Board is often quick to point out that the State Water Plan is a planning document which does not contain an adequate level of analysis for permitting processes. When a member of the public questions the inclusion of a specific project in the State Water Plan, the response from TWDB is routinely that additional analysis will be performed before a decision is made whether to build any project recommended in the Plan. **[CC: TCA1-13]**

Response: The DEIS drew upon a number of other sources of information and analyses in addition to the 2011 Region C Water Plan and the 2012 Texas State Water Plan. Similarly, while the RDEIS draws some information from the 2016 Region C Water Plan and the 2017 Texas State Water Plan, it also reflects the USACE's independent review of other information sources and analyses.

PUR-8-2015. A majority of the members of the planning group represent categories of people with a vested interest in water development. While public comment is allowed, it has been the experience of those commenting that little credence is given to the public remarks, i.e., few changes in draft language are made in response to those comments. **[CC: TCA1-14]**

Response: Thank you for your comment. The USACE is not party to the water planning process established in Texas by the Texas Legislature and the TWDB. With regard to the NEPA process, extensive changes were made to the document between the DEIS and RDEIS stages, as well as between the RDEIS and FEIS stages, to improve accuracy and descriptiveness, as well as to augment mitigation requirements. Many of these changes are in direct response to input received from various public stakeholders during the process. The NEPA process is carried out by the USACE and its neutral third-party contractor, and the USACE bears responsibility for providing responses to all public comments, as it is doing herein.

PUR-9-2015. The State Water Plan provides only a broad over-view of future water supplies and demands; none of the data contained in the Plan is specific enough for permitting decisions. **[CC: TCA1-15]**

Response: Please see response to comment PUR-7-2015.

RECREATION

REC-1. 3-96, Section 3.7.4, Regional Lakes and Reservoirs- This section makes references to Bonham City Lake. The correct name of the lake is Lake Bonham. **[CC: NTMWD1-84]**

Response: Bonham City Lake was changed to Lake Bonham in the text of Section 3.8.4 and on Figure 3.8-3 to be consistent with the nomenclature used by NTMWD.

REC-2. 4-95, Section 4.9.1, No Action Alternative- The discussion on the Legacy Golf Course appears to rely solely on the opinion of the golf course owner. Any discussion on the potential economic impacts of the reservoir on the golf course should be supported by data, not anecdotal opinion. This opinion, which is incorrectly presented as a conclusion, is also expressed on pages 4-97 and 4-102. Absent a study or data on the potential economic impact to the golf course and landowner, the Final EIS should not draw any conclusions, but rather note that the value of the property could be impacted. While the owner believes the value would be impacted negatively, given USACE's conclusions throughout the RDEIS that the presence of the reservoir will draw new residents to the area, it appears equally likely that it would be impacted positively. **[CC: NTMWD1-138]**

Response: The lower nine holes of the golf course are already subject to partial inundation during flood events and this would continue under the No Action Alternative. To understand potential flood impacts from the Alternative 1 LBCR,

separate hydraulic studies were performed by Boyd Hydrology, LLC (under commission of the owner of the LRCC) and Freese and Nichols. Boyd Hydrology, LLC concluded that the proposed Alternative 1 LBCR would result in extended inundation times on the lower nine holes of the LRCC during flood events. Freese and Nichols confirmed Boyd Hydrology's conclusion that the Alternative 1 reservoir would lead to extended inundation times at the lower nine holes during flood events because flood waters would take more time to pass through the spillway. However, FNI noted that the presence of the Alternative 1 reservoir would not change the frequency and severity (i.e., water level) of flooding at the golf course compared to current conditions. The FEIS notes that the proposed LBCR may negatively impact the Legacy Ridge Country Club golf course due to longer flood inundation times (caused by the Alternative 1 LBCR) as confirmed by these two hydraulic studies (Glaser, 2015). Please see Section 4.8 of the FEIS for further information.

Although the proposed reservoir is projected to bring new visitors to the area (which could benefit many developers), the owner of the Legacy Ridge Golf Course could be adversely impacted by the proposed reservoir due to the sporadic temporary unavailability of nine holes of the golf course during flood events. Also, depending on the duration of the flood event, portions of the lower nine holes could require repairs.

REC-3. 4-95, Section 4.9.2, Alternative 1 -The first sentence references the conservation pool at elevation 541 feet msl. The conservation pool is at 534 feet msl. **[CC: NTMWD1-139]**

Response: Section 4.8.2, Alternative 1, was revised to change 541 feet msl to 534 feet msl.

REC-4. For clarification, Figure 4.9-1 should label Bonham City Lake. The figure currently has the lake identified as Lake Bonham and is not legible. Additionally, the Lake Bonham Park and Recreation Area should be depicted on Figure 4.9-1 so that the public may see how trails from potential park areas at LBCR may connect to Bonham City Lake park areas. **[CC: TPWD-16]**

Response: The lake is referred to as Lake Bonham throughout the document to be consistent with NTMWD nomenclature. The Lake Bonham label on Figure 4.8-1 is now legible and the recreation area was added to show how trails from potential park areas at the proposed LBCR may connect to Lake Bonham park areas.

REC-5. Only limited recreational uses will occur on the Alt #1 reservoir outside of the Alt #2 lake footprint. The Alt #2 lake footprint makes best use of the deeper water lake areas, while the upper reaches of the Alt #1 reservoir will be mostly flat, shallow, wooded and largely unusable when the lake is not at Alt #1 conservation pool elevation. **[CC: P13-7]**

Response: Both Alternative 1 and 2 are projected to generate numerous recreational benefits for the local community. The commenter provides no

supporting information to support the statement. While the surface area of the reservoir under Alternative 2 is about half the size of the reservoir under Alternative 1, the degree of beneficial impacts is not proportional to the size of the reservoir. Alternative 1 and Alternative 2 were compared to regional lakes and reservoirs to project possible visitation numbers as shown in FEIS Table 3.8-3 and discussed in Section 3.8.4, Regional Lakes and Reservoirs. The affected environment, water fluctuation, the number and type of recreational facilities and opportunities, and surface area vary at existing regional reservoirs and lakes so it is difficult to tell if any one factor would directly increase or decrease visitation under Alternatives 1 and 2. However, factors such as additional housing facilities and land-based recreational opportunities and higher-quality recreational fishing do appear to increase visitation at Lake Texoma. If fewer residential units, recreational areas, and trails are developed under Alternative 2, visitation is expected to be lower than under Alternative 1.

REC-6. The Proposed Action is a water supply reservoir but the RDEIS touts growth and recreational use due to the presence of the reservoir. Recreation is incidental to the reservoir and any growth is not because of the reservoir, it is due to location of the county and will occur whether the reservoir is here or not. **[CC: P18-41]**

Response: As in the previous comment, this comment has no supporting information to support this statement. NTMWD serves one of the fastest-growing areas of Texas (Kiel and Gooch, 2015), and indeed, the entire country (Potter and Hoque, 2014). Demographic projections show the population of NTMWD's service area more than doubling from about 1.75 million in 2020 to 3.7 million by 2070 (Region C Water Planning Group, 2015). The proposed LBCR would provide a new source of supply to help meet the increasing water demands of this growing population. The USACE Tulsa District considers the overall purpose of NTMWD's proposed action to be developing an additional and reliable water supply of at least 105,804 AFY by 2025, including under drought and other reduced-availability situations. The proposed project would help meet a portion of the current estimated NTMWD long-term water supply needs through 2060. Please refer to Section 1.1, The Proposed Action, and Section 1.5, Purpose and Need, for further information regarding how the proposed reservoir meets the needs of a growing Texas population.

In Fannin County specifically, under the No Action Alternative, the project area is expected to remain predominantly rural/agricultural and undeveloped for the foreseeable future, assuming that current landowners do not transition their land into another use. However, some increased urbanization in nearby cities and towns would be expected as the population of the Dallas-Fort Worth Metroplex and Fannin County increases over the decades. This urbanization would be at a slower pace than what would occur in the remainder of the state as a whole due to slower population growth projected for Fannin County. Changes in land use due to increased urbanization in nearby cities and towns would likely occur within and in proximity to the city of Bonham, located approximately one mile to the

west-southwest of the north end of the project site. There may be some additional development in the project area as the result of suburban sprawl, which would be dependent on general development trends in north Texas. Some agricultural lands may convert to grasslands or undeveloped lands as family farms are passed down to future generations or sold. This would conversely increase demand for agricultural products and pastures. Section 4.2.1 provides further details regarding potential growth in Fannin County under the No Action Alternative.

Long-term impacts to growth and development from Alternative 1 are expected to be severe. Once construction of the proposed dam was completed, this alternative could possibly serve as a catalyst leading indirectly to additional development and population growth within Fannin County, where population density is presently low and agricultural land use predominates.

This potential effect would be especially prominent in areas with relative proximity to the new lake. Surrounding land values would likely increase, encouraging local land owners to sell their properties to developers or speculators, which would possibly result in the subdivision of agricultural lands for conversion to higher value land use types such as residential and commercial. Over time, this process would change the current appearance and feel of the county from low-density rural to higher-density rural, exurban, or even suburban, due to leapfrog development. This phenomenon is often referred to as sprawl, which is new development separated from existing development by substantial vacant land (Greenbelt Alliance, 2017). Development in these areas would likely include single family dwelling residential areas that are suburban in nature, commercial uses such as community facilities, and retail and consumer services that serve local and nonlocal residents, as well as water-related land use types such as marinas or private campgrounds. Please refer to Section 4.2.2 for further details regarding potential growth in Fannin County under Alternative 1.

Under the No Action Alternative, Bois d'Arc Creek would continue to be used for recreation by private landowners and their guests in the form of canoeing, kayaking, wildlife observation, bird watching, fishing, hunting, trapping, and enjoyment of scenic natural beauty (see Section 4.8.1). Alternative 1 would create a new, 16,641-acre water supply reservoir that would serve as a major new outdoor recreation asset for Fannin County and the region due to the numerous recreational opportunities from the development of boat ramps, marinas, trails, parks, and campgrounds (see Section 4.8.2). Alternative 2 would create a new, 8,600-acre water supply reservoir – about half the surface area of the reservoir under Alternative 1 – that would also serve as a major new outdoor recreation asset for Fannin County and the region (see Section 4.8.3). Alternative 2 is projected to have fewer visitors than Alternative 1 for reasons discussed in Section 3.8.4, Regional Lakes and Reservoirs.

SCOPE OF THE DEIS

SCO-2. I would ask that the USACE also provide a downstream release impact statement. This should consider mitigation downstream for the 404 permit. The federal permit would protect downstream water rights and the ecosystem if this project were considered. The state water rights could change at any time in the future and need to be protected federally. Can the USACE perform this action? **[CC: P9-39]**

Response: Downstream release information can be found in the TCEQ Water Right Permit (see Appendix F-1 of the FEIS). The USACE has no regulatory authority regarding water rights within the state of Texas. The USACE suggests contacting the TCEQ or the TWDB regarding water right information. Adverse downstream impacts are discussed in Section 4.5.4 of the FEIS. The USACE will fully evaluate the proposed mitigation in its entirety utilizing USACE mitigation guidance before any permit decision is made.

SCO-3. I would like to see the USACE enforce them to practice real conservation such as that in San Antonio and other parts of the country. **[CC: P9-46]**

Response: The USACE has no authority to enforce water conservation in the state of Texas. It is in the interest of NTMWD to incentivize water conservation because this removes or postpones the need for developing expensive new water supplies and constructing new facilities. With that interest in mind, NTMWD has spent over \$11.2 million over the last decade for the development and implementation of the Water IQ campaign. The Water IQ campaign encourages water conservation by NTMWD's customers and the 1.6 million people served by its customers. In addition to Water IQ, NTMWD has also funded several other programs that contribute to public education and outreach. NTMWD has implemented a program to rebate to member cities the portion of NTMWD's operations and maintenance costs (power costs and chemical costs) not incurred when a city reduces its water usage. The state of Texas, through TCEQ, requires that an Applicant for an interbasin transfer achieve the highest practicable level of conservation before issuing a permit allowing an interbasin transfer. TCEQ has made the determination that the NTMWD has achieved the highest practicable level of conservation by authorizing NTMWD to conduct an interbasin transfer.

SOCIOECONOMICS

SE-1. I see many discrepancies in the reports NTMWD has submitted to the Corps and the reality of our situation facing Fannin County should this project be completed. The first discrepancy I see is the statement NTMWD presented to Fannin County Officials. The Lake will bring prosperity and population growth to Fannin County. A quick look at the reality will prove otherwise. A lake located in a rural area seldom brings prosperity to the area.

A case in point is Denison, Texas. In 2007 the population of Denison was 23,335 people. Eight years later in 2015 the population of Denison is 22,682 people. Lake Texoma does not bring more population growth to Denison, Texas. Nor are there hotels or many thriving businesses in Denison solely because Lake Texoma generates economic growth. A drive around the town will show this clearly.

Another case is Somerville, Texas which is located adjacent to Lake Somerville. The dam of the lake actually comes into the town. But it has not brought prosperity or population growth to Somerville. In 2007, I asked a former Somerville councilman about the effects of the lake on the city, he gave me a short answer. He stated, "When the lake was built our town had a population of over 3,000 people. Now it has a population of 1700. Does that answer your question?" Since then the population has fallen to 1376 people. Somerville Lake is not pumped as much as Lower Bois d'Arc lake is proposed to be pumped. This lake has not brought prosperity or growth to the town even though it is located in the beautiful Texas hill country.

One of the most visited small towns in Texas is Fredericksburg. This town's prosperity is not generated by a lake. A two day weekend event in Fredericksburg drew 22,000 people. It brought in 6.4 million dollars which equal \$145 per day per person. The 2013 tourism report showed a total of 89 million dollars for 2013. **[CC: P15-1]**

Response: As reflected in the public comments received, county and elected officials agree that prosperity and growth will occur; and are planning accordingly. The six-county region of influence (ROI) population is projected to grow at a very fast pace well into the foreseeable future – even without implementation of the Proposed Action. As discussed in Section 3.13.1, Population and Quality of Life/Existing Population and Projected Population Change, the population of Fannin County is expected to increase by more than 156 percent in the next 50 years. As discussed in Section 4.13.1, No Action Alternative, the six-county ROI would continue to grow, but in the absence of the proposed project, the population projections may not materialize to the fullest. As stated by the TWDB, the absence of water could prove costly to businesses and workers in the form of lost income and tax revenue.

The commenter provides three examples to support their argument: (1) Lake Texoma, (2) Lake Somerville and (3) Fredericksburg. For the first example, the commenter notes that the City of Denison population has decreased in the last eight years. It is unclear why this eight-year period is used, since Lake Texoma was constructed in the 1940s. While Denison is the city located closest to Lake Texoma, given the size of the lake it is also unclear why the larger Grayson County's population is not noted. From 2000 to 2010, Grayson County added over 10,000 people to its population; growing by 9.2 percent (See Table 3.13-2, Population Change in ROI and Texas, 2000-2010). It is projected to more than double in the next 50 years (see Table 3.13-3, Projected ROI and Texas Populations, 2010-2060). Further, Lake Texoma is the most developed and popular lake within the USACE Tulsa District, attracting approximately 5 million

visitors in 2012 (see Table 3.8-3, Visitation and Other Characteristics of Regional Lakes and Reservoirs in Section 3.8, Recreation). Visitor spending, labor income, value added, and jobs from Lake Texoma were also the highest within the USACE Tulsa District (see Table 3.8-4, Economic Impacts of Regional Lakes and Reservoirs in Section 3.8, Recreation). As such, it would appear that Lake Texoma is positively correlated with population and economic growth.

As the commenter noted, Lake Somerville in Somerville, Texas does not pump as much water as the proposed project. It is also located in a different part of the state – about 100 miles northwest of Houston – and therefore should not be used as a comparison.

Lastly, the commenter uses the town of Fredericksburg as an example of a town in Texas that is prosperous due to tourism and that does not have a lake. However, the prosperity of Fredericksburg is not relevant to this RDEIS. The RDEIS does not state that a lake is the only factor that can generate tourism dollars – rather it states that these two elements are often correlated in north and northeast Texas.

SE-2. NTMWD says Lower Bois d'Arc will bring in 160 million dollars per year to Fannin County. Using these figures of \$145 per day per person, 3024 people would have to come to Bonham every day of the year to equal \$160 million dollars per year. Since only 265 days per year would be suitable for recreation on a lake, 4164 people spending \$145 each, per day would have to come to generate the \$160 million dollars for the year. If every person who comes to the lake spends \$50 per day, for 265 days of the year, it would take 12,075 people per day to generate the \$160 million dollars. **[CC: P15-2]**

Response: It is assumed that the commenter is citing the project overview webpage for the Lower Bois d'Arc Creek Reservoir on the NTMWD's website (<https://www.ntmwd.com/projects/lower-bois-darc-creek-reservoir/>): "Additionally, recreational amenities provided by the reservoir could generate \$166 million of annual economic activity per year in Fannin County through activities such as fishing and boating, as well as new industrial and commercial opportunities." This statement correlates to Section 4.13.2.5, Long-Term Impacts, under Impacts of Recreational Users and Business Development and Recruitment.

Based on the above assumption, the commenter incorrectly uses the \$160 million figure to calculate the number of visitors needed per day to generate this amount. It appears that the commenter treats the \$160 million as visitor spending, but this figure is actually the sum of annual economic activity from visitor spending and economic activity from industrial and commercial activities. Economic activity includes direct, indirect, and induced impacts, described in detail in Section 4.13.2, Alternative 1, under Input-Output Model. Visitor spending represents the dollars spent on dining, retail goods, and lodging associated with recreation activities (e.g., fishing). The FEIS estimates that total economic activity from recreational non-local visitor spending would be between \$21,176,000 and

\$28,233,000; and that total annual economic activity from new industrial and commercial activities would be \$145,197,000 (see tables 4.13-9 and 4.13-12 of the FEIS). This adds up to \$166,373,000 if the lower bound of the estimate for total economic activity for recreational non-local visitor spending is used. It is also unclear why the commenter uses 265 days to calculate visitor spending per day, when many lake-based recreational activities can be enjoyed year-round.

The EIS does not attempt to estimate spending per person per day or attempt to predict the number of annual visitors. Rather, the EIS estimates that total annual spending from non-local recreational visitors would be between \$16,748,000 and \$21,982,000 (see Table 4.13-9 in the FEIS - Recurring Annual Local Economic Impact of Recreational Out-of-Area Spending at Lower Bois d'Arc Creek Reservoir).

SE-3. The lake is projected to be at 1/2 capacity 20% of the time according to Reservoir Site Protection Study R.J. Brandies Company Freese and Nichols. When it is at 1/2 capacity the area of the lake drops from 16,526 acres to 10,600 acres. This lake would have flat shore line. Most people who live around the shoreline will not be able to see the shore line 20% of the time. Contrary to the Clower Study saying the lake will bring of millions of dollars of development, there will actually be very little development around this shallow, muddy lake. The shore line will not be suitable for building marinas, or other recreational facilities. **[CC: P15-3]**

Response: The 2006 study cited by the commenter was not used in the RDEIS or FEIS because it is not the best available study regarding lake level fluctuation. As described in Section 4.8.2 of the FEIS and in accordance with NTMWD's operational plan for the LBCR: "Based on the historic hydrologic record of 50 years, the lake is projected to be between 516 and 534 feet about 80 percent of the time; over 534 feet about 10 percent of the time; and under 516 feet about 10 percent of the time..." Based on these projections, the lake would be under-capacity less than 10 percent of the time.

Varying lake levels were considered when identifying public access points because, due to higher elevations, the upper end of the lake (the western portion) would be the first part of the lake to experience limited access in a season of drought. Figure 4.4-2 shows the lake inundation areas at different capacities. At 50 percent capacity, the upper end of the lake and northwestern shoreline will have increased distances to the lake water. However, the southern and eastern shoreline will continue to have similar lake access. Residential homes (e.g., single family, two-family, manufactured home) are also planned for development around the lake in the northern, southern, and eastern portions of the lake; not the western portion of the lake most susceptible to varying lake levels. Therefore, it is unlikely that water level fluctuation would affect access to recreational facilities and opportunities or the lakeside view of residential homes. Estimates from Clower's report in Appendix E are supported by the planning for development around the lake (Clower, 2015).

SE-4. Instead of bringing prosperity the opposite may be true. The economic effect of losing thousands of acres of farm, pasture, and timber land on the Fannin County economy will be devastating to the county economy. The loss to tax revenue and millions of dollars of production costs and the food and fiber that is produced will also be lost. Many jobs and businesses that depend on agriculture will be lost. These jobs and the production will not be replaced after the lake is completed. In the long term temporary workers who work to construct the project will not compensate the county for the many losses the project will bring about. **[CC: P15-4]**

Response: The economic costs of constructing the proposed project are evaluated in "Update of the Economic, Fiscal, and Developmental Impacts of the Proposed Lower Bois d'Arc Reservoir Project" (Clower, 2015). This report is Appendix E of the RDEIS and FEIS and the results are incorporated into the socioeconomic impacts analysis. See Section 4.13.2.5, Long-Term Impacts, under Local Fiscal Impacts. The temporary annual tax revenue impacts due to the land acquisition within the project's footprint would be \$172,938 (see Table 4.13-13 in the FEIS). NTMWD has committed to keeping local tax agencies whole by making payments equal to any lost revenues until such time as growth in the tax base makes up for any initial lost tax revenues. At full development, the taxable value of permanent and weekend residences would generate an estimated \$5.9 million in county and school district revenues. The estimated net increase in tax revenues would be about \$5.7 million at full development.

The total compensation of employees in the farming and forestry, fishing, and related activities industries represent 2.3 percent in Fannin County (see Table 3.13-9 in the FEIS, Compensation of Employees by Industry in Fannin County, 2010). As the commenter noted, many of the agricultural and farming jobs that would be lost would not be replaced after the lake is complete. While it is unlikely that this loss in farming and timber land and the jobs associated with that land would devastate the economy, impacts to individual agriculture-related businesses and/or farmers may occur.

It is unclear exactly what is meant by "In the long term temporary workers who work to construct the project will not compensate the county for the many losses the project will bring about." As concluded in Sections 4.13.2 and 4.13.3: On net and over the long term and life of the proposed project, socioeconomic effects would be positive for Fannin County, even after the short-term economic contributions attributed to project workers end. It is acknowledged that most (but not all) Fannin County residents would welcome the short- and long-term economic stimulus provided by the project, in terms of direct added jobs, income, and induced economic activity. As a result of the project, in the future, Fannin County would be more populated, developed, and less rural than it is today (constituting a change in its existing predominantly rural character) or than it would be in the absence of the project. Residents would also enjoy a wider range of recreational and commercial opportunities than at present. Whether or

not one sees this tradeoff as good or bad is a question of one's personal values and interests.

SE-5. Page ES-13, Socioeconomics, the last paragraph states that the Proposed LBCR, if built, would cause an increase in cost per unit of water for NTMWD customers, but when paid the water rates would go back down. I cannot remember a time that any utility rate has ever gone down. I believe this to be a false statement. **[CC: P17-14]**

Response: Section 4.13.2 Alternative 1 has been updated to clarify why the cost for NTMWD to produce treated water would decrease after amortization:

“Amortization is the paying off of debt in regular installments over a period of time, or the annual debt payments as described above. Before amortization, the cost to produce treated water would be \$1.29 per 1,000 gallons. After amortization, or after the debt is paid off, the cost to produce treated water would drop to \$0.23 per 1,000 gallons, based on a yield of 120,665 AFY. Paying off the debt would help offset new debt undertaken by the NTMWD and help keep water rates to customers from increasing in the future. Paying off the debt would not cause the cost per unit of water to decrease for NTMWD customers.”

SE-6. Volume I- Revised DEIS, Chapter 4-Environmental Consequences, page 4-104, last paragraph, states: Non-local recreational visitors are estimated to spend between \$16.7 and \$21.9 million annually, which would generate between \$21.2 and \$28.2 million in economic activity, support approximately 300 to 400 new jobs and increase local earnings by \$6.2 to \$8.3 million. For this scenario to happen 1,000 people would have to visit Fannin County on all of the 96 weekend days in a year plus the three major warm weather holidays, that being Memorial Day, July the 4th and Labor Day. To make things easy let's say 100 days. That would mean that each of the 1,000 people would have to spend \$200.00 each, every day for 100 days to equal \$20,000,000.00. I am not saying that 1,000 people are not going to come. I am saying they are not going to spend \$200.00 a day. **[CC: P17-33]**

Response: Neither the RDEIS nor the FEIS attempt to estimate spending per visitor or the number of visitors per year. That said, it should be noted that North Texas weather patterns permit lake-based recreation year-round, so the lake would likely receive visitors during the weekdays – especially during the summer months – as well as the 96 weekend days cited by the commenter (see response to SE-2).

SE-7. Between Lake Ralph Hall, the proposed LBCR and the mitigation land for the proposed LBCR, Fannin County stands to lose 50,000 plus acres of productive land. If left as is the 50,000 plus acres would change hands several times in the next 25 years, therefore generating far more revenue than the two reservoirs ever would. Every time the property changed hands it would sell for more than it did the last time. The property owners would buy local verse hauling supplies from the Metroplex because of the logistics of doing so. Straight recreational people would not be purchasing building materials or other similar supplies used in property

improvement. Because of the fluctuation of the proposed LBCR it will never be a prime lake front property reservoir. NTMWD has gone beyond unethical in painting a rosy picture to the Fannin County Commissioners Court as to how great the proposed LBCR is going to be for the county. The State of Texas should reprimand NTMWD the maximum for their deceit. **[CC: P17-34]**

Response: See page 19 of the ASFMRA Texas Chapter's 2015 Rural Land Value Trends report (located at http://www.txasfmra.com/wp-content/uploads/ASFMRA-Land-Trends-2015_final.pdf). It states for the region including Fannin County that "buyer motivation is typically for recreational pursuits and rural residential on either a permanent or temporary basis, coupled with investment...[and] demand has increased in the recreational areas near Dallas." It also states that "properties with enhanced aesthetic or recreational appeal commonly bring premiums over production type properties due to the metroplex influence. Investors commonly pay premiums for properties with enhanced recreational appeal in the form of above average topography, live water creeks, springs, lakes, or suitability to develop lakes and other surface water on the site. Production type properties like cropland or open pastureland lack aesthetic or recreational characteristics and therefore are the least desirable within the market."

Based on the above, with which the USACE concurs, the demand and value of agricultural land would be lower than that of recreational land, or in this case the residential homes that are planned for development around the lake. As such, the residential homes planned for development around the lake would likely change hands more often than the existing agricultural land and create more revenue than the sales and purchases of existing agricultural land. With time, they would also appreciate in value – especially if the lake becomes established as a regional, recreational destination. To the commenter's point, it is possible that the real estate developers would import materials from the Metroplex as opposed to locally. The ASFMRA Texas Chapter's 2015 Rural Land Value Trends report notes that "Local producers provide a secondary market base which must compete with metroplex investors."

See SE-3 and Section 4.8.2 for a detailed discussion of varying lake levels as it relates to recreation. Varying lake levels were considered when identifying public access points because the upper end of the lake (the western portion) would be the first part of the lake to experience limited access in a season of drought, due to higher elevations. Residential homes (e.g., single family, two-family, manufactured home) are planned for development around the lake in the northern, southern, and eastern portions of the lake; not the western portion of the lake most susceptible to varying lake levels. Therefore, it is unlikely that water level fluctuation would affect access to recreational facilities and opportunities or the potential for lake front properties on the southern, western, and northern parts of the lake.

The USACE and NTMWD are complying with NEPA and other applicable requirements. The USACE is unaware of any instance of unethical or deceptive behavior by NTMWD in this process.

SE-8. We know for a fact that removing agricultural land will necessitate a drop in crop and livestock production and in the use of agricultural inputs which means that area agricultural marketing and supply businesses will do much less business in the immediate future if the Proposed Action is permitted. **[CC: P18-7]**

Response: While removing agricultural land would necessitate a drop in crop and livestock production – as the commenter describes - it would not necessarily affect area agricultural and supply businesses. Said otherwise, while impacts to individual agriculture-related businesses and/or farmers may occur due to the Proposed Action, it is unlikely to have the marked impact on the region's agricultural suppliers that the commenter describes. Short-term economic impacts are estimated in Section 4.13.2.4 of the FEIS.

SE-9. Under the Proposed Action, the DEIS fails to mention higher property taxes, due to lost tax base and inflation if the expected growth never comes. NTMWD promised to 'hold Fannin County blameless until land and property values raise enough to restore the tax base to levels before the reservoir was built.' After the reservoir is built and all the property associated with NTMWD comes off the tax rolls, will Fannin County be left hanging with a 2016 tax base for the next twenty years or longer? If the county is forced to raise tax rates just to keep things as they are, won't the higher tax rate suppress any new growth? **[CC: P18-40]**

Response: Property tax rates would not be raised to compensate for the lost tax revenue in the short- or long-term. As stated in Section 4.13.2.4, NTMWD has committed to keeping local tax agencies whole by making payments equal to any lost revenues *until such time as growth in the tax base makes up for any initial lost tax revenues*.

The associated or ancillary development that would likely occur in conjunction with the Proposed Action would cause the tax base to return to its original (current) size. In fact, it is projected that Fannin County would eventually experience a net increase in tax revenue from this development. It is possible that the value of existing properties would increase due to the Proposed Action. Under this scenario, annual tax payments for existing landowners would increase due to the higher value of the home; even though the property tax rate would likely stay the same.

SE-10. All our clients are landowners and farmers in the footprint of the proposed reservoir. Mr. Witcher will lose his home and all of his land, farmland that has been in his family for more than a century. Other clients will also lose all or large parts of their properties. **[CC: P7-2]**

Response: The USACE has met with Mr. Witcher as well as other individual landowners to best understand the difficult situation that would cause individuals like Mr. Witcher to lose his home and land that has been in his family for many years. It is understood that he and other individual landowners have been or would be compensated for their property. The USACE is not involved with these transactions – it would be between NTMWD and the landowner.

SE-11. There are many questions about population growth and the need for water in the revised DEIS. I would like to have those calculations on how the population is figured for 2060. I don't want numbers that are just made up, but the actual calculations based on facts that the USACE has done, not copies from Freese and Nichols studies. This is very important to deal with water supply estimates and the wide range of numbers that have been projected by many sources. NTMWD has some of the highest projections found. Why is the USACE not doing an independent assessment to check to see if the numbers are practicable? If done correctly or using other studies, water supply could be extended by many years. **[CC: P9-43]**

Response: Section 3.13.1 of the FEIS, Population and Quality of Life, presents figures from the United States Census Bureau and the Texas Water District Board (TWDB), respectively. The references for such figures – USCB, 2000; USCB, 2010a; and TWDB, 2011a – are included in the Administrative Record. These figures were neither developed with the help of nor developed directly by Freese and Nichols.

As the commenter noted, some water supply estimates are provided by NTMWD. However, these figures were either originally developed by or confirmed by the TWDB. More specifically and as stated in Section 4.13.2 of the FEIS under Alternative 1, "The project has been studied previously for the Red River Authority and the NTMWD. The reservoir was recommended as a water supply for the NTMWD in the 2001, 2006, and 2011 Region C Water Plans; as well as the 2002, 2007, and 2012 Texas State Water Plan (TWDB, 2002, 2007, 2012)." The Region C Water Plans and the Texas State Water Plans referenced in the previous sentence are also included in the Administrative Record. Projected population growth and water demand has been consistently confirmed by TWDB data and water plans dating back 15 years.

It is entirely appropriate for the USACE to rely on population projections and water supply data generated by the public agency responsible for developing such information (i.e., the TWDB). As such, the USACE concurs with these population growth and water demand projections. Insufficient supporting data has been provided by the commenter and the USACE believes the underlying issue is adequately addressed in the Sections of the FEIS referenced in this response.

SE-12. According to the Revised Mitigation Plan (January 2017), much of the land that falls within the 5,000-ft boundary around the lake will be taken and will not allow fences for cattle or hay land to be used by the landowners—we would be completely put out of the cattle business we now have and lose that income. As retired people this will really hurt us and our

only source of income from the property. We must have land to produce hay for the cattle and to graze them on—economically this must be in the same location. **[CC: P10-1]**

Response: The USACE cannot comment on the “Fannin County’s Comprehensive Plan for the LBCR” (approved July 2016), for lands surrounding the proposed LBCR that are not proposed for compensatory mitigation. Chapter 231, Subchapter G, (effective April 29, 2011) of the Texas Local Government Code enables Fannin County to regulate zoning within the area that is 5,000 feet from the proposed LBCR shoreline. The USACE suggests that the commenter contact the Fannin County Planning Board regarding zoning questions related to this plan because the USACE has no jurisdiction to regulate the Fannin County planning/zoning.

SE-13. The Revised Mitigation Plan (January 2017) speaks of deed restrictions that would be placed upon landowners. North Texas purchased land up to the elevation of 541 ft. but restrictions go far beyond that if it has a 5000 ft. boundary from the edge of the lake. This would include all of our land and take away our rights as landowners to control what we do with it. We would be limited by how we control weeds, how we use the water that naturally flows downhill to water hay land or to be collected in pools to water animals, irrigation of cropland if needed due to loss of water to the lake. Also, little streams that flow into the Bois d’Arc Creek now would be under the control of NTMWD and they could be allowed to come onto the land they did not purchase to redirect this water from its original flow. This could destroy the grass planted for hay and grazing land. **[CC: P10-2]**

Response: The commenter seems to be confusing the Fannin County Comprehensive Plan (approved July 2016) for lands surrounding the proposed LBCR with lands proposed for compensatory mitigation as required if a Department of the Army permit is authorized (see Section 1.2.1 of the FEIS).

The USACE recommends the commenter reference the Fannin County Comprehensive Plan regarding any questions they may have to the plan (see SE-12 response). Information regarding lands proposed for compensatory mitigation can be found in Appendix C.

SE-14. The Revised Mitigation Plan (January 2017) says that certain grasses would be targeted for extinction by NTMWD such as Johnson grass and Bermuda grass in some cases. This is what we use in many cases for hay production or food for our cattle. How can they take that right from us? **[CC: P10-3]**

Response: Johnson grass, Bermuda grass, and other invasive and non-native species that could threaten the success of the proposed mitigation would be targeted for control within NTMWD-owned (or legally controlled by NTMWD) compensatory mitigation sites only. However, such treatments would not occur on lands outside of the mitigation sites, or on lands that are not owned by the NTMWD.

SE-15. The Revised Mitigation Plan (January 2017) gives more land than is necessary for the lake to avoid any problems for NTMWD. What about overreach and hurting the landowner? The buffer area around the lake takes away my rights as a landowner so that NTMWD alone can profit. I could be limited from boating, fishing, hunting and commercial activities surrounding the lake on my own personal property. Where are my rights as a landowner being protected from invasion from the outside? Also, erosion issues could damage my land because NTMWD would have the right to fix the problem on my land. My family is a family that likes to hunt and this right can be removed as well in the buffering zone to keep NTMWD from working out the problem issues on lands they actually purchased. **[CC: P10-6]**

Response: Please see response to comment SE-12.

SE-16. Construction of the lake could very negatively affect my rights as a landowner within those boundaries. The lake will take the majority of my personal land and will destroy my ability to continue raising cattle and producing hay or food for the cattle on the land. This will eliminate my ability to have income from the land I have had in the family for many years. **[CC: P10-9]**

Response: Please see response to comment SE-12.

SE-2-2015. First, the Annual Cost on Table 4-23 is listed at \$48,374,901 for 126,200 AFY. This calculates to a cost per unit of water of \$383.32 per AF, or \$1.17 per 1000 gallons. Table 4-23, however, lists the unit costs at \$347.08 per AF, or \$1.07 kgal. If these figures have been inaccurately calculated, then it should be incumbent on the applicant to re-assess any cost comparison with alternatives. **[CC: TCA1-46]**

Response: Revisions to the RDEIS have addressed this discrepancy. New information and data presented in the FEIS supersedes previous statements made and data included in the DEIS and RDEIS. Section 4.13.2 of the FEIS states that unit costs before amortization would be \$419 per AF and \$1.29 per 1,000 gallons. These correspond to line items for Unit Costs (Before Amortization) in Table 4.13-3, Project Cost Estimates for Alternative 1 (120,665 AFY). Regardless of the unit costs, the USACE did not eliminate any alternative from consideration due to cost. Rather, it screened alternatives based on their ability to satisfy the purpose and need for the project. Cost will be considered in the USACE's decision within the 404(b)(1) guidelines LEDPA determination within the ROD.

SE-3-2015. The text in Section 4.14.2 (Page 4-101) concludes that the one-time (capital) cost of the reservoir and related structures would be \$385 to \$426 million. Table 4-23 on Page 4-102, however lists a total cost of \$552,397,634. This discrepancy should be resolved. **[CC: TCA1-47]**

Response: Revisions to the RDEIS and FEIS have addressed this discrepancy. The text in Section 4.13.2.1 states that one-time capital costs for the proposed LBCR and related infrastructure would be about \$570 million. This figure corresponds to the "Total Cost" line item in Table 4.13-3 Project Cost Estimates for Alternative 1, or \$570,405,000.

SE-4-2015. Also, the text in 4.14.2 speaks of the one-time cost as including the water treatment plant and planned expansions of the water treatment plant, yet the line item for the treatment plant reflected on Table 4-23 has no figure associated with it. This discrepancy needs clarification. **[CC: TCA1-48]**

Response: This discrepancy has been clarified in the FEIS. The relevant sentences in Section 4.13.2.1 were replaced with: "Additionally, transmission facilities including the pipeline to North WTP and the intake pump station would cost about \$207 million." This \$207 million corresponds to the sum of the transmission facilities line items in Table 4.13-3, Project Cost Estimates for Alternative 1 (120,665 AFY).

Section 2.2 of the FEIS further clarifies that the one-time costs for the North Water Treatment Plant (WTP) would be the same under all alternatives. Potential impacts from the WTP are analyzed under the No Action Alternative and as shown in Table 4.13-2, would cost about \$219 million.

SE-5-2015. The discussion of socioeconomic issues gives credit for a multiplier effect for the dollars spent on LBCR. If these dollars are not spent on LBCR, they will be retained by the ratepayers served by NTMWD and spent as those citizens see fit, or will be spent on alternative sources of water. In either case, they will be spent. The monies may not all be expended in Fannin County, but they will be spent and the multiplier effect will occur. As we have shown above, LBCR is probably not required to meet the water needs of north Texas. If so, any money spent on LBCR is money wasted. The money would be better spent if retained by the ratepayers. **[CC: TCA1-55]**

Response: As noted by the commenter, NTMWD would fund the construction through water sales; ultimately, financing costs are paid by the users of the water. The LBCR costs, including land acquisition, construction, transmission and treatment facilities, and any other costs would be expected to be financed with contract revenue bonds and by NTMWD. See response to comment SE-11 regarding population growth and the need for water. As concluded in Sections 4.13.2 and 4.13.3, whether one sees the tradeoff between the Proposed Action (i.e. economic stimulus, recreational and commercial opportunities that would occur as a result of or in relation to the Proposed Action) and existing conditions (i.e. the preservation of the predominantly rural character and existing water supply and rates) as good or bad is a question of one's personal values and interests. Similarly, whether or not one considers that water users' money would be better spent on the proposed LBCR or elsewhere is a question of one's personal values and interests.

TRANSPORTATION AND UTILITIES

T&U-1. 3-108, Section 3.10.2, Air Transit, Rail and Boating - NTMWD recommends including Dallas Love Field as a major airport, located about 80 miles from the Proposed Action. **[CC: NTMWD1-85]**

Response: A discussion about Dallas Love Field airport has been added to Section 3.11.2.

T&U-2. The City of Bonham Water Treatment Facility (operated by NTMWP) is located partially within and directly adjacent to the 545 ft. elevational mark. This presents significant concerns: The sewer lines running through both my mother-in-law's property (#77217- Carpenter) and our adjacent leased property (#77230 - Patterson) have overflowed twice within the last two years spilling raw sewage from manholes located in city's easements within our private lands. **[CC: P1-2]**

Response: This commenter confuses the City of Bonham Water Treatment Plant (WTP) with the City of Bonham Wastewater Treatment Plant (WWTP). The Bonham WTP has nothing to do with sanitary sewer overflows (SSOs). SSOs are the result of undersized sewer lines or infiltration to the sewer lines. The proposed LBCR would not affect SSOs.

The City of Bonham WTP (operated by NTMWD), located at 2073 FM 273, Bonham, TX, is responsible for treatment of drinking water. Construction drawings show the plant is at 595 feet msl and therefore is above the 545 feet msl 500-year floodplain elevation. Because the WTP is located above the 500-year floodplain, no adverse effects are expected as a result of the proposed reservoir.

The City of Bonham WWTP (operated by the City of Bonham), located at 2501 Seven Oaks Road, Bonham, TX is upstream of the reservoir. The elevation of this facility is approximately 554 feet msl. A hydrologic study of Bois d'Arc Creek (included as Appendix Q of this FEIS) concluded that flooding would not increase upstream of US 82. The USACE has independently reviewed this study and concurs with its conclusion. Because this plant is located upstream of US 82, no adverse effects are expected as a result of the proposed reservoir.

T&U-3. The City of Bonham Water Treatment Facility (operated by NTMWP) is located partially within and directly adjacent to the 545 ft. elevational mark. This presents significant concerns: Ironically, the City of Bonham Water Treatment Facility (property #70546) is not shown on the publicly distributed "Proposed Lower Bois D' Arc Creek Reservoir" map. This facility which is completely surrounded by our own property (#70560 Spencer et al) which is partially inside the 545 ft. mark: yet to no knowledge of the public has any consideration been given by the City of

Bonham or the NTMWD for the relocation of the sewer treatment plant away from the watershed and corresponding easement. **[CC: P1-3]**

Response: The City of Bonham WTP (operated by NTMWD), located at 2073 FM 273, Bonham, TX, is responsible for treatment of drinking water. Construction drawings show the plant is at 595 feet msl and therefore is above the 545 feet msl 500-year floodplain elevation. There is no risk of flooding this facility from the proposed LBCR. The City of Bonham WWTP (operated by the City of Bonham), located at 2501 Seven Oaks Road, Bonham, TX, is upstream of the reservoir. The elevation of this facility is approximately 554 feet msl. A hydrologic study of Bois d'Arc Creek (included as Appendix Q of this FEIS) concluded that flooding would not increase upstream of US 82. The USACE has independently reviewed this study and concurs with its conclusion. Because this plant is located upstream of US 82 no adverse effects are expected as a result of the proposed reservoir and there is no need to relocate the WWTP. Moreover, neither the Bonham WTP nor the Bonham WWTP have any connection to the proposed LBCR project, and are completely independent, existing facilities with no relevant cumulative impacts.

T&U-4. ..before Texoma was built Highway 82 was not there. So now NTMWD proposes to build a dam, back water up to HYW 82, and HYW 82 will act as a restriction for water. How is this not a problem that the USACE can see? **[CC: P9-2]**

Response: The proposed LBCR would not increase restrictions of water flow on Bois d'Arc Creek at Hwy 82. Bois d'Arc Creek would continue flowing under Highway 82 as it currently does. A hydrologic study of Bois d'Arc Creek (included as Appendix Q of this FEIS), concluded that flooding would not increase upstream of US 82. The USACE has independently reviewed this study and concurs with its conclusion.

T&U-5. My land would be divided by the lake so that parts which are close to me presently would be separated due to road closures and additional driving will include 5-10 miles more to circle the lake to get to the land that is completely connected presently. **[CC: P10-7]**

Response: The USACE acknowledges that some privately-owned lands would be divided if the LBCR is constructed. As discussed in Section 4.11.2.3 of the FEIS, NTMWD plans to replace FM 1396 by extending FM 897 north out of Lannius (on US 82 south of the proposed reservoir site) with a new bridge over the proposed reservoir along the approximate alignment of the current crossing of Bois d'Arc Creek by CR 2645. This new bridge would allow many individuals to cross over the reservoir rather than circle around the perimeter. However, it is understood that the commenter's situation would not be helped by the new bridge because their property would be divided by raised water levels on one of the reservoir tributaries.

T&U-6. Should US82 succumb to floodwaters, who would incur the expense of repairing and raising the highway? What kind of dollar figures would the repair and replace involve? What would be the impact of disrupted commerce by a severed US82? How long would the highway be out of commission? What kind of jeopardy would human lives be in should the heavily traveled highway begin to flood? **[CC: P14-5]**

Response: The Texas Department of Transportation (TXDOT) would be responsible for future maintenance or improvements to US 82.

Based upon a hydrologic study of Bois d'Arc Creek (included as Appendix Q of this FEIS), the proposed LBCR would not cause or increase the risk of flooding upstream of US 82. The USACE has independently reviewed this study and concurs with its conclusion. Consequently, the asserted impacts identified in the comment were not analyzed as they are not reasonably foreseeable.

U.S. ARMY CORPS OF ENGINEERS

USACE-1. Because the process to receive the 404 Permit has been delayed almost two years, the Chamber and the entire region insists that USACE complete all the permitting requirements in an expeditious manner using the fastest applicable process to issue the permit and with minimal added conditions from what is already planned. **[CC: Frisco-3]**

Response: The USACE has been and continues to work diligently to complete the NEPA and Section 404 permit application processes in an expeditious manner while maintaining the quality, adequacy, and legal defensibility of the analysis.

USACE-2. The Texas Commission on Environmental Quality has already issued the necessary water right permit for the Reservoir. The process has been delayed and we all have concerns, that the Reservoir will not be available in 2020. Therefore it is now extremely crucial that the USACE issue a Record of Decision that includes a draft permit no later than January 2018, and the final 404 Permit to allow construction of the Reservoir to begin no later than April 2018. **[CC: Frisco-6]**

Response: The schedule the USACE is following should allow it to issue a ROD within this timeframe. The USACE is and will continue to adhere to all NEPA and Clean Water Act process requirements.

USACE-3. The Chamber urges USACE to issue a Record of Decision for issuance of the 404 Permit for the Reservoir as applied for by NTMWD so that the water supply needs of our citizens can be addressed by this vital reservoir project. **[CC: Frisco-7]**

Response: See response to comment USACE-2.

USACE-4. Because the process to receive the 404 Permit has been delayed almost two years, our City and the entire region implore the USACE to complete all the permitting requirements in an expeditious manner using the fastest applicable process to issue the permit and with minimal added conditions from what is already planned. **[CC: Mayor Terrell-2]**

Response: See response to comment USACE-1.

USACE-5. The Texas Commission on Environmental Quality has already issued the necessary water right permit for the Reservoir. The process has been delayed and we all have concerns that the Reservoir will not be available in 2020, therefore it is now extremely crucial that the USACE issue a Record of Decision that includes a draft permit no later than January 2018, and the final 404 Permit to allow construction of the Reservoir to begin no later than April 2018. **[CC: Mayor Terrell-5]**

Response: See response to comment USACE-2.

USACE-6. Because the process to receive the 404 Permit has been delayed, our City requests that USACE complete all the permitting requirements in an expeditious manner with minimal added conditions from what is already planned. **[CC: Mayor Richardson-2]**

Response: See response to comment USACE-1.

USACE-7. The Texas Commission on Environmental Quality has issued the necessary water right permit for the Reservoir. The NTMWD is concerned that the Reservoir will not be available in 2020, therefore NTMWD requests that the USACE issue a Record of Decision that includes a draft permit no later than January 2018, and the final 404 Permit to allow construction of the Reservoir to begin no Later than April 2018. **[CC: Mayor Richardson-4]**

Response: See response to comment USACE-2.

USACE-8. The City requests USACE to issue a Record of Decision for issuance of the 404 Permit for the Reservoir as applied for by NTMWD. **[CC: Mayor Richardson-5]**

Response: See response to comment USACE-3.

USACE-9. Because the process to receive the 404 Permit has been delayed almost two years, our City and the entire region insists that USACE complete all the permitting requirements in an expeditious manner using the fastest applicable process to issue the permit and with minimal added conditions from what is already planned. **[CC: Mayor Pruitt-2]**

Response: See response to comment USACE-1.

USACE-10. The Texas Commission on Environmental Quality has already issued the necessary water right permit for the Reservoir. The process has been delayed and we all have concerns

that the Reservoir will not be available in 2020, therefore it is now extremely crucial that the USACE issue a Record of Decision that includes a draft permit no later than January 2018, and the final 404 Permit to allow construction of the Reservoir to begin no later than April 2018.

[CC: Mayor Pruitt-5]

Response: See response to comment USACE-2.

USACE-11. therefore we ask the District Engineer to deny this Section 404 Permit based on the existing laws and not only on fairness but also on the things left out and things that are just plain wrong in the RDEIS which should have been addressed in the first place. **[CC: P18-9]**

Response: The USACE is evaluating the Section 404 permit application fairly and impartially. Based on its independent review, the USACE believes that all relevant information has been taken into consideration in the FEIS and will proceed with making a decision regarding the proposed project within the ROD.

USACE-12. There is a presumption for that if a project is not “water dependent,” then alternatives exist that do not involve wetlands and a presumption that the alternatives have less adverse impact on the aquatic environment. NTMWD must clearly rebut these presumptions, by clear and convincing evidence, in its alternatives analysis. USACE guidance and decisions state that these presumptions require USACE to take a “hard look” at the possibility of using environmentally preferable sites. If the presumptions are not rebutted, then the permit may not issue. **[CC: P7-47]**

Response: Please refer to Section 1.5 and Chapter 2 in the FEIS. The USACE has evaluated all identified alternatives for purposes of NEPA and will be performing its LEDPA determination in conjunction with preparation of the ROD and in compliance with the standards of the 404(b)(1) Guidelines.

USACE-13. I would like to see the USACE perform its own studies on this project. There is a clear conflict of interest in the revised DEIS and I have shown them by my attachments. These should be reviewed and not be allowed. There have been two studies done in the past for LBCR that were denied for poor water quality, potential flooding, etc. I would urge the USACE not be influenced by politics and the desire to own water. **[CC: P9-47]**

Response: The USACE is not influenced by politics and would not own or operate the proposed reservoir. With the assistance of its third-party contractor and subcontractors, the USACE has undertaken an independent review of all relevant data and information. No conflict of interest exists.

USACE-14. Although desalination of water from Lake Texoma does not require a permit from the US Army Corps of Engineers, it is incumbent on the Corps to do an independent study of this option in the RDEIS, in order to be able to determine whether it is the Least Environmentally Damaging Practicable Alternative. The cost figures presented in the RDEIS are

so far removed from other cost assessments for this alternative that the issue deserves further consideration. **[CC: NGOs-20]**

Response: Regardless of whether or not the Texoma desalination option is cost competitive, this alternative does not meet the stated purpose and need of the project. Desalination of water supplied by Lake Texoma is discussed as a potential water supply alternative in FEIS Section 2.6.1, Alternatives that Do Not Require a Section 404 Permit. The assessment concluded that desalination of water from Lake Texoma would not meet be able to meet the water supply needs as summarized in the purpose and need statement.

The text in Section 2.6.3 in the FEIS was revised to refer to the purpose and need as the reason for NTMWD preferring blending over desalination rather than the environmental concerns and cost. Additional information about the unreliability of the desalination of Lake Texoma water alternative has been added to Appendix O of the FEIS.

USACE-15. In the revised DEIS, the adverse impacts are too much and I would ask the USACE to perform an independent assessment of the adverse impacts listed in the revised DEIS. The revised DEIS fails to do this. Chapter 4, page 81-84 needs to be reviewed. **[CC: P9-27]**

Response: The USACE and its contractors performed an independent review of all information, data, and analyses submitted by the Applicant and its contractors. The USACE believes that its assessment of the potential adverse impacts that could occur as a result of each alternative studied in the RDEIS and FEIS is accurate and complete.

Section 4.6 presents the air quality impacts of each alternative analyzed in this FEIS. As shown in Table 4.6-5, the estimated annual emissions for construction activities under Alternative 1 are 1.4 tons and 4.4 tons of carbon monoxide and nitrogen oxides, respectively. The emissions under Alternative 2 (smaller reservoir and dam footprint) and the No Action Alternative (no reservoir and dam construction) would be less than the Alternative 1 emissions. The emissions from construction activities would be below the *de minimis* threshold of 100 tons per year and would be expected to have a slight impact to the air quality in the region. Under Alternative 1, the total amount of GHG emissions that would occur over the 100-year life of the project represents approximately 0.7 percent of Texas' annual GHG emissions (641 million metric tons of CO₂ equivalent in 2013) (Climate Central, 2015).

WATER PIPELINE

WP-1. The evaluation of impacts should reflect the complete scope of the project, including major distribution system components from the treatment plant to existing facilities. **[CC: EPA-19]**

Response: The scope of the FEIS is correct. Please see response to comment ALT-96, which addresses how the North Water Treatment Plant and distribution lines are discussed in the FEIS.

WP-2. NTMWD has changed the location of the reservoir pumping facility a number of times throughout the planning of the project. However, according to a public meeting held at Honey Grove ISD in regards to powerline and pipeline right of ways, the final location of the pumping station was placed at the dam. The landowners affected by said right of way were informed of the decision and survey crews marked the location of the route. The RDEIS conflicts this with a pipeline located on the south shore of the reservoir. To my knowledge, the last planned location has never been changed. **[CC: P14-7]**

Response: It is commonplace for the specific location of components of a large, complex project like the proposed LBCR to change during preliminary design. At the present time, the locations of the pumping station and electrical substation are as depicted in the diagrams of Chapter 2 in the RDEIS and FEIS. The change in location does not alter the impacts addressed in the RDEIS and FEIS.

WP-3. There are already a number of available water sources that can be used without building Lower Bois d' Arc lake. Pipelines are the only thing needed to supply water from these sources. This is much less stress on the environment and certainly much less destruction of valuable land. **[CC: P15-6]**

Response: The USACE has reviewed all alternatives to the proposed action identified under the purpose and need described in Section 1.5 of the EIS. As detailed in the EIS, none of the pipeline-from-existing-reservoir alternatives evaluated in Chapter 2 and Appendix O of the RDEIS and FEIS meet the purpose and need for the proposed action described in Section 1.5. Please refer to Chapter 2 for a description of those dismissed alternatives and their respective challenges and shortcomings in meeting the purpose and need.

WP-4. In the Preliminary Jurisdictional Determination of Waters of the United States there is information on a 66 inch pipeline from Leonard to Pilot Grove Creek. It was my understanding that it was illegal to dump raw water from one tributary into another without being treated first. Why is there information on this in the RDEIS? This should have been deleted before the release of the RDEIS. **[CC: P17-15]**

Response: The USACE cannot comment on current Texas law. Please consider contacting the TCEQ if you have concerns regarding the referenced pipeline. The pipeline the commenter references is no longer under consideration and has been deleted from this EIS.

WP-5. In the above Jurisdictional Determination, page 3, (3) Results, (a) Project Location, states the pump station to be on the south shore of the reservoir approximately one mile south of the

confluence of Yoakum Creek and Bois d'Arc Creek. This is shown on Figure A-1. Yet in Volume I- Revised DEIS, 3.14.4 Raw Water Pipeline Route and Associated Facilities, page 3-171-172, Figure 3.14-2 shows the pipeline to be coming out behind the dam. There is absolutely no consistency in this RDEIS. **[CC: P17-16]**

Response: It is commonplace for the specific location of components of a large, complex project like the proposed LBCR to change during preliminary design. At the time that the Preliminary Jurisdictional Determination was conducted, the southern shore of the reservoir was indeed the intended location of the pump station and raw water pipeline. By the time the RDEIS was issued in early 2017, the location of both pipeline and pump station had shifted to their current site adjacent to (northeast of) the dam embankment. These facilities were moved along with the water intake structure within the reservoir itself, so that the water intake structure could take advantage of the deeper water in this location. The USACE has analyzed the proposed action and alternatives to it based on the most up-to-date information as NEPA requires. The change in location does not alter the impacts addressed in the RDEIS and FEIS.

WP-6. NTMWD states that building pipelines to these existing reservoirs has a greater environmental impact than building the LBCR. I would like to see the studies they have on that and not just statements saying so. A lack of time is not a relevant excuse or legal means to not explore these alternatives. It does not make sense. Building pipelines disrupts the environment for only a temporary basis. Once the pipeline is completed, the land can go back into production. This is not the case for a reservoir, as the land will never go back into production. It also is a fact that with the construction of a new reservoir, a pipeline has to be built to transfer water. **[CC: P8-3]**

Response: The USACE considered a wide range of water supply options as part of the alternatives development and screening process. This process, including the other alternatives considered and dismissed from detailed evaluation for failure to meet purpose and need, is explained in FEIS Section 2.6. Additional detail on the alternatives development and screening process is provided in EIS Appendix O, Alternatives Dismissed From Detailed Consideration.

Please refer to Chapter 2 for a description of dismissed alternatives and their respective challenges and shortcomings in meeting the purpose and need.

WP-7. Pipelines affect very little wetlands or hardwood bottoms. Why has pipeline construction not already started? Why has the USACE not started them if Region C will be out of water by 2020? **[CC: P9-13]**

Response: See response to comment WP-6. None of the pipeline alternatives meets the purpose and need for the project, which is why NTMWD (not the USACE) has not begun constructing them.

WP-8. Pipelines are much less damaging to an ecosystem than a dam. With trees and grasslands being a huge consumer of CO₂, I would like to see a study of how removing 16,000+ acres of foliage from the earth's surface would be less of an impact than a pipeline right of way, which would be capable of vegetative regrowth once complete. **[CC: P14-2]**

Response: See response to comment WP-6. Section 4.6 of the FEIS estimates lifetime greenhouse gas emissions for Alternative 1, Alternative 2, and the No Action Alternative, including the loss of carbon-containing woody vegetation at the reservoir site. The main source of GHG emissions associated with raw water pipelines is from the use of fossil fuels to provide the energy needed to pump a given quantity of water a given distance and a given height over a given amount of time. No pipeline-from-existing-reservoir alternatives evaluated in Chapter 2 and Appendix O of the FEIS meet the purpose and need for the proposed action described in Section 1.5, and thus those alternatives were dismissed from detailed consideration.

WATER RESOURCES

WR-1. A rationale on how the stream assessment method is going to assess water quality improvements should be provided, especially since reductions in sediment, pesticides, herbicides, bacteria, etc., are described, but these parameters are not accounted for in the stream assessment as providing uplift in the RGA assessment. **[CC: EPA-12]**

Response: Feedback from TCEQ, the state agency that monitors water quality, has not indicated any concerns regarding water quality issues resulting from the project or associated mitigation, and the USACE concurs. Updated data supporting this conclusion are included in Section 3.4.4, Bois d'Arc Creek Water Quality, and Section 4.4.2.7, Surface Water Quality, of the FEIS. Water quality would continue to be monitored at USGS gaging stations to provide information on the proposed reservoir's impact on water quality below the dam after its construction, if the USACE issues a permit (see Appendix C, Revised Mitigation Plan, for further details). In addition, should a permit be authorized, an individual 401 water quality certification would be required from TCEQ to ensure compliance with applicable water quality standards, including additional permit conditions.

WR-2. ES-7, Existing Reservoirs- The RDEIS states that neither Alternative 1 nor Alternative 2 would affect existing reservoirs. USACE should consider whether Alternative 2 has an impact on Lake Texoma. Although NTMWD has an existing water right to divert water from Lake Texoma, it is not currently diverting the up-to-28,700 acre-feet of water that would be required for Alternative 2. If diverted under Alternative 2, that would likely have some impacts on Lake Texoma. **[CC: NTMWD1-26]**

Response: Effects to Lake Texoma for Alternatives 1 and 2 are included in Section 4.4, Water Resources. Additional information regarding the potential

impacts on Lake Texoma under Alternative 2 as a result of water diversion is included in Section 4.4.3.6, Existing Reservoirs within the Bois d'Arc Creek Watershed, which has been clarified in response to the comment. Withdrawals to Lake Texoma of up to 28,700 AFY for blending with water from the downsized reservoir would occur under Alternative 2. Because NTMWD already has a water right for this water withdrawal, and existing diversions do not reach the withdrawal limit under this water right, approximately 70,623 AFY of water supply would be available from Lake Texoma in 2020 through 2060 (Section 3.4.2.4, Reservoirs). The water under the NTMWD Texoma water right is assumed to be used at any time by the owner, NTMWD, and is therefore not considered a new impact to Lake Texoma.

WR-3. 3-23, Section 3.3.1, Bois d'Arc Creek Water Quality- The information in this section has not been updated with the water quality data most recently submitted to USACE in December 2016 and again on March 3, 2017. NTMWD recommends incorporating the updated water quality data into this section in the Final EIS. **[CC: NTMWD1-66]**

Response: Section 3.4.4, Bois d'Arc Creek Water Quality, of the FEIS has been updated with the most recent water quality data submitted to the USACE, as suggested by the comment. These new data in the FEIS further support the conclusions of good water quality in the Bois d'Arc Creek provided by data in the RDEIS.

WR-4. 3-33, Section 3.3.2, Tributaries to Bois d'Arc Creek - NTMWD recommends including a brief discussion on the conservative nature of the classification type "intermittent/ephemeral." This stream type was applied to streams that are likely ephemeral (only exhibit flow following a rain event), but field studies were not conducted to determine where the exact transition from ephemeral to intermittent occurs. Unnamed tributaries were classified as intermittent/ephemeral, which is consistent with the USACE's classification of streams in the Approved Jurisdictional Determination. **[CC: NTMWD1-67]**

Response: A discussion on the "intermittent/ephemeral" classification type has been added to the "Tributaries to Bois d'Arc Creek" subsection under Section 3.4.2.3, Rivers and Streams, as suggested by the commenter.

WR-5. 3-35, Section 3.3.2, Lake Texoma- In the second paragraph, NTMWD recommends revising this discussion to reflect the current operations of use of water from Lake Texoma. Water from Lake Texoma is no longer discharged to Lavon Lake (Sister Grove Creek) due to the presence of zebra mussels. Water from Texoma instead is pumped directly to the Wylie water treatment plant and blended with other sources at the plant. This limits the use of water from Texoma to 77,000 acre-feet per year. NTMWD also holds a water right for another 113,000 acre-feet per year from Lake Texoma. This water right prohibits the discharge, or passing through, of this portion of Lake Texoma raw water to/through Lavon Lake or any stream or water body in the Trinity River Basin, Sabine River Basin or Sulphur River Basin. Therefore, this water must also be transported directly to a treatment facility. Currently, there are no other

fresh water supplies for NTMWD to blend with the 113,000 acre-feet per year. **[CC: NTMWD1-68]**

Response: The "Lake Texoma" subsection under Section 3.4.2.4, Reservoirs, has been revised in the FEIS to include a discussion reflecting the current operations of water use from Lake Texoma, as suggested by the comment.

WR-6. 3-39, Section 3.3.4, Bois d'Arc Creek Water Quality - NTMWD recommends updating this section to include information on Bois d'Arc Creek's listing on the Clean Water Act Section 303(d) list as impaired for e-coli since 2010. NTMWD also notes that TCEQ completed a Recreational Use Attainability Analysis (RUAA) for Bois d'Arc Creek in 2016 which may contain information that should also be incorporated in this section. Here is a link to access the RUAA report: <https://www.tceq.texas.gov/waterquality/standards/ruaas/redpt2/#projectreport>. **[CC: NTMWD1-69]**

Response: Section 3.4.4, Bois d'Arc Creek Water Quality, has been updated in the FEIS to include information on the Bois d'Arc Creek's listing on the Clean Water Act Section 303(d) list as impaired for *E. coli* since 2010 and sources for *E. coli* to the watershed, as suggested by the comment. More recent information has been added to Section 3.4.4 to document the delisting of Bois d'Arc Creek as impaired for *E. coli* in 2014.

WR-7. A 3-40, Section 3.3.4, Bois d'Arc Creek Water Quality, Table 3.3-9 - As discussed above, more recent water quality data was provided to the USACE in December 2016 and on March 3, 2017. This table and discussion should be updated to reflect that new data in the Final EIS. **[CC: NTMWD1-70]**

Response: Section 3.4.4, Bois d'Arc Creek Water Quality, of the FEIS has been updated with the addition of a new table (Table 3.4-9, Bois d'Arc Creek Watershed Water Quality) summarizing the most recent water quality data submitted to the USACE, as suggested by the comment. These new data in the FEIS further support the conclusions of good water quality in the Bois d'Arc Creek provided by data in the RDEIS.

WR-8. 4-20 to 4-21, Section 4.5, Water Resources, Table 4.5-1- Summary of discussion for No Action alternative under stream channels does not reflect the impacts discussion of this alternative presented in Section 4.5.1. That section discusses ongoing downcutting and channel evolution, which is not reflected in Table 4.5-1. In addition, under Groundwater Resources, there is discussion of Existing Reservoirs that NTMWD recommends as a separate topic in the table. **[CC: NTMWD1-97]**

Response: Table 4.4-1 already reflects the No Action alternative discussion as presented in Section 4.4.1, No Action Alternative. Further detail has been added, as suggested by the comment, on water quality impacts from the No Action Alternative due to groundwater withdrawals and channelization if there is

continued development. Potential impacts on existing reservoirs are now listed as a separate topic in the table.

WR-9. 4-22, Section 4.5.1, Surface Water Resources- The first sentence of this section in the RDEIS implies that the stream channel is moving toward a state of equilibrium. Under the No Action Alternative, however, there would be little to no changes in the highly erosive flows that are occurring today. These high flows will continue to downcut and widen the channel and inhibit evolution to a more stable stream. This was documented and discussed in the IFS (Freese and Nichols, 2010a). Specifically, the future of Bois d'Arc Creek without the proposed LBCR is discussed in Section 4.5 of the IFS on page 89. This discussion is also summarized in the Executive Summary of the IFS on page ES-3. Also, the reference to highway crossings that restrict stream flow should be Highway 82 and Highway 56 (not 65). **[CC: NTMWD1-98]**

Response: Section 4.4.2.4, Stream Channels and Open Water Features, and Section 4.4.2.5, Surface Hydrology, of the FEIS have been revised to clarify the stages of channelization. The comment is partially accurate in that in the reasonably foreseeable future, highly erosive flows would continue, which would tend to continue downcutting and widening the channel (Type III and Type IV of the channel evolution process). Over the longer term, however, according to the Incised Channel Evolution Process, the channel would continue evolving toward Type V, Dynamic Equilibrium (Figure 3.4-10). The highway crossings that restrict stream flow have been revised to accurately reflect Highways 82 and 56 in Section 4.4.2.4, Surface Hydrology, as suggested by the commenter.

WR-10. 4-29, Section 4.5.2, Stream Channel Form (Fluvial Geomorphological Processes), Table 4.5-4 - USACE should update this table to reflect the information from the Approved Jurisdictional Determination for the Proposed Action. Please replace this table with the Table 2.10 from the January 2017 Revised Mitigation Plan. **[CC: NTMWD1-99]**

Response: Table 4.4-3, Impacts of Proposed LBCR on Streams, as Measured by Length in Feet and SQUs, in the FEIS and any information relying on these data have been updated with information from Table 2.10 of the January 2017 Revised Mitigation Plan, as suggested by the comment. These updated data support the conclusions of potential moderate impacts to stream channels and surface water quality.

WR-11. 4-29, Section 4.5.2, Flood Flows - In line with the comment above regarding the absence of flood pools/flood storage in the proposed project, NTMWD recommends that USACE might instead incorporate in this section a discussion on the impacts from possible flooding from a 1 00-year or greater storm associated with the new floodplain. Figure 4.5-3 in the RDEIS shows the existing and proposed 1 00-year floodplain with the Proposed Action/ Alternative 1. A similar figure should be developed for Alternative 2. **[CC: NTMWD1-100]**

Response: Flooding impacts on the new floodplain from a 100-year storm are already considered in the current analysis in the "Flood Flows" subsection under

Section 4.4.2.5, Surface Hydrology, of the FEIS. Figure 4.4-3, was developed based on a 404 Permit application and using models, as described in Section 4.4.2.5, and has been updated to include the profile of the downsized LBCR under Alternative 2. Supporting qualitative and quantitative information provided in this figure is provided for the discussion of Alternative 2 (Section 4.4.3.5, Surface Hydrology) to establish any similarities and differences between alternatives.

WR-12. 4-40, Section 4.5.2, Surface Water Quality Impacts- The information in this section should be updated with the water quality data that NTMWD previously submitted to USACE, most recently in December 2016 and again on March 3, 2017. NTMWD also recommends discussing this data more thoroughly in the context of state and federal water quality standards. **[CC: NTMWD1-101]**

Response: Section 4.4.2.7, Surface Water Quality, of the FEIS has been updated with the most recent water quality data submitted to the USACE, as suggested by the comment. Additional details have been added to more thoroughly describe data in the context of state and federal water quality standards. These new data in the FEIS further support the conclusion that the existing water quality described as “good” (in Section 3.4.4, Bois d’Arc Creek Water Quality, of the FEIS) would remain good water quality and would meet water quality standards with construction of the proposed LBCR.

WR-13. 4-45, Section 4.5.3, Smaller LBCR Reservoir Water Storage - In line with the comment above on 2-41, Section 2.3.6, Reservoir Operation, NTMWD recommends including additional discussion in this section regarding how the smaller capacity of Alternative 2 would result in NTMWD having significantly less operational flexibility. Operational flexibility typically includes the ability to divert more water at times, with periodic reductions in diversions to allow the reservoir to refill. Under Alternative 2, blending water with Lake Texoma water would require a minimum of 3: 1 blend ratio. Consequently, a reduction in the authorized diversion of water from the smaller reservoir also reduces the amount of Texoma water that can be blended. Depending upon the amount of reduced diversion, the total supply from Alternative 2 could be substantially reduced. In addition, Alternative 2 has substantially less reserve supplies in storage to withstand extended droughts, which would give NTMWD less certainty and stress its other water sources. Further, overdrafting the reservoir (i.e., diverting more than the yield) is not a prudent operation strategy for the smaller reservoir. **[CC: NTMWD1-102]**

Response: Section 4.4.3.3, Downsized LBCR Water Storage, has been updated in the FEIS to include an additional discussion of the lower operational flexibility of Alternative 2, as suggested by the comment.

WR-14. 4-46, Section 4.5.3, Stream Channels and Open Water Features within the Bois d'Arc Creek Watershed and Surface Hydrology - Consistent with our comment above, NTMWD recommends removing the flood pool discussion from these two sections. The area that could be impacted by flooding should be discussed only under flooding. The document that is

referenced as (Kiel, 2016b) does not include any acreage associated with changes to the 100-year floodplain (i.e., the 3,800 acres noted in this section). The total acreage cited in this section is incorrect. The total acreage for Alternative 2 should be 10,409 acres, of which 9,390 acres are associated with the dam and reservoir. The stream lengths cited fall within the respective areas for the dam and reservoir. There are no permanent impacts to streams associated with the other components of the Alternative. The SQU values determined for Alternative 2 are 114,032 SQUs. This is provided in the reference cited (Kiel, 2016b). As noted, none of the stream length or open water acreage cited in this section falls within the approximately 3,800 acre area (from elevation 515 ft. msl to 525 ft msl) that would occur within the 100-year flood elevation under this alternative. Moreover, any flooding that may occur would be expected to occur very infrequently and result in short-lived impacts, if any, to these resources. Any discussion on impacts associated with the 100-year floodplain should be removed from this section and discussed under flooding. **[CC: NTMWD1-103]**

Response: The flood pool discussion has been removed from Section 4.4.3.4, Stream Channels and Open Water Features. Additionally, the text has been revised with updated quantitative information on acreages, SQUs, and stream lengths. New data did not result in changes to conclusions of potential impacts from construction of the dam and reservoir under Alternative 1 or Alternative 2.

WR-15. 4-47, Section 4.5.3, Surface Hydrology- NTMWD recommends including the 100-year flood elevation in this discussion. An estimate of 525 ft msl is the basis for the 3,800 acres of additional area for flooding for a 100-year flood event. However, not all of this area is outside of the existing 100-year floodplain. Please let NTMWD know if USACE needs a more precise flood elevation and area to inform the analysis in the Final EIS. **[CC: NTMWD1-104]**

Response: The estimate provided by the commenter should be 524 msl, which is the elevation of the 100-year floodplain under Alternative 2. Elevation duration data revealed a 534 feet msl elevation (full conservation elevation) for the LBCR dam embankment under Alternative 1 (as described in Section 2.3.1, Dam and Reservoir), and a 515 feet msl elevation for Alternative 2 (as described in Section 2.4.1, Dam and Reservoir). Analysis of water surface elevation for the reservoir utilized the 534 feet msl elevation for Alternative 1 and 515 feet msl elevation in Alternative 2 to consider 100-year flood events; in the event of a 100-year flood, these elevations would rise to 541 and 524 feet msl, respectively. This information and any related potential impacts are detailed in the description of surface hydrology in Sections 4.4.2.5 and 4.4.3.5, Surface Hydrology, for Alternatives 1 and 2, respectively. Additional details and clarifications have been made to Sections 4.4.2.5 and 4.4.3.5 regarding the 100-year floodplain analysis.

WR-16. 4-47, Section 4.5.3, Surface Water Quality Impacts - The analysis in this section should be updated with the new water quality data the NTMWD previously submitted to USACE, most recently in December 2016 and again on March 3, 2017. **[CC: NTMWD1-105]**

Response: Section 4.4.2.7, Surface Water Quality, of the FEIS has been updated with the most recent water quality data submitted to the USACE to describe potential water quality impacts under Alternative 1. This discussion provides support for Alternative 2 because water quality is expected to be similar between the two alternatives. Clarification on the similarities of water quality between the two alternatives has been added to Section 4.4.3.7. These new data in the FEIS further support the conclusion that the existing water quality described as “good” (in Section 3.4.4, Bois d'Arc Creek Water Quality, of the FEIS) would remain good water quality and would meet water quality standards with construction under either Alternative 1 or Alternative 2.

WR-17. 4-48, Section 4.5.3, Potential Impacts to Stream Channels and Open Water Features by the Proposed Pipeline - This section should also include a discussion of the 8-mile pipeline from the existing Texoma pipeline to the North WTP. If USACE needs additional information about this pipeline segment, please let us know. **[CC: NTMWD1-106]**

Response: Text has been added, as suggested by the comment, to the “Impacts from the Proposed Pipeline” subsection in Section 4.4.3.4, Stream Channels and Open Water Features, of the FEIS to describe the 8-mile pipeline segment and related potential effects.

WR-18. Table 4.5-3 should also include affected stream data for the road extension ROW. **[CC: TPWD-8]**

Response: There would be no streams impacted by the road extension ROW; therefore, this information is not described in Section 4.4, Water Resources.

WR-19. The second paragraph [in Section 5.6.3] identifies two Texas water planning regions between the Louisiana state line and the confluence of Bois d' Arc Creek with the Red River. This paragraph should also identify any Oklahoma or Arkansas water planning entities dependent upon this same stretch of the Red River. Additionally, to fully address water supply availability downstream, actions occurring within the Red River Basin in Oklahoma and Arkansas should be considered, including proposed reservoirs, water-intensive developments, etc. **[CC: TPWD-17]**

Response: Information on the existing hydrologic conditions in Lower Bois d'Arc Creek and the Red River is provided in FEIS Section 3.3, Water Resources. FEIS Section 4.4, Water Resources, discloses impacts on water resources including hydrologic conditions within Lower Bois d'Arc Creek and the Red River. As discussed in the “Flood Flows” subsections of Sections 4.4.2.5 and 4.4.3.5, Surface Hydrology, for Alternatives 1 and 2, respectively, the operation of Alternatives 1 or 2 would result in only small changes to flows in the Red River below the confluence with Lower Bois d'Arc Creek that would not affect downstream water users. Because neither alternative is expected to result in an adverse impact on existing downstream water users, the USACE does not

believe the existing conditions discussion warranted a detailed description of existing water users in the Red River Basin that would not be affected by the project, including those in Oklahoma or Arkansas.

It should also be noted that the proposed LBCR would be operated based on the provisions in the water user permit issued by TCEQ (FEIS Appendix F, Water Rights Permit from Texas Commission on Environmental Quality for Bois d'Arc Creek Reservoir). In addition to establishing the maximum amount of water that may be diverted from the proposed LBCR each year and release requirements to Lower Bois d'Arc Creek, the NTMWD reports hydrologic and water quality conditions to the TCEQ on a biannual basis. It is the intent of these permit requirements to protect the water rights of downstream entities.

WR-20. 2.3 Existing Hydrology: The Applicant proposes a revision of the stream type classifications from previous versions of the DEIS. Field verification should be conducted to support classification. Because the naming of streams does not follow a known or defined protocol, classifying streams based upon whether streams are named does not provide a reliable means to categorize stream features. It should be noted that the ten year period of gage data used to support the stream type revision includes the drought of record for Texas, which consisted of over four years of exceptionally hot and dry conditions between 2011 and 2015. The use of such a brief data set that contains historical outliers may not be an appropriate basis for this determination. **[CC: TPWD-19]**

Response: TCEQ is reviewing the requested reclassification of the streams with the consideration of new technical analysis and information from the United States Geological Survey, TCEQ, and the Clean Rivers Program. This request, and details on their review process, can be found under the following reference cited in the FEIS: (TCEQ, 2016a).

The reclassification of the stream is supported by site visits and data collected over the past 10 years which studied the stream and its functions. As described in Appendix M, Instream Flow Study, hydrologic data collected within the watershed show extended periods of little or no flow in Bois d'Arc Creek, confirming Bois d'Arc Creek may be more appropriately classified as having intermittent flow, rather than perennial flow. Revisions to the reclassification would be subject to review by the EPA.

WR-21. 7.3.1 Avoidance and Minimization: This section states that no permanent impacts to waters of the United States outside the reservoir footprint would occur as a result of relocating FM 1396. This statement should also be presented in the DEIS. **[CC: TPWD-29]**

Response: Details on the relocation of FM 1396 and a statement of no permanent impacts have been added to Sections 4.4.2.5 and 4.4.3.5, Surface Hydrology, of the FEIS for Alternatives 1 and 2, respectively, as suggested by the comment.

WR-22. The USGS maintains 3 active stream gages within the proposed Lower Bois D'Arc Creek Reservoir project area: USGS Station Number 07332610 Lk Bonham near Bonham, TX Active Fannin; 7332620 Bois D'Arc Creek at FM 1396 near Honey Grove, TX Active Fannin; and 7332622 Bois D'Arc Creek at FM 409 near Honey Grove, TX Active Fannin. The Revised DEIS should list these stream gages as sites to be safeguarded and/or describe a process for coordination with the USGS about removal or relocation. Station 07332620 is located within the proposed impoundment area and will require removal if the project is completed. The USGS Texas Water Science Center (WSC) should be contacted and given sufficient advance notice before construction near active USGS stream gages. Efforts should be made to both preserve the stream gages and minimize impacts to the data integrity collected at those sites. **[CC: USFWS-1]**

Response: Section 2.3, Alternative 1 – Applicant's Proposed Action (Applicant's Preferred Alternative), and Section 2.4, Alternative 2 – Downsized LBCR with Blending, provide background on the relocation of the existing FM 1396 road and bridge, which would require the relocation of the gage at FM 1396 due to inundation by the reservoir. Sections 4.4.2.5 and 4.4.3.5, Surface Hydrology Impacts, have been revised for Alternatives 1 and 2, respectively, as suggested by the comment, to describe the need to relocate the gage at FM 1396 to the FM 56 site due to inundation by the reservoir and to include information on the continued operation of the gage at FM 409. The gage at USGS Station Number 07332610 is not within the affected environment and is therefore not included in the analysis.

WR-23. The proposed project will without question cause significant destruction and degradation of waters of the United States, including significant impacts to bottomland hardwoods, wetlands and open waters. **[CC: NGOs-5]**

Response: Impacts to waters of the U.S., including wetlands, are disclosed and described throughout Section 4.4, Water Resources, and Section 4.5, Biological Resources. Bottomland hardwood forested wetlands are included in this analysis, and the importance of this resource in the region is noted in Section 3.5, Biological Resources, and Section 1.6.1, Public Notice for Section 404 Permit Application.

WR-24. Alt #2 prevents the destruction of Jurisdictional Waters/Wetlands by approximately 30% vs. Alt #1. Alt #2 prevents the destruction of approximately 326,000 lf of streams, 50% of Alt #1 (651,140 lf). **[CC: P13-4]**

Response: The USACE acknowledges this comment and believes this issue is adequately addressed in the following sections of the FEIS. Details regarding these impacts are captured in the Table 4.4-1, Summary of Impacts to Water Resources under Each Alternative. As described in Table 4.4-1 and Section 4.4.3.5, Surface Hydrology, of the FEIS, Alternative 2 could impact an estimated

348,928 linear feet of streams, which is approximately half of the 651,140 linear feet that could be impacted under Alternative 1.

WR-25. The Bois d'Arc Creek drainage area saw a deluge of rain in May 1982. Rain totals of 10 to 14 inches fell across the area in a 24 hour period. A weather event such as this could repeat itself at any given time. Have these values been factored into the flood analysis? Should citizens of Bonham suffer from flooding in their homes, who would indemnify them of their loss? Would FEMA reclassify areas in the City of Bonham as flood zones so flood insurance would become necessary? **[CC: P14-6]**

Response: The City of Bonham would not face a higher risk of flooding as a result of the proposed reservoir construction. The two main conclusions of the Probable Maximum Flood Analysis, conducted in August 2007 (as described in Appendix Q), were:

1. The proposed LBCR would not increase flood levels upstream of Highway 82, including at Highway 56.
2. Current flooding upstream of Highway 82 and Highway 56 bridges is partially due to constriction of the channel capacity at these two bridges. Flooding in this area could be reduced by increasing the channel capacity and the bridge opening size to allow water that now backs up at these bridges to be conveyed downstream under high flow events.

WR-26. My scenario above has the TDS at 529 mg/L, yet NTMWD is saying in Appendix N, page N-33, that it takes a 4:1 blend to keep the TDS below 600 mg/L. My blend was derived by using 184,000 AFY from Texoma, 118,680 AFY from Lavon and 54,000 AFY from Cooper, which was 51.4% Texoma and 48.4% from the other two reservoirs. Why does NTMWD TDS have to be below 600 mg/L? **[CC: P17-5]**

Response: The commenter misidentifies the TDS threshold, which should be 500 mg/L, not 600 mg/L. Section 4.4.3.3, Downsized LBCR Reservoir Water Storage, of the FEIS was revised to include updated information on the required blend ratio of 3:1 to keep TDS below 500 mg/L and meet water quality requirements. The final blend ratio would be determined during design.

WR-27. NTMWD is planning on removing 106,400 AFY from the proposed LBCR that started out in the DEIS with a firm yield of 126,200 AFY to now, as stated in the Abstract and in Appendix N, page N-4, of the RDEIS to be 120,665 AFY. In the Instream Flow Study, page 35, second paragraph, the USGS states they are having a hard time projecting the true flow of Bois d'Arc Creek. In looking at the two conflicting yields, I would say the true yield is an unknown. **[CC: P17-6]**

Response: Current yield estimates are provided throughout Section 3.4.2, Surface Waters, of the FEIS and are based on the most up-to-date data and information.

WR-28. In the RDEIS on page 31, 3.2.4 Water Quality Data, third paragraph, states reservoirs in north Texas were used to get data that might be similar to the proposed LBCR. Not one of those reservoirs would be similar to the LBCR except Cooper Lake and they didn't use any data from it. I think Pat Mayes Lake and Lake Crook north of Paris, in Lamar County, Lake Bonham and the two USFS Lakes in Fannin County would have given better data even if not similar in size than Lake Texoma and Lake Whitney? Lake Whitney is in central Texas and the drainage for Texoma has totally different soil types. Benbrook Lake is southwest of Ft. Worth. Where is Lake Lavon's data? **[CC: P17-12]**

Response: Site-specific water quality data for Bois d'Arc Creek and expected water quality of the proposed LBCR have been added, as suggested by the commenter, to Section 3.4.4, Bois d'Arc Creek Water Quality, and Section 4.4.2.7, Surface Water Quality, of the FEIS to more robustly describe water quality in the Bois d'Arc Creek. Only reservoirs within the Bois d'Arc Creek Watershed that could potentially be impacted by the project are included in the existing text to describe the affected environment, as discussed in Section 3.4, Water Resources. These new data in the FEIS further support the conclusions of good water quality in the Bois d'Arc Creek provided in Section 3.4.4, Bois d'Arc Creek Water Quality. These new data also further support the conclusion that the existing water quality described as "good" (in Section 3.4.4) would remain good water quality and would meet water quality standards with construction of the LBCR (as described in Section 4.4.2.7).

WR-29. In Appendix Q, page 1-6, Table 1-2 lists the supply availability of NTMWD existing water sources. Why is Lake Lavon's supply from 2010 through 2060 down from 118,680 AFY to 104,000 AFY? NTMWD has an allotment from Lake Texoma of 184,000 AFY, but only lists 77,000 AFY which is derived from the original 84,000 AFY. Why is NTMWD still deducting 6,700 AFY for channel loss when they are no longer dumping water into Sister Grove Creek? NTMWD has constructed a pipeline that delivers the Lake Texoma water directly to the Wylie Water Treatment Plant thus eliminating the channel loss. Where is the other 100,000 AFY from Lake Texoma? Cooper Lake (there is not one sign in Delta County for a Lake Chapman) has gone from 54,000 AFY to 50,000 AFY in 2010 to 46,000 AFY in 2060. Why is this? **[CC: P17-13]**

Response: New studies were completed, resulting in differences in the water supply availability data observed by the commenter; these more recent data are described in Appendix N of the FEIS. Applicable information provided on water supplies is derived from the water rights permit to describe the affected environment and potential impacts from Alternative 1, Alternative 2, or the No Action Alternative. Actual available water supply can differ from supplies described in water rights because of limitations from water quality conditions and other demands, such as pumping or blending (as described in the "Lake

Texoma” subsection of Section 3.4.2.4, Reservoirs). Only reservoirs in the Lower Bois d'Arc Creek Watershed are described, where applicable, in Section 3.4, Water Resources, to characterize the existing environment for support of the impact analysis (i.e., these do not include Lavon Lake or Cooper Lake because proposed water supplies would be derived from Lake Texoma). Data were provided by NTMWD for their description of applicable allotments and were independently reviewed by the USACE. The actual water use and amount diverted from Lake Texoma is limited by the capacity of infrastructure during droughts. It is also due to pumping directly to the Wylie water treatment plant to achieve the required 4:1 blending ratio, in addition to other factors, as detailed in Section 3.4, Water Resources. The stream flow losses are not relevant to this permit if the water is not conveyed by the bed and banks of Sister Grove Creek.

WR-30. Appendix L: Rapid Geomorphic Assessments for LBCR in the Executive Summary if I have interpreted this correctly FNI developed the Rapid Geomorphic Assessment (RGA) especially for the LBCR. Since FNI developed the RGA they could us parameters that would give the results that NTMWD would want to see. How do we know the RGA is accurate? Has another consulting firm checked the results? Has the RGA been used in another riverine system? Has the RGA been compared to another assessment tool that has been used in a different riverine system? The RGA has to be proven it is accurate before the issuance of a Section: 404 Permit.
[CC: P17-17]

Response: The RGA method was selected because it could reveal valuable geomorphic data over large areas and distances. The USACE supports the use of RGA as an appropriate tool for this analysis, which was the best tool available at the time of this analysis. Collaborations were made with Baylor University to fully understand the RGA tool and how it is comparable to the more recent and current vetted assessment method in Texas, TXRAM, which was not available at the time of the analysis. Both tools measure comparable information. In addition, a walk-through of streams was performed to verify results from RGA. The USACE independently and with NTMWD personnel performed additional data collections utilizing RGA and fully support the results. Information on the use of RGA is included in Appendix L.

It is common practice for the USACE to require applicants applying for Department of the Army authorization to furnish environmental information necessary for the preparation of an EIS. The USACE has a responsibility to independently evaluate the information submitted by an applicant and shall be responsible for its accuracy. The intent of the agency responsibility under NEPA is that acceptable work submitted by an applicant not be redone, but that it is verified by the USACE [40 CFR 1506.5(a)]. For the LBCR project, the applicant (NTMWD) and their consultant (FNI) were requested by the USACE to provide information that was then used by the USACE to help prepare the EIS.

The USACE selected Solv LLC (formerly Mangi Environmental) as a third-party contractor to help prepare the EIS pursuant to the requirements of 40 CFR

1506.5(c). Solv LLC and its subcontractors have assisted the USACE in preparing the DEIS, RDEIS, and FEIS. To help ensure that the preparation of the EIS was conducted in an objective manner, Solv was required to execute a disclosure statement prepared by the USACE verifying that the firm has no financial or other interest in the outcome of the project.

WR-31. To say the LBCR would be a positive factor in stopping the continued widening and deepening of the Bois d'Arc Creek is not a valid reason to construct the proposed LBCR. **[CC: P17-18]**

Response: The EIS does not state that there would be a positive factor in stopping the continued widening and deepening of the Bois d'Arc Creek and does not include any such factor as a criterion in the purpose and need described in Section 1.5. Section 3.4.3, Bois d'Arc Creek Channel Form, of the FEIS states that the banks of the Bois d'Arc Creek were actively eroding, and channel widening was occurring as a result of erosion, with limited meander development within the incised straightened channel. Text has been clarified in Section 3.4.3. The reduction in downstream erosion is a secondary effect that would benefit stream stability of Bois d'Arc Creek.

WR-32. 1.0 Project Introduction and Background, 2.3 Existing Hydrology, page 12, bottom of second paragraph, TCEQ has proposed a Texas Surface Water Quality Standard revision to reclassify the stream segment through the LBCR segment from perennial to "intermittent with perennial pools." Bois d' Arc Creek has been listed as a perennial stream from the start. For instance in the last 17 years I have crossed the Llano River in Llano, Texas two different times and it was not flowing. I will protest the reclassification of Bois d'Arc Creek from a perennial stream to an intermittent with perennial pools when TCEQ posts the reclassification notice. Since this reclassification has not been finalized it cannot be considered in assessing the impacts that would be cause by the proposed LBCR in the RDEIS. **[CC: P17-20]**

Response: Please see response to comment WR-20.

WR-33. TCEQ did an inspection of the landfill in May of 2016. TCEQ noticed several areas with ponded water, with multiple areas of ponded water that were discolored and appeared to contain leachate. Were any water samples taken to determine what was causing the ponded water to be discolored? If not, why was the water not tested? On the southern edge of the landfill, deep erosion rills were observed, but waste nor leachate was observed in the rills. If there had been any leachate it would have already run into Sloan Creek. A testing station should be put on Sloan Creek at the Highway 82 bridge to see if there is any mercury, arsenic, lead, copper, barium, fluoride and polychlorinated biphenyl's (PCB) in the water. Am I correct in my thinking? Core samples should be done on the landfill site to see what could potentially come to the surface in the future. The possibility of contamination in the future from this landfill should not be just brushed off. **[CC: P17-25]**

Response: In 2016, there were concerns by area residents that a closed City of Bonham landfill was discharging leachate to Sloan's Creek. This was subsequently disproved by the TCEQ. However, in response to these concerns, NTMWD independently conducted water quality sampling of Sloan's Creek. The USACE concurs that the analytical data supports the conclusion that surface water quality in this area of the Bois d'Arc Creek watershed reflects no negative impacts to water quality from alleged releases of leachate and reflects compliance with state and federal water quality standards, as cited in the following FEIS reference: (Schnier, 2016). No information is provided on the landfill in Section 3.4, Water Resources, because this is not part of the affected environment.

In the coming years, TCEQ would continue to test waters in Bois d'Arc Creek and any potential future drinking water supply reservoir on Bois d'Arc Creek for all important contaminants and relevant water quality parameters. TCEQ is responsible for monitoring all landfills in Texas. Any monitoring reports regarding seepage from landfills is available through TCEQ at (512) 239-1000 or <https://www.tceq.texas.gov/>. The USACE collaborated with TCEQ on seepage from the Bonham landfill, and no significant impacts on Sloan's Creek were determined.

WR-34. Appendix F: C-2 Potential Impacts of Lower Bois d'Arc Reservoir on Downstream Floodplain, page C-2, there is no mention of the increased instance of flooding of the flood plain below the proposed LBCR dam. **[CC: P17-27]**

Response: Downstream flooding is discussed in 4.4.2.5, Surface Hydrology, of the FEIS. Any potential flooding impacts that could occur under Alternative 1 or Alternative 2, as described in the "Flood Flows" subsection under Sections 4.4.2.5 and 4.4.3.5, respectively. The proposed LBCR would not increase upstream or downstream flooding along Bois d'Arc Creek under Alternative 1 or Alternative 2 compared to existing conditions (as described in Sections 4.4.2.5 and 4.4.3.5 for Alternatives 1 and 2, respectively). Clarifications have been made in Section 4.4.2.5 and 4.4.3.5 in response to the comment.

WR-35. Volume I- Revised DEIS, Chapter 4- Environmental Consequences, page 4-29, Surface Hydrology, the complete history of how the Bois d' Arc Creek has flooded in the past has not been taken into consideration. From what I have determined they have only looked at the last 60 years. Just looking at the past 60 years is not enough. With water in the flood plain at all times because of the proposed LBCR the chances for a 1935 flood could happen anytime it rains. Until this is resolved, no Section 404 should be permitted. **[CC: P17-30]**

Response: The history of flooding on Bois d'Arc Creek was taken into consideration in locating and sizing the proposed reservoir. Details on the flood analysis, including the history of flooding, to support the Application for a 404 Permit is included in Appendix Q. The flood analysis evaluated the potential impacts of the proposed LBCR for 10-, 50-, 100-, and 500-year flood events,

which would cover the historical flooding events described by the commenter. The analysis concluded Alternative 1 or Alternative 2 would not increase water levels upstream of Highway 82 under any of these flood event scenarios, and in the event of a flood, flood levels would immediately decrease downstream of the dam and return to levels seen under existing conditions.

WR-36. Mr. Commer dismissed the flooding issue in Bonham as being caused by constrictions in the creek channel above the proposed reservoir. These constrictions are the highway bridges on Hwy. 56 and 82. Why then does the RDEIS show the proposed 100 year flood plain inside the city of Bonham and the existing 100 year flood plain entirely north of Hwy 82? **[CC: P18-44]**

Response: The proposed 100-year floodplain is based on modeling and analyses, as described in Appendix Q. The proposed 100-year floodplain with the full-scale reservoir (Alternative 1) in place extends into the City of Bonham but not onto developed properties or into residential areas. In addition, please see responses to comments WR-25 and WR-35.

WR-37. Apart from flood events, there is no doubt that the regular runoff of inorganic fertilizer flows immediately and directly into Bois d' Arc Creek. **[CC: P1-4]**

Response: Fertilizers flowing into Bois d'Arc Creek and the proposed reservoir could contribute to algal blooms, as they do to water bodies everywhere, but are not a serious concern that could impede meeting drinking water quality standards through standard drinking water treatment technologies. Data presented in the FEIS do not indicate any concern for fertilizer flows into Bois d'Arc Creek, which has been described in Section 3.4.4, Bois d'Arc Creek Water Quality, in response to the comment.

WR-38. We have had many years experience in dealing with this flood plain land and know that trees will catch sticks, grass and other debris that will restrict and slow the flow of water in the lake, causing much additional flooding on the land above the lake. Could this affect my house? **[CC: P2-4]**

Response: Existing conditions, including existing woody and other debris accumulating in floodplains were taken into consideration when predicting future flood levels for the proposed reservoir project. Details on the flood analysis are included in Appendix Q. In addition, please see responses to comments WR-25 and WR-35.

WR-39. Our ability to draw our allotted water from Bois d'Arc Creek during peak times of summer will be incredibly hampered, as proposed rates will be 1 CFS to 3 CFS (Table 2.2-2), way too low for our pumps to be able to draw enough volume. **[CC: P3-4]**

Response: The flow rates referenced in the comment are the environmental flows that pass through the dam, not flows measured at a point downstream.

Flows in the Bois d'Arc Creek would increase from the dam to the confluence with the Red River. In accordance with Texas water right law, inflows to the proposed LBCR must be passed through the dam for senior water rights holders (see Section 4.4.2.3, Proposed LBCR Reservoir Water Storage). Downstream flows are overseen by TCEQ, and any permit conditions for downstream flows are part of TCEQ's jurisdiction. Any questions regarding potential downstream flows if a Department of Army authorization occurs should be submitted to TCEQ. As described in Section 4.4.2.5, Surface Hydrology, diversions for the proposed LBCR project would not affect flows for existing water rights holders.

WR-40. Table 2.2-2 Shows the Creek flow will be reduced to 1 cfs to 10 cfs in Spring, and 1 cfs to 3 cfs in Summer. This flow rate is not enough for us to be able to run our pumps. This area of the creek is 70' across, and 6'+ deep, MUCH wider and deeper than where data was gathered upstream. Even 10 cfs flowing here is a pittance. These flow rates were apparently decided upon without any input on agricultural needs, and without any understanding of the creek, since NO data had been gathered on the creek in these final several miles. **[CC: P3-7]**

Response: Please see response to comment WR-39. It was not necessary to survey the lower reaches of the Bois d'Arc Creek because of the distance from the proposed reservoir site and due to the much greater hydrologic influence of the Red River. Potential impacts on flows under Alternative 1 or Alternative 2 are described in Sections 4.4.2.5 and 4.4.3.5, Surface Hydrology, respectively.

WR-41. The RGA was a tool developed for, and used only for this LBCR project. It has no history, no use or validation in other projects, and lacks peer review. Therefore its abilities should be further scrutinized before being used. Furthermore, ZERO data was gathered in the last few miles, so these tests were not even used to analyze the creek as it joined the Red River. **[CC: P3-8]**

Response: It was not necessary to survey the lower reaches of Bois d'Arc Creek because of the distance from the proposed reservoir site and due to the much greater hydrologic influence of the Red River. The proposed action, if permitted, would not change that. Data characterizing the entire affected environment is presented as applicable in Section 3.4.3, Bois d'Arc Creek Channel Form, and the "Stream Channel Form (Fluvial Geomorphological Processes" subsection under Sections 4.4.2.4 and 4.4.3.4, Stream Channels and Open Water Features, for Alternatives 1 and 2, respectively. In addition, please see response to comment WR-30.

WR-42. Page 3-28 Report states "the creek....showing rapid response to rainfall events with extended periods of little or no flow, as shown in the Instream Flow Study (Appendix M)." This is yet another example of using incomplete testing of the creek to make blanket statements about how it responds. In the final several miles of the creek it RARELY has no flow. It is so deep, and so influenced by the Red River that there is always water. This was a gross

misrepresentation of the creek, seemingly made because it better supported the need for the dam. **[CC: P3-9]**

Response: Flow data (Table 3.4-1) in Section 3.4.2.3, Rivers and Streams, demonstrate fluctuations in flow throughout the year, and along with data summarized in Figure 3.4-6, support the conclusion that creek flows rapidly respond to rain events, with rapid rise and fall of stream flows occurring during and after rain events, respectively. This conclusion is also supported by the Instream Flow Study (Appendix M). Text in Section 3.4.2.3 has been revised to clarify the flow's response to rainfall events with additional support from flow data. As stated in the document, as well as in the comment, the hydrology and flows of lowest reaches of Bois d'Arc Creek upstream of its confluence with the Red River are heavily affected by the much larger Red River. The proposed action, if permitted, would not change that. This conclusion is supported by information included in Section 3.4.2, Surface Waters.

WR-43. Again, whoever designed the protocol for these Instream Flow Studies decided that the last 5+ miles of Bois d'Arc Creek weren't important enough to investigate. YET the study authors give the impression that an exhaustive study was done of the entire creek. This is not just unscientific, it is intentionally misleading. **[CC: P3-11]**

Response: The USACE recognizes the commenter's concern. However, insufficient supporting data has been provided by the commenter. As supported by information included in Section 3.4.2, Surface Waters, the hydrology and flows of the lowest reaches of Bois d'Arc Creek upstream of its confluence with the Red River are heavily affected by the much larger Red River. The proposed action, if permitted, would not change that. It was not necessary to survey the lower reaches of Bois d'Arc Creek because of the distance from the proposed reservoir site and due to the much greater hydrologic influence of the Red River. Data characterizing the entire affected environment is presented as applicable in Section 3.4.2, Surface Waters, Section 3.4.3, Bois d'Arc Creek Channel Form, and Section 3.4.4, Bois d'Arc Creek Water Quality, of the FEIS.

WR-44. Under the 1992 MOA reached by the EPA and the U.S. Army pursuant to Section 404(q) of the Clean Water Act, 33 U.S.C. § 1344(q), the EPA can place a higher level of scrutiny on permits that affect aquatic resources of national importance ("ARNI"). If a permit affects ARNI, the EPA can elevate review to the national Department of the Army and, if the agencies disagree, refer the dispute to the Council on Environmental Quality. We believe that the aquatic resources on the project site constitute ARNI, and a "will affect" letter from the EPA is justified for this project. **[CC: P7-24]**

Response: Section 1.6.1, Public Notice for Section 404 Permit Application, identifies bottomland hardwood forested wetlands in the project area as a diminishing habitat in the region that has been identified by the EPA as an Aquatic Resource of National Importance (ARNI); ARNI is a resource-based

threshold used to determine whether a dispute between EPA and the USACE regarding individual permit cases are eligible for elevation under Clean Water Act Section 404(q). The USACE acknowledges and understands the Memorandum of Agreement (MOA) that was developed between the USACE and EPA that outlines the current process and timeframes for resolving disputes if EPA decides to elevate a dispute regarding ARNIs. The EPA closely participated in and provided detailed comments during the NEPA process. The USACE did receive a “will effect” letter as referenced by the commenter. The letter fulfills initial procedural requirements in accordance with the 404(q) MOA. This letter establishes EPA’s procedural position to challenge the final USACE decision in the closing stages of the permit decision process.

WR-45. In a 404(q) dispute resolution process factsheet, the EPA provided a list of factors used in identifying ARNIs: economic importance of the aquatic resource, rarity or uniqueness, and/or importance of the aquatic resource to the protection, maintenance, or enhancement of the quality of the Nation’s waters. When applied to the Lower Bois d’Arc Creek and its riparian wetlands, these factors suggest that the aquatic resources are ARNI. **[CC: P7-25]**

Response: Please see response to comment WR-44.

WR-46. We believe that EPA is fully justified in issuing a “will effect” letter, and that this project warrants higher scrutiny from the reviewing agencies. **[CC: P7-27]**

Response: Please see response to comment WR-44.

WR-47. The USACE conducted two separate studies of the site of the LBCR. Both studies stated that it was not a suitable site to construct a reservoir. Both studies indicated that the reservoir would have poor water quality. Why would the USACE change their mind now? Would the water quality be better now? Can you explain how the water quality would be different now than it showed to be in the previous two studies? **[CC: P8-10]**

Response: The studies cited by the commenter were conducted in 1968 and 2000, but do not include a water quality analysis. The USACE did not propose the construction of the reservoir but is serving as a reviewer of the proposed reservoir to meet regulatory requirements. There is no indication that the reservoir would have poor water quality. Based on recent water quality monitoring analysis by Freese & Nichols that used more than 10 years of data, the USACE concurs the water quality of the proposed LBCR is expected to be very good (Schnier, 2016). In 2006, NTMWD partnered with the Red River Authority and began collecting site specific water quality samples as part of the Texas Clean Rivers Program. Streams have been monitored at FM 1396 since July 2006 and FM 409 since June 2009. These water samples were analyzed for a suite of parameters consistent with the program guidelines.

WR-48. The old Bonham landfill has visible drainage flowing from it into Slone's creek. Slone's creek feeds into Bois d'Arc creek. Can I get test reports of this seepage? Why is this not a part of the DEIS? **[CC: P8-11]**

Response: TCEQ is responsible for monitoring all landfills in Texas. Any monitoring reports regarding seepage from landfills is available through TCEQ at 512-239-1000 or <https://www.tceq.texas.gov/>. The USACE collaborated with TCEQ on seepage from the Bonham landfill, and no significant impacts on Sloan's Creek were determined.

In 2016, there were concerns by area residents that a closed City of Bonham landfill was discharging leachate to Sloan's Creek. This was subsequently disproved by the TCEQ. However, in response to these concerns, NTMWD independently conducted water quality sampling of Sloan's Creek. The analytical data supports the conclusion that surface water quality in this area of the Bois d'Arc Creek watershed reflects no negative impacts to water quality from alleged releases of leachate and reflects compliance with state and federal water quality standards (as supported by water quality information summarized in Sections 3.4 and 4.4 of the FEIS). No information is provided on the landfill in Section 3.4, Water Resources, because this is not part of the affected environment.

If Alternative 1 or Alternative 2 is permitted and constructed, NTMWD and TCEQ would conduct all required water quality monitoring in accordance with applicable state and federal regulations.

WR-49. There is also an abandoned dynamite plant. The plant was shut down because of drainage into Bullard's creek. Bullard's creek would feed directly into the reservoir. Has this been studied? **[CC: P8-12]**

Response: The dynamite plant facility is no longer active and does not warrant analysis in the EIS. TCEQ is responsible for monitoring all water quality in major streams and would therefore oversee any water quality monitoring related to the dynamite plant. Water quality data are presented in Section 3.4.4, Bois d'Arc Creek Water Quality, that reflect existing conditions, which based on the most recent available data are considered to have good water quality. These data are used to estimate any water quality impacts on existing water quality conditions from the proposed LBCR.

WR-50. Another concern is the Bonham sewage treatment plant which overflows into Bois d'Arc creek. The DEIS states that this is not a concern, but how can sewage overflow into Bois d'Arc creek not be a concern? Also, a major portion of the bottomland at the proposed site was previously in cotton production. Arsenic was used as a defoliate. Arsenic does not readily leave the soil. **[CC: P8-13]**

Response: The sewage treatment plant facility does not warrant analysis in the EIS because it is outside of the scope of the affected environment. There are

currently no Clean Water Act 303(d) impairments to Bois d'Arc Creek due to bacterial or other contamination, which would be evident if there were sewage overflow into the creek; this information has been updated in Section 3.4.4, Bois d'Arc Creek Water Quality, of the FEIS. The site previously used in cotton production is no longer active and does not warrant analysis in the EIS. TCEQ is responsible for monitoring any overflows and all water quality in Texas, including arsenic. No indication of arsenic releases into water along the Bois d'Arc Creek has been apparent in the information provided by TCEQ. Water quality data are presented in Section 3.4.4, Bois d'Arc Creek Water Quality, that reflect existing conditions. These data are used to estimate any water quality impacts on existing water quality conditions from Alternative 1 or Alternative 2.

WR-51. The city of Bonham stands at risk of flooding if the current reservoir site is permitted. The construction of the Lake Texoma Dam reduced the flooding of the city of Bonham. This allowed water to flow out of Bois d'Arc Creek faster and helps with flooding issues in Bonham. The construction of a dam that would stop the flow of Bois d'Arc Creek from entering the Red River will again back water up to Bonham and cause significant flooding. Bois d'Arc Creek is listed as a perennial stream and construction of a dam would cause major flooding to the city of Bonham. Can these issues be addressed? **[CC: P8-15]**

Response: The history of flooding on Bois d'Arc Creek was taken into consideration in locating and sizing Alternative 1. A detailed description of the HEC-RAS floodplain modeling is presented in Appendix Q. Please also see response to comment WR-25.

WR-52. We have long said that if this project is built it could flood the city of Bonham. North Texas Municipal Water Districts (NTMWD) implies that it will not. You can look at past articles in the newspapers all the way back to the 1920's to the present and see how many times the city was flooded before the Lake Texoma Dam was constructed. You can see that flooding was a much greater concern before Texoma was built. Flooding was worse. There is an article the Channel 12 News station did the last time Texoma went over the spillway. They interviewed an employee of the US Army Corps of Engineers (USACE) and he stated one reason Texoma Dam was constructed was to prevent flooding down the Red River. One of the cities in this interview was Bonham. Before the Dam was constructed Bonham flooded more often. Water backed up Bois d'Arc Creek. When a dam is built, this will back water all the way to Bonham. How is this not going to bring the same flooding, if not worse, to Bonham when water is already backed up to the city? **[CC: P9-1]**

Response: Please see responses to comments WR-25 and WR-51.

WR-53. Another issue that needs to be addressed is the fact that Bois d'Arc Creek and Bullard Creek have been classified as perennial streams. NTMWD has been trying to give them a classification of an intermittent stream and even sending letters to TCEQ to change it. This should not be accepted and I would ask the USACE to do an independent assessment to determine that the streams would remain as they have been listed for many years. This does

not need to be changed to fit their project. It is wrong. My understanding is that they are not allowed to buy down these impacts. Why are they being allowed to this in the revised DEIS? Also, I am unaware of any public notices for classification change. I know they have been in contact with the TCEQ about the changes. Is the USACE aware of any changes that have been made or any public notices of these changes? It is the obligation of the USACE to determine mitigation and permanent degradation of perennial streams. There should be no corners cut to change their classification to meet NTMWD needs. Perennial streams are non replaceable, and should be protected at all cost. There are ~50 miles of streams that are currently classified as perennial streams that the LBCR will affect. **[CC: P9-23]**

Response: Please see response to comment WR-32.

WR-54. USACE guidance provides preliminary JDs are recommended only for general permits, for enforcement cases, but not for individual permits and especially not for large, complex, or controversial projects such as this one. The USACE should disclose why the USACE guidance was not followed for this project. Again, what has changed from this statement? **[CC: P9-30]**

Response: The USACE makes the decision on whether a JD is required or not. The USACE performed an approved JD on the entire footprint of the reservoir, the FM 1396 road relocation, and the proposed mitigation site, Riverby Ranch. Potential pipelines could be constructed without impacts to WOUS.

WR-55. All calculations on 100-year and 500-year flood plans are not always accurate. For example, Texoma would only go over the spillway once every 100 years. Since it was built, it has gone over at least 4 times. This being said I know it is calculated that in any given year it has a 1% chance of going over the spillway. However, 4 times in less than 70 years would be extremely skewed if their calculations were done currently. I believe the models need to be reevaluated because there is a high probability that they are wrong. In the case of the LBCR this would be devastating to the city of Bonham and residents around the lake if they were wrong. **[CC: P9-3]**

Response: Multiple verified models and datasets were used to evaluate potential flooding impacts. Please see responses to comments WR-25 and WR-51.

WR-56. Also, how can a 500 year flood be calculated when we don't have much more than 100 years' worth of data to be studied? How are calculations then valid? I would think you would need at least 1000 years' worth of data just to be able to guess at it. I would like to see data used to calculate the 100 & 500 flood levels. **[CC: P9-4]**

Response: Please see responses to comments WR-25 and WR-51.

WR-57. I would also like to see where the rainfall records are that were used in their calculations. I would like to see rainfall totals, area in the drainage where the rainfall fell, and the amount of rainfall per/hour they used to calculate their flood storage. Bois d'Arc Creek has

over 300,000 acres of drainage. I would like to know if they calculated its rainfall totals over the entire drainage basin or just a certain percentage of it. Once in my lifetime 14" of rainfall fell in less than 24 hours. If my calculations were right, such an event would almost fill the reservoir up in 24 hours. I know some loss would occur to ground saturation, but they are thinking it could take two years to fill. That is a possibility, but it could also happen in a matter of days.

[CC: P9-5]

Response: Methodology for modeling rainfall, including sources and estimates for rainfall, is described in Appendix Q.

WR-25-2015. 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 rules and guidance of the Corps for the following reasons: it fails to adequately analyze impacts to the waters of the U.S. **[CC: TCA1-6]**

Response: The USACE acknowledges the comment and believes all relevant information has been taken into consideration in assessing impacts of the alternatives for the EIS. The analysis of the proposed action will be consistent with Section 404(b) (1) guidelines. The EIS presents the potential environmental impacts, including potential impacts to water resources, of the proposed action and a reasonable alternative. Section 4.4.2, Alternative 1, and Section 4.4.3, Alternative 2, include details on potential impacts to waters of the U.S., where applicable. The USACE is complying with NEPA and Section 404 of the Clean Water Act. The alternatives analysis presented in the EIS is intended to support the USACE's public interest review and Section 404(b) (1) guidelines evaluation. The USACE will identify LEDPA for this Section 404 permit application in the ROD for this FEIS.

WETLANDS

WL-1. 3-49, Section 3.4.2, Wetlands- The second sentence of the last paragraph is inaccurate. A formal wetland delineation was conducted for the project site and mitigation sites. The USACE has issued Approved Jurisdictional Determinations (AJDs) for the Reservoir project site, Mitigation site, and FM 1396 relocation. In addition, as noted above, the scope of the proposed project does not include the North WTP. In the interest of completeness, however, NTMWD notes that USACE also issued an AJD for the North WTP. **[CC: NTMWD1-73]**

Response: The second sentence of the last paragraph in Section 3.5.2.1, Wetlands, has been removed in the FEIS and a new sentence added at the end of the second paragraph in this section to state that a formal wetland delineation was conducted and verified through a USACE Approved Jurisdictional Determination.

WL-2. 3-52, Section 3.4.2, Wetlands- In the Final EIS, NTMWD recommends moving the first paragraph on this page to the Stream section on page 3-60 of the RDEIS. This section discusses only wetlands and should not include a discussion on streams. **[CC: NTMWD1-74]**

Response: Section 3.5.2.1, Wetlands, in the FEIS has been revised as suggested by the comment. The stream discussion in the first paragraph has been moved to the stream section.

WL-3. 3-52, Section 3.4.2, Wetlands- NTMWD recommends revising the discussion on the desktop analysis of the impacts for Alternative 2. As written, it could be read to imply a different level of accuracy. Since Alternative 2 lies completely within the footprint of the Proposed Action, the field data and analysis performed for the Proposed Action (Alternative 1) likewise applies to Alternative 2. A "formal wetland delineation" was conducted over the entire project site for the Proposed Action. The data obtained from this analysis were used to determine the impacts associated with Alternative 2 within the down-sized reservoir footprint. These data are accurate and defensible. Field delineations of the possible wetland impacts associated with the proposed 8-mile 84-inch pipeline were not conducted because a final routing study has not been performed. The desktop review identified less than 1 acre of wetlands along the pipeline route, which suggests that the line could be designed and routed to avoid impacts to waters of the U.S. **[CC: NTMWD1-75]**

Response: Section 3.5, Biological Resources, has been revised in the FEIS to clarify that the field data and analysis conducted for Alternative 1 also apply to Alternative 2 because the Alternative 2 footprint is entirely within the Alternative 1 footprint. Section 4.5, Biological Resources, has been revised in the FEIS to clarify the 8-mile pipeline for Alternative 2 would be routed to avoid wetland habitats.

WL-4. 3-55, Section 3.4.2, Wetlands -NTMWD recommends revising this section in the Final EIS to indicate that wetlands will be completely avoided by various project components and ensure that the first paragraph on this page account s for all components of Alternative 1 and Alternative 2. **[CC: NTMWD1-76]**

Response: Section 4.5, Biological Resources, in the FEIS has been revised to describe habitat impacts for each project element for both alternatives. The revisions clearly show that wetland habitats would be avoided by the road extension/relocation, raw water pipeline, and the pipeline from Lake Texoma to the WTP (Alternative 2 only).

WL-5. 4-58, Section 4.6.2.2, Forested Wetlands - In the first paragraph, the units of measurement should be FCUs, not HUs. NTMWD also requests that USACE revise the first sentence of the second paragraph because there are no forested wetlands within the pipeline construction easement. In addition, NTMWD recommends that USACE add a discussion of the slight impact to functions associated with downstream wetlands for both Alternative 1 and Alternative 2. **[CC: NTMWD1-112]**

Response: The unit of measurement has been revised to FCUs in Section 4.5.2.3 of the FEIS. The first sentence of the second paragraph regarding forested wetlands within the pipeline construction easement has been removed from the FEIS. Downstream impacts to wetlands are discussed in Section 4.5.2.3 of the FEIS.

WL-6. 4-58, Section 4.6.2.2, Emergent Wetlands -The units of measurement should be HUs, not BHUs. **[CC: NTMWD1-11**

Response: The unit of measurement has been revised to HUs in Section 4.5.2.3 of the FEIS.

WL-7. 4-69, Section 4.6.3, Forested Wetlands- Consistent with NTMWD's comment above on Section 4.6.6.2, this section should be updated to discuss the possibility of slight impacts to the functions of downstream forested wetlands. NTMWD also recommends that USACE consider the likelihood of occurrence of effects as "high" rather than "moderate." Additionally, NTMWD recommends that USACE move the second paragraph to the Habitat section in Section 4.6.3 because the discussion in this paragraph is not pertinent to forested wetlands. **[CC: NTMWD1-122]**

Response: 1) As stated in Section 4.5.2.3, the downstream corridor below the dam along Bois d'Arc Creek is expected to continue to function as forested wetlands after the construction of the dam because hydric soils will remain in place and would continue to be supported by periods of saturation and inundation during the growing season. The potential downstream wetland impacts can only be qualitatively described, and the USACE recognizes the potential downstream impacts may be slight based on the discussion in the EIS. However, the likelihood of occurrence rating (e.g., high, medium, low, none) is an overall collective rating primarily based on the wetland impacts that can be quantified and that would require permitting under Section 404 (i.e., the reservoir and dam). 2) Regarding the commenter's recommendation that the likelihood of the occurrence of wetland impact be "high" rather than "moderate", the USACE assumes the commenter meant to state the *severity* of occurrence should be "severe" rather than "moderate" because the EIS already states the likelihood of the impact would be high. The RDEIS states that wetland impacts would be moderate in severity; however, the USACE has re-evaluated this assessment and has determined the severity of wetland impact from the reservoir and dam is better described as "severe" because the change in wetlands is easily defined, noticeable and measureable. This change of wetland impact severity is reflected in FEIS Section 4.5.2. 3) Text in the second paragraph of Section 4.5.3.3 in the FEIS has been modified for clarity.

WL-8. A monitoring plan should be developed to determine whether downstream wetland impacts are occurring following reservoir construction if the project is permitted. Any

documented downstream impacts to waters of the United States resulting from the project should require further mitigation. **[CC: TPWD-9]**

Response: Usually, the USACE would not require performance standards or monitoring in areas outside of any project area after the completion of a project. This is due to the fact that lands not in control of the Applicant could be manipulated by other sources outside the control of any permittee. Downstream modeling was performed by the Applicant (see Appendix F of the Mitigation Plan), which showed a potential change in downstream overbank flows. The study indicated that the existing riparian vegetation should not change after dam construction. Adverse downstream impacts are discussed in Section 4.5.4 of the FEIS. Effects to the aquatic biota downstream of the dam would be mitigated through periodic, regulated releases of reservoir water to Bois d'Arc Creek below the dam (environmental flow releases), as required by the water right permit. These releases would be performed to compensate for losses of stream function and wildlife habitat and are expected to enhance instream uses below the dam. The flow regime required in the water right permit would maintain flowing water in the creek channel, provide for connectivity between pools, maintain existing aquatic habitat and communities, and protect water quality downstream. The proposed pulse flow regime is expected to provide sufficient flows to benefit and maintain habitat without causing erosion and channel degradation and to meet seasonal criteria for dissolved oxygen concentration (Watters and Kiel, 2016). Release criteria in the prescribed environmental flows would maintain the existing geomorphic features and remove accumulated fine sediments from those features while reducing the potential for additional erosion or downcutting below the reservoir.

WL-9. The same is true for the characterization of wetlands impacts in this section (See comment TPWD-10). **[CC: TPWD-11]**

Response: The USACE has reevaluated the severity of wetland impacts from the dam and reservoir and has determined that "severe" better represents the magnitude of impact because the impact would be a change that is easily defined, noticeable, and measurable.

WL-10. The littoral wetlands are going to be questionable because of the fluctuating water level of the proposed LBCR. Figure 2.2-20, page 2-27, depicts NTMWD withdrawing 67,200 AFY by 2026, which would lower the water level by 4 feet and then there is the evaporation of 73,500 AFY per the TWDB which will lower the water by another 4.4 feet. Then there is the environmental flow of 13,000 AFY which will lower the reservoir by 0.78 feet. The lowering of the reservoir by 9.18 feet would leave the littoral land dry for lengthy periods every year. **[CC: P17-22]**

Response: The littoral wetlands lie entirely within the footprint of the proposed LBCR conservation pool. The primary sources of water for the wetlands would be LBCR and tributary streams. Water levels in the proposed LBCR would

fluctuate over time, depending upon inflow and withdrawals, but even with these fluctuations, direct precipitation and inflow from the tributary streams would provide the required hydrology to the wetlands. Wetlands, contrary to their name, do not always contain water. Many seasonal and temporary wetlands experience periods of drought at some point in time. Such wetlands tend to flood or recharge during winter months and hold water into the spring or early summer before drying out in the hot summer months; this is a natural process frequently observed in wetlands in this area of Texas. These wet/dry cycles are beneficial as they discourage development of a monoculture of plant species such as cattail and bulrush, and the cycles encourage seed production from many of the emergent wetland plant species. In 2014, a study of the lake margins of five reservoirs in Northeast Texas was conducted for the LBCR project in order to better predict the species expected to develop within the littoral zone/fringe wetland areas of the proposed LBCR and to evaluate the expected plant response during extended periods of low water elevations within the reservoir. This information may be found in Appendix G of the proposed Mitigation Plan. All five of the reservoirs surveyed had functioning littoral zone/fringe wetlands along their shorelines that extended for some distance into the reservoir pool that supported high plant diversity. It is expected that the LBCR would develop the same or similar conditions within the littoral zone/fringe wetlands that were observed at the five reservoirs surveyed in this study, and it is likely that a wide variety of different plant species would establish within the littoral zone/fringe wetlands that would develop around the proposed LBCR. It is also likely that there would be extended periods of low water levels within the LBCR that would preclude constant inundation of these wetlands; however, this “drying out” is expected to increase plant diversity.

WL-11. 4.2 Mitigation Site Selection Strategy, page 31, 4.2.1 On-Site Mitigation states as the years go by the emergent wetlands are expected to develop within the littoral zone into notional wetlands. With the constant fluctuation of the proposed LBCR there is no way an emergent wetland can develop. **[CC: P17-23]**

Response: Please see response to comment WL-10.

WL-12. First, it is unclear why NTMWD is using two separate functional assessment tools for wetland impacts. A number of federal and state resource agencies, as well as non-governmental entities and affected individuals, requested that NTMWD use a functional assessment tool that would assess impacts and mitigation for wetlands. In recognition of this fact, NTMWD did in fact work with consultants to develop the Modified East Texas HGM to assess six functions associated with forested wetlands. A clear explanation is needed to justify the decision to not use a modified HGM (or other functional approach) for non-forested wetlands on a project with significant and adverse impacts to wetlands. **[CC: P7-12]**

Response: Three functional assessment tools were used to assess the existing conditions of the various habitats at the proposed project site, associated facilities, and the proposed mitigation sites. The Habitat Evaluation Procedure

(HEP) was used to assess terrestrial habitats and emergent and shrub wetland habitats; the Modified East Texas HGM was used to assess the functions of forested wetlands; and the Rapid Geomorphic Assessment (RGA) tool was used to assess stream quality. At the request of the USEPA and other federal and state resource agencies, the East Texas HGM functional assessment tool was modified specifically for this project (a joint effort between the Tulsa USACE District, the USACE Research and Development Center and Stephen F. Austin State University) to assess impacts and mitigation for forested wetlands, as forested wetlands is the habitat that would be the most affected by the project because it is the largest habitat present within the project footprint. HGM models are designed for and are regionally specific to the local biota; in this region of Texas, there are currently no vetted HGM models for emergent and scrub shrub wetlands.

WL-13. Second, NTMWD claims that the HEP methodology is “recommended” by the U.S. Fish and Wildlife Service (USFWS) as their “basic tool for evaluating project impacts to wildlife habitat and developing mitigation recommendations.”¹³ We understand that the HEP methodology was developed by the USFWS. But in its own April 21, 2015 letter to the Applicant, the USFWS stated that HEP is not appropriate to assess wetlands in the 404 permitting context. We request a clarifying statement regarding the USFWS’ purported recommendation of HEP in this context. We also ask that the Applicant and/or the Corps identify other 404 permit applications that have used the HEP methodology to measure impacts to and mitigation for wetlands. **[CC: P7-13]**

Response: There has been extensive coordination with state and federal resource agencies including the USFWS throughout the permitting process for this project and interagency teams have participated in the collection and analysis of data from the proposed reservoir site and the proposed mitigation sites. The assessment team for the modified HGM consisted of personnel from the following agencies: USACE, Tulsa District Regulatory Office; USACE, Environmental Research and Development Center (ERDC); USEPA; USFWS; USFS; TCEQ; Texas Parks and Wildlife Department (TPWD); Waters of East Texas Center and Stephen F. Austin State University (SFASU). Since 2015, the year of the letter to the Applicant referenced in the comment, the functional assessment methodologies have been re-evaluated. It was determined that for forested wetlands a Modified East Texas Hydrogeomorphic Method (Modified East Texas HGM) would be used; forested wetlands is the largest habitat present within the project footprint and therefore would be the wetland habitat most affected by the project. The East Texas HGM functional assessment tool was modified specifically for this project (a joint effort between the Tulsa USACE District, the USACE Research and Development Center and SFASU to assess impacts and mitigation for forested wetlands. HGM models are specific to habitats and regions; in this region of Texas, there are currently no vetted HGM models for emergent and scrub shrub wetlands, therefore, the Habitat Evaluation Procedure (HEP) methodology was used to evaluate emergent and shrub wetlands and terrestrial habitats and was one of three assessment tools used to

assess the existing conditions of the various habitats at the proposed project site and associated facilities and the proposed mitigation sites. The HEP methodology is recommended by the USFWS as an appropriate tool to assess project impacts to wildlife habitat and for developing mitigation recommendations and is also identified by the state of Texas (30 TAC §297.53) as an appropriate tool for impact assessment and mitigation. For stream wildlife habitat, the Rapid Geomorphic Assessment (RGA) tool was used to assess stream quality.

With regard to the commenter's request for other 404 permit applications that have used the HEP methodology for wetlands, the HEP methodology has been used for other reservoir projects; for example, the Dallas Floodway Project (DFP) FEIS (December 2014) used the HEP methodology to measure impacts to wetland habitats including emergent wetlands and bottomland hardwood habitats.

WL-14. Third, several other entities and individuals have criticized the use of the HEP methodology in this context. They include:

- In an April 21, 2015 letter, the Texas Parks and Wildlife Department commented that HEP does not “measure the full suite” of wetlands functions. Referencing the USFWS Directive, TPWD wrote that HEP conceptually addresses only a limited range of functions related to wildlife species populations and habitat.
- In their June 5, 2015 letter, the EPA requested that the “full suite of aquatic functions be assessed” through a proper functional methodology, noting that HEP does not measure a number of functions, such as removing pollutants, storing water, maintaining stream flows, and supporting food webs through the processing of carbon.
- The NRDC and TCA wrote in their comments on April 21, 2015, that HEP does not assess chemical and nutrient uptake, carbon cycling, erosion control, floor storage and attenuation, sediment trapping, and water quality filtration.
- We wrote in our April 21, 2015 comment letter that HEP is “insufficient to evaluate functional wetlands losses” and failed to reasonably quantify impacts. **[CC: P7-14]**

Response: The USACE disagrees with the EPA's assumption that not all functions were used to estimate the forested mitigation credits. At the May 4th, 2016 interagency assessment team meeting, it was determined that a *portion* of the proposed Riverby Ranch mitigation site in Fannin County, Texas is functioning as a wetland in a flat geomorphic setting. This is due to an upstream dam (Denison Dam impounding Lake Texoma) on the Red River that flows adjacent to the mitigation site. In order for the LBCR HGM variable subindex (VSI) curves to be used in the flat wetlands, adjustments were made to the low-gradient riverine models to indicate that these areas are functioning as flats (wetlands that are supported primarily by precipitation rather than riverine flooding). To be consistent with flats models in other HGM guidebooks, the models were altered by removing two model variables (VFREQ and VDUR). As with other HGM guidebooks, flat wetlands are not assessed for “Detain Floodwater” or “Export Organic Carbon,” as those functions require a closer tie to

the river itself. The remaining two FCI models (“Cycle Nutrients” and “Detain Precipitation”) are unchanged from the riverine form to flats form (refer to Appendix K in the FEIS). The assessment team consisted of personnel from the following agencies: USACE, Tulsa District Regulatory Office; USACE, Environmental Research and Development Center (ERDC); USEPA; USFWS; USFS; TCEQ; TPWD; Waters of East Texas Center; and SFASU. Refer to Appendix K of the FEIS. Please see response to comment WL-2 for details related to assessment methodology.

Three functional assessment tools were used to assess the existing conditions of the various habitats at the proposed project site, associated facilities, and the proposed mitigation sites. HEP was used to assess terrestrial habitats and emergent and shrub wetland habitats; the Modified East Texas HGM was used to assess the functions of forested wetlands; and the RGA tool was used to assess stream quality. At the request of the USEPA and other federal and state resource agencies, the East Texas HGM functional assessment tool was modified specifically for this project (a joint effort between the USACE Tulsa District, the USACE Research and Development Center, and Stephen F. Austin State University) to assess impacts and mitigation for forested wetlands, as forested wetlands is the habitat that would be the most affected by the project because it is the largest habitat present within the project footprint. HGM models are designed for and are regionally specific to the local biota; in this region of Texas, there are currently no vetted HGM models for emergent and scrub shrub wetlands. Therefore, HEP was used for these wetland types.

WL-15. Completely omitted from the HEP analysis is any evaluation of other lost wetlands functions such as the physical (storage and detention of waters), chemical (removal and sequestration of elements and compounds), and other biological functions (plant communities). As a result, the DEIS and its Mitigation Plan fail to provide a reasonable quantification of project impacts. **[CC: P7-15]**

Response: The HEP methodology was not the only assessment tool used to evaluate wetlands; it was one of three assessment tools used to assess the existing conditions of the various habitats at the proposed project site and associated facilities and the proposed mitigation sites. Please refer to responses to comments WL-12 and WL-13. The assessment tools used were based on extensive interagency coordination. It was determined that the existing East Texas HGM assessment tool would be used for forested wetlands, as forested wetlands is the habitat that would be the most affected by the project because it is the largest habitat present within the project footprint, and would be modified specifically for this project. The Modified East Texas HGM assessment for LBCR did evaluate physical and chemical functions such as those mentioned above. HGM models are specific to habitats and regions; in this region of Texas, there are currently no vetted HGM models for non-forested wetlands. The HEP methodology mentioned above was the assessment tool available in Texas to evaluate emergent and shrub wetlands and terrestrial habitats. The HEP

methodology evaluated habitat components requisite for wildlife species for emergent and scrub shrub wetlands but did not evaluate physical and chemical components of those habitats. If the quality of the emergent and scrub shrub wetland habitat as evaluated by the HEP methodology is improved through mitigation, then we can assume that wetland functions are also occurring at the same level. Therefore, the USACE believes that these assessments fully meet the standards and policies underlying applicable guidance for this project. Refer to Chapter 2 and Appendices C through E of the proposed Mitigation Plan (Appendix C of the FEIS) and Appendices J, K, and L of the FEIS.

WL-16. The proposed site is located in 17,068 acres of bottomland and adjacent upland habitat along Bois d'Arc Creek. Approximately a fourth of this area (4,602 acres) is riparian woodland, bottomland hardwood, and forested wetlands. Emergent wetlands make up 1,223 acres in the project area. The destruction of these acres of wetlands will result in significant loss to wildlife habitat. The Texas Parks and Wildlife Department has classified Bois d'Arc Creek as possessing significant biological and hydrologic functions. Nationwide, as the DEIS states, the overall area of bottomland hardwoods has been reduced to 40 percent of what existed 200 years ago. The U.S. Forest Service has identified Lower Bois d'Arc Creek as the longest remaining unimpounded reach of the Red River drainage system with this type of habitat. The loss of over 17,000 acres of land, including 5,874 acres of wetlands, would make this one of the single largest impacts to aquatic resources within Texas. This is clearly a large impact and one that jeopardizes the wetland ecosystem in north Texas. Heightened scrutiny by the Corps is justified under 404(q). **[CC: P7-26]**

Response: The USACE determined early in the Section 404 permit application process that an EIS would be prepared for the proposed LBCR because of the potential for significant impacts (EIS Chapter 1). Because the determination has already been made that the potential for overall significant impacts exists, the RDEIS did not set significance thresholds or make findings of significance for specific resources. Rather, the study team identified several major factors by which the effects associated with the alternatives can be predicted and characterized. These metrics included the likelihood of the impact, the duration of the effect, and severity (See EIS Chapter 4, Methodology). Impact severity was rated as either severe, moderate, slight, or none.

Existing biological conditions of Lower Bois d'Arc Creek and the areas that would be affected by project alternatives are discussed in Chapter 3.5 of the FEIS. Section 3.5.2.2 discusses TPWD's designation of Bois d'Arc Creek as an ecologically significant stream segment (ESSS) per Texas administrative code. While this designation does not include any specific compliance requirements, it does help characterize the resources within the project area.

Impacts to biological and aquatic resources are discussed in detail in Chapter 4.5 of the FEIS. Overall the wetland habitats with the greatest acreage of loss from Alternative 1 would be forested wetland and emergent wetland, with 4,602 acres (4,035 FCUs) and 1,223 acres (514 HUs) of impacts, respectively. Additional

losses would occur to scrub shrub wetlands (49 acres/23 HUs) (see Table 4.5-2 of the FEIS). The RDEIS stated that the severity of wetland impacts from the dam and reservoir for Alternative 1 is moderate. However, the USACE has re-evaluated the severity of wetland impacts from the proposed dam and reservoir and has determined that a magnitude of "severe" better represents the impact because the impact would be a change that is easily defined, noticeable, and measurable. The applicants proposed project and associated mitigation plan has potential to provide a very diverse wildlife habitat. The plan would also provide a connected and protected wildlife travel/nesting/feeding corridor beginning nearly five miles upstream from US 82 all the way to the confluence of the Red River, which includes the Caddo National Grasslands. The Applicant's mitigation plan specifically utilizes a watershed approach (see Section 3.0 of the Proposed Mitigation Plan) to compensate for losses to aquatic resources.

Regarding the commenter's statement of the identification of Lower Bois d'Arc Creek as the longest remaining un-impounded reach of the Red River drainage system, the USACE assumes that the commenter is referring to Lower Bois d'Arc Creek as the longest existing tributary to the Red River (Bois d' Arc Creek is estimated at 68.1 miles in length), which flows through Fannin County, Texas. There are many long un-impounded tributaries of the Red River in existence today. One example is the 109 mile un-impounded Muddy Boggy Creek, which flows into the Red River from Oklahoma.

Regarding the request that the USACE apply heightened scrutiny under its 404 (q) responsibilities, the USACE will ensure that future analysis is consistent with Section 404(b) (1) guidelines. The USACE reviewed and evaluated over 40 alternatives including the Applicant's proposed action, which is also the Applicant's preferred alternative. The FEIS presents the potential environmental impacts of the proposed action, the No Action Alternative, and another reasonable alternative and explains the rationale for dismissal of the other alternatives considered. The alternatives analysis presented in the EIS is intended to support the USACE's public interest review and Section 404(b) (1) guidelines evaluation. The USACE will identify the LEDPA for this Section 404 permit application in the ROD for this FEIS.

In addition, Section 1.6.1, Public Notice for Section 404 Permit Application, identifies the bottomland hardwood forested wetlands in the project area as a diminishing habitat in the region which has been identified by the EPA as an Aquatic Resource of National Importance (ARNI). ARNI is a resource-based threshold used to determine whether a dispute between EPA and the USACE regarding individual permit cases are eligible for elevation under 404(q). The decision to elevate a dispute regarding ARNIs is an EPA decision, and an MOU was developed between the EPA and USACE that outlines the current process and timeframes for resolving disputes in an effort to issue timely permit decisions. At this time the EPA has not elevated the Section 404 permit under 404(q). An EPA decision to elevate would not occur until after a ROD;

regulations state that a decision would follow the USACE announcement of a decision in accordance with 404Q MOA procedures. Refer also to the response to comment WR-46.

WL-17. The revised mitigation plan estimates that 605 acres of littoral wetlands would develop between elevations 531 to 534 ft. msl. around the reservoir. The plan states that these areas will provide an additional 241.8 HUs of emergent wetlands. Due to the large and frequent fluctuations between the normal conservation pool elevation and the 75% capacity and the 50% capacity, the development of littoral zone wetlands is extremely unlikely. The fourteen foot difference between the normal pool and the 50% capacity level will expose very large areas of dry land, and depending upon the duration of exposure, would be detrimental to the development or success of the proposed littoral zone mitigation. In short, because this is a water supply reservoir, there may be long periods of time when the water levels remain below the normal conservation pool of 534 feet MSL. In the shallow terrain of the site, these mitigation wetlands may be two or more miles from water. **[CC: P7-28]**

Response: Please see response to comment WL-10.

WL-13-2015. A Habitat Evaluation Procedure (HEP) was conducted for the DEIS for LBCR to assess impacts on wildlife. Assessment is lacking for other wetland functions, such as chemical uptake, nutrient uptake, carbon import and export, erosion control, flood storage, flood attenuation, sediment trapping, and water quality filtration. Texas Parks and Wildlife Department (TPWD), in its comments on the pre-draft EIS, cited 33 CFR, Part 332 and a 1990 Memorandum of Agreement between EPA and the Department of the Army calling for use of a functional assessment tool and stated that use of such a tool would have addressed many of the TPWD'S concerns about the pre-draft EIS for LBCR. Yet the tool was not employed for the DEIS. **[CC: TCA1-50]**

Response: Please see response to comment WL-13.