May 20, 2019

Via E-Filing

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE
Washington, D.C. 20426

Subject: Pensacola Hydroelectric Project, FERC No. 1494-_____; Application for Non-Capacity Related Amendment and Modification of Relicensing Plan and Schedule

Dear Secretary Bose:

Grand River Dam Authority (GRDA), owner and Federal Energy Regulatory Commission (Commission or FERC) licensee of the Pensacola Hydroelectric Project, FERC No. 1494 (Project) is pleased to enclose for the Commission's review and approval of an Application for Non-Capacity Related Amendment and Modification of Relicensing Plan and Schedule (Application), which pertains to the ongoing relicensing of the Project.

As detailed in the Application, due to unanticipated and uncontrollable circumstances—including a delayed initiation of the relicensing process due to the lack of a Commission quorum in 2017, as well as a protracted period needed to complete a required bathymetry study—the current Integrated Licensing Process (ILP) for the Project has been compromised. It will require, for example, GRDA to circulate a draft license application for comment before the end of the first season of studies. The current ILP schedule also will require GRDA to file its final license application immediately following the Commission's determination commencing the second study season. Thus, the current schedule does not provide sufficient time for GRDA to complete the Commission-required environmental studies during the pre-filing period—much less appropriately analyze Project effects across all environmental study results and propose potential protection, mitigation and enhancement measures as part of its Environmental Exhibit of its relicensing application (Exhibit E).

Moreover, the current Project relicensing schedule does not afford sufficient time for relicensing participants to meaningfully engage in the analysis of study results, seek potential study refinements based on preliminary study results, or comment on a draft license application that is informed by a completed study plan. Under the current schedule, GRDA will be forced to prepare a draft and final application that are based largely on existing information, which will then require modification through supplemental filings as studies are completed. Such a piecemeal, disjointed approach will increase costs to GRDA's customers and add to the administrative burdens of Commission staff, federal and state resource agencies, Native American Tribes, and other stakeholders.

This Application seeks reasonable adjustments to the Project's relicensing plan and schedule that will not only avoid these current scheduling challenges, but also greatly enhance the relicensing process and environmental study program beyond requirements

of the ILP. In short, GRDA proposes to capitalize on these unanticipated delays by expanding the time and scope of the environmental study program and enhanced consultation with relicensing participants. For example:

- The Application seeks a total of 5 study seasons, instead of the 2 seasons required by the ILP. At the end of each study season, GRDA will report to and meet with relicensing participants, with an opportunity to refine study plans on a consensus basis.

- The Application proposes a robust implementation of the Cultural Resources Study Plan, with the aim of completing this important work prior to the final license application—including a Traditional Cultural Properties study and development of a Historic Properties Management Plan.

- The Application proposes to implement the Sedimentation Transport Model Study Plan prepared by the City of Miami and approved by the Commission, with enhanced fieldwork to improve the accuracy and reliability of this model as a tool for understanding Project effects on sediment transport.

- The Application proposes to front-load GRDA's evaluation of existing information, as required by several of the environmental studies (e.g., aquatic, terrestrial, and wetland), prior to the availability of the hydraulic and hydrological modeling results. This will promote prompt evaluation and determination of any necessary fieldwork once the modeling results are available.

GRDA appreciates the tremendous support for this Application by federal and state resource agencies, Native American Tribes, and other relicensing participants. As demonstrated in the Record of Consultation (Attachment I), all resource agencies and Native American Tribes either affirmatively support the Application[1] or do not object to it.[2] Both of the entities that do not object to the Application acknowledge the benefits of GRDA's proposal.[3] With one exception, all other relicensing participants affirmatively

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[1] The Application is affirmatively supported by U.S. Fish and Wildlife Service, Osage Nation, Oklahoma Department of Wildlife Conservation, Oklahoma State Historic Preservation Office, and Oklahoma Water Resources Board. *See* Record of Consultation, Attachment I.

[2] The U.S. Bureau of Indian Affairs "does not object to the GRDA's extension request." Letter from Jessie Durham, Bureau of Indian Affairs, to Jacklyn Jaggars, GRDA, at 1 (Apr. 15, 2019) (included in Attachment I) [hereinafter, BIA Comment]. The Miami Tribe of Oklahoma "is not consenting to or objecting to GRDA's request for a license extension at this time." Letter from Joseph F. Halloran, Jacobson Law Group, to Jacklyn Jaggars, GRDA, at 1 (Apr. 16, 2019) [hereinafter, Miami Tribe Comment].

[3] *See* BIA Comment at 2 ("[T]he BIA is encouraged that the extended schedule will allow a more adequate time to complete the required studies and result in a better work product to inform Interior's conditioning authority."); Miami Tribe Comment at 1 ("The Tribe recognizes that a license extension to December 31, 2026, would in theory allow for GRDA to complete all facets of its Cultural Resources Study in consultation and coordination with interested tribes before the license is issued. The Tribe appreciates efforts to ensure that the Cultural Resources Study is completed in a timely manner and the progress that the Cultural Resources Working Group has made working with GRDA.").

support this Application.[4] The City of Miami, Oklahoma, is the only entity objecting to the draft Application,[5] but in preparing the attached final Application GRDA made several significant clarifications and changes to address the City of Miami's concerns.

As the attached Application represents a strong consensus proposal, particularly among federal and state resource agencies and Native American Tribes, GRDA respectfully requests the Commission to expeditiously approve it. Prompt approval will provide needed certainty to all relicensing participants regarding for the remainder of calendar year 2019, as well as the process and reporting that will be required at the close of the year. Also, GRDA's prefiling consultation process for this Application—which included the full 60-day period under FERC's regulations[6]—produced significant comments, many of which resulted in improvements to the final Application. Since the beginning of the ILP for the relicensing process, GRDA has consistently identified the need for refinements to the ILP process for this relicensing effort and discussed this matter at length with relicensing participants.[7] Now that its draft Application has been fully vetted and improved with numerous comments, the final Application is ready for prompt Commission approval.

GRDA appreciates the opportunity to work with relicensing participants in the development of the enclosed Application. We look forward to continuing our work together to implement the FERC-approved study plan and to collaborate in the relicensing process. If there are any questions regarding this Application, please contact Jacklyn Jaggars, Director of Hydropower Projects, at 918-256-0723 or jjaggars@grda.com.

Sincerely,

Darrell Townsend II, Ph.D.
Vice President
Grand River Dam Authority

Enclosure

cc: Relicensing Participant Distribution List

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4 The Application is affirmatively supported by the City of Grove, Oklahoma, South Grand Lake Area Chamber of Commerce, Shangri-La Golf Club Resort & Marina, Arrowhead Yacht Club, and Kent Carson. *See* Record of Consultation, Attachment I.

5 *See* Letter from Craig Gannett, Davis Wright Tremaine, to Jacklyn Jaggars, GRDA (Apr. 16, 2019); Letter from Craig Gannett, Davis Wright Tremaine, to Jacklyn Jaggars (Mar. 5, 2019). Both letters from the City of Miami are addressed in the Record of Consultation, Attachment I.

6 18 C.F.R. § 4.38(a)(7).

7 *See* Proposed Study Plan § 6.2, Project No. 1494-438 (filed Apr. 27, 2018); Proposed Study Plan Meeting Presentation, at 8 (available at https://www.grda.com/wp-content/uploads/2017/02/GRDA-PSP-Meeting-Master-Presentation-20180529.pdf); Proposed Study Plan Meeting Notes, at 1, Project No. 1494-438 (filed Jun. 27, 2018); Revised Study Plan § 6.2, Project No. 1494-438 (filed Sep. 24, 2018).

Pensacola Hydroelectric Project
FERC No. 1494

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UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Grand River Dam Authority) Project No. 1494-__

APPLICATION FOR NON-CAPACITY RELATED AMENDMENT AND MODIFICATION OF RELICENSING PLAN AND SCHEDULE

Pursuant to sections 4.201 and 5.29(f)(2) of the Federal Energy Regulatory Commission's (Commission or FERC) regulations,[1] the Grand River Dam Authority (GRDA) hereby submits this Application for Non-Capacity Related Amendment of License and Modification of Relicensing Plan and Schedule (Application) for the Pensacola Hydroelectric Project, FERC Project No. 1494 (Pensacola Project or Project).[2] As detailed herein, GRDA seeks to: (1) modify the Project's relicensing process plan and schedule to provide sufficient time for GRDA to complete relicensing studies as required by FERC's relicensing Study Plan Determination issued November 8, 2018 (Determination), including approval of the proposed Revised Process Plan and Schedule set forth in Attachment C; (2) amend the Commission's November 2018 Determination as provided in this Application; (3) extend the date for filing an updated Shoreline Management Plan (SMP) to coincide with the filing of the Final License Application (FLA) for the relicensing of the Project; and (4) extend the date for filing revised Exhibit G maps to coincide with the filing of the preliminary licensing proposal/draft license application (PLP/DLA) for the relicensing of the Project.

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1 18 C.F.R. §§ 4.201, 5.29(f)(3).

2 *Grand River Dam Auth.*, 59 FERC ¶ 62,073 (1992).

To accomplish all these activities within the relicensing pre-filing time period, and to synchronize the relicensing process for the Project with the Commission's Integrated License Process (ILP) regulations and the Federal Power Act (FPA) itself,[3] GRDA also seeks herein an extension of the license term from its current expiration of March 31, 2022, to December 31, 2026—a period of four years and nine months.[4] As detailed below, while this period is needed to accommodate circumstances beyond the reasonable control of GRDA, the additional time will be advantageous to all relicensing participants—as GRDA proposes to significantly bolster its annual study program and engage relicensing participants in its efforts during the extended period. GRDA is confident that this additional time will result in a FLA that is scientifically supported and robust—including various management plans that GRDA expects to include in the FLA that will have been developed in consultation with resource agencies, Native American Tribes, and interested stakeholders.

GRDA has developed this Application in consultation with federal and state resource agencies, Native American Tribes, and other relicensing participants, and received broad and nearly unanimous support for its proposal. All federal and state resource agencies and Native American Tribes either affirmatively support this Application, or do not object to it. Many resource agencies and other relicensing participants expressed strong support for the proposal and the benefits that would be provided by a more robust relicensing study program. Only one relicensing participant

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[3] *See* 16 U.S.C. §§ 808(b) (requiring the licensee to file its notification of intent at least five years prior to license expiration), 808(c) (requiring the licensee to file its relicensing application at least 24 months prior to license expiration); *see also* 18 C.F.R. Pt. 5 (generally contemplating that the license applicant will complete and report on two years of studies prior to filing the final license application).

[4] Since the Project currently is under a 30-year license, the Commission is authorized to extend the license term for up to 20 years. 16 U.S.C. § 808(e).

opposes this Application.

As explained in the attached Record of Consultation, this final Application is responsive to the comments received,[5] and meets all relevant public interest considerations. As a consensus proposal that will greatly benefit the Commission and all participants in the underlying relicensing process, GRDA submits that the Commission should approve this Application expeditiously.

I. INITIAL STATEMENT

Pursuant to section 4.201 of FERC's regulations,[6] GRDA states as follows:

1. GRDA applies to the Commission for a non-capacity related license amendment to the license for the Pensacola Project, which is located on the Grand/Neosho River in Craig, Delaware, Mayes, and Ottawa Counties, Oklahoma.

2. The exact name, business address, and telephone number of applicant GRDA are:

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[5] The Record of Consultation, including a response to all comments received, appears at Attachment I.

[6] 18 C.F.R. § 4.201.

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3. Applicant GRDA is an agency of the State of Oklahoma and a municipality within the meaning of Section 3(7) of the FPA,[7] and licensee for the Pensacola Hydroelectric Project designated as Project No. 1494 in the records of the Commission. The current 30-year license for the Project was issued on April 24, 1992, and expires on March 31, 2022.[8]

4. The purposes of this filing are to request that the Commission:

   a. Extend the term of GRDA's license by four years and nine months, until December 31, 2026, to cure unanticipated and uncontrollable delays in the Project's current relicensing process plan and schedule, and clarify that GRDA need not re-file its notification of intent and pre-application document as a result of the license extension;

   b. Modify the Project's relicensing process plan and schedule, as provided in Attachment C herein, to provide sufficient time for GRDA to complete relicensing studies during the pre-filing stage of the relicensing process, consistent with the Commission's ILP regulations, and to allow for all studies to be completed to inform and support GRDA's PLP/DLA, including the Exhibit E Environmental Exhibit, and Historic Properties Management Plan, before the FLA is filed with the Commission;

   c. Amend the Commission's November 2018 Determination as proposed in this Application, to accommodate the new study plan schedule and additional studies required by the Commission, and

[7] 16 U.S.C. § 796(7).

[8] *Grand River Dam Auth.*, 59 FERC ¶ 62,073 (1992).

specifically to:

i. Approve the Sediment Transport Model Study Plan at Attachment E of this Application;

ii. Approve the expanded schedule for the Cultural Resources Study Plan and initiation of the Traditional Cultural Properties component of the Study Plan, as detailed *infra* Part III.B (pages 27-28); and

iii. Extend the various reporting dates and schedules appearing in the individual study plans to conform new process plan and schedule set forth in Attachment C;[9]

d. Extend the date for filing an updated SMP to coincide with the new proposed FLA filing date of December 24, 2024; and

e. Extend the date for filing revised Exhibit G maps to coincide with the new proposed PLP/DLA filing date of June 30, 2024.

5. No relevant Oklahoma State statutory or regulatory requirements would affect the proposed license amendment. As such, no steps are necessary to comply with any state statutory or regulatory requirements.

II. BACKGROUND

A. Unanticipated Delayed Initiation of Relicensing Process

GRDA's Pensacola Project is situated on the Grand/Neosho River (referred to herein as the Grand River) in Craig, Delaware, Mayes, and Ottawa counties, Oklahoma, and has an installed capacity of 120 megawatts. The Project consists of a reinforced-concrete dam with a 4,284-foot-long, multiple-arch section that creates an impoundment, known as Grand Lake O' the Cherokees (Grand Lake), which stores approximately 1,680,000 acre-feet of water at normal maximum water surface elevation of 745 feet Pensacola datum (PD). The Project also includes approximately 667 miles of shoreline.

[9] The current schedules for the individual study plans are set forth in: Hydrologic & Hydraulic Modeling Study § 2.8; Aquatic Species of Concern Study § 2.8; Terrestrial Species of Concern Study § 2.8; Wetlands and Riparian Habitat Study § 2.8; Recreation Facilities Inventory and Use Survey § 2.8; Cultural Resources Study § 2.11; and Socioeconomics Study § 2.8.

On April 24, 1992, FERC staff issued a new license to GRDA for the continued operation and maintenance of the Project for a period of 30 years, expiring on March 31, 2022.[10]

On February 1, 2017, in accordance with section 15(b)(1) of the FPA[11] and the Commission's ILP regulations at 18 C.F.R. Part 5, GRDA timely filed a Notice of Intent (NOI) to relicense the Pensacola Project and a Pre-Application Document (PAD). Shortly thereafter, on February 15, 2017, FERC issued a letter order holding the relicensing process in abeyance due to a Project amendment proceeding that was ongoing at the time of the filing of the NOI and PAD and the lack of a quorum of FERC Commissioners to rule on the amendment application.[12] Six months later, once a quorum of Commissioners was restored, FERC approved the requested amendment.[13] Two weeks later, on August 24, 2017, FERC issued a letter order lifting the abeyance and providing a revised ILP process plan and schedule.[14] By that time, the ILP relicensing schedule was more than six months behind. Due to other delays associated with reinitiating the relicensing process, moreover, the Commission did not issue its Notice on the NOI and PAD and commence the pre-filing process until January 12, 2018[15]—more than nine months later than it would have if the process had not been held in abeyance.[16]

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[10] *Grand River Dam Auth.*, 59 FERC ¶ 62,073 (1992).

[11] 16 U.S.C. § 808(b)(1).

[12] *See* Letter from Ann Miles, FERC, to Darrell Townsend, GRDA, Project No. 1494-438 (issued Feb. 15, 2017).

[13] *Grand River Dam Auth.*, 160 FERC ¶ 61,001 (2017).

[14] *See* Letter from Vince Yearick, FERC, to Darrell Townsend, GRDA, Project No. 1494-438 (issued Aug. 24, 2017).

[15] Notice of Intent to File License Application, Filing of Pre-Application Document (PAD), Commencement of Pre-filing Process, and Scoping; Request for Comments on the PAD and Scoping Document, and Identification of Issues and Associated Study Requests, Project No. 1494-438 (issued Jan. 12, 2018).

[16] *See* 18 C.F.R. § 5.8(a). Under the original schedule, the Commission's Notice would have issued by April 2, 2018. The reason for the delay following the Commission's abeyance was to conduct public

B. Bathymetric Survey Requirement in FERC's Study Plan Determination

Unfortunately, other events beyond the control of GRDA, Commission staff, and other relicensing participants will further delay this relicensing process. As part of the ILP study development, the City of Miami, Oklahoma (City of Miami) requested that GRDA develop a sediment transport model (STM) in HEC-RAS, and conduct an updated bathymetric survey of Grand Lake to use in the STM.[17] The City of Miami's proposed methodology for conducting the STM also would use GRDA's comprehensive hydraulic model (CHM), which is a component of GRDA's proposed hydrologic and hydraulic modeling study (H&H Study). Thus, the City of Miami's request for an updated bathymetric study would be needed to complete both the STM and the CHM used for the H&H Study. In its November 8, 2018 Determination, Commission staff approved the City of Miami's request for GRDA to undertake an updated bathymetric survey and STM.[18]

C. GRDA's Selection of U.S. Geological Survey for Bathymetric Survey

Following FERC staff's Determination, GRDA—recognizing that the bathymetric survey is a foundational prerequisite to the STM, CHM, and the other resource studies that will rely on modeling outputs—immediately identified the United States Geological Survey (USGS) as the best contractor to complete the work.[19] GRDA selected USGS

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relicensing workshops and allow additional time for the Commission to initiate consultation with Native American Tribes.

[17] *See* Comments of the City of Miami, Oklahoma on GRDA's Revised Study Plan, at 15, Project No. 1494-438 (filed Octo. 24, 2018).

[18] Study Plan Determination for the Pensacola Hydroelectric Project at B-4, Project No. 1494-438 (issued Nov. 8, 2018) [hereinafter, Determination].

[19] *See* Townsend Aff. at ¶ 12 (included as Attachment F).

because it is widely regarded as being independent, experienced, expert, and objective in this field of work. USGS has conducted numerous bathymetric surveys on Grand Lake's three major tributaries (Neosho River, Spring River, and Elk River) and has experience in reviewing and analyzing historic bathymetric data sets used to develop storage capacity tables, including at Grand Lake.[20] The USGS also has maintained the Grand Lake gage at Langley since 1940 and is familiar with the lake's elevations and capacity tables.[21] Moreover, the USGS staff selected to work on the Grand Lake bathymetric survey has direct and recent experience in completing "two bathymetric projects in the last three years," and due to their expertise has been asked by other USGS offices to review their bathymetric projects.[22]

In addition to immediately identifying USGS as the most qualified and best suited entity to conduct the bathymetric survey, GRDA determined that retaining USGS would not require a protracted competitive solicitation process. As explained more fully in the attached Affidavit of Darrell E. Townsend II (Townsend Affidavit), GRDA's acquisition of engineering and surveying professional services is exempt from competitive solicitation.[23] Moreover, GRDA's procurement requirements expressly authorize GRDA to contract with the United States and its agencies for services related to the Pensacola Project.[24] Having no obligation to solicit and evaluate competitive solicitations, GRDA could quickly retain the USGS and commence the bathymetric survey.[25]

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[20] Letter from Jason Lewis, USGS, to GRDA, at 1 (Mar. 1, 2019) (included as Attachment G).

[21] *Id* at 1; *see also* Townsend Aff. at ¶ 12.

[22] Letter from Jason Lewis, USGS, to GRDA, at 1.

[23] Townsend Aff. at ¶¶ 5-7.

[24] *Id.* at ¶ 6.

[25] *See id.* at ¶¶ 13-17.

Although GRDA's retention of USGS for the bathymetric survey was exempt from competitive solicitation, GRDA—after receiving USGS's written proposal[26]—prudently reached out to an engineering firm it has under contract to gauge aspects of timing and budget.[27] In addition, as detailed in the Townsend Affidavit, GRDA conferred with the City of Miami and its technical consultant to discuss these same matters. All consultants recognized that USGS's proposed budget was within industry standard,[28] and perhaps lower than what would be charge by a private consulting firm.[29] However, the City of Miami's consultant averred that the USGS's proposed schedule for the bathymetric survey (approximately 19 months), was too long and that the survey could be completed in six to nine months.[30]

After further consultation with USGS regarding the City of Miami's concerns, GRDA learned that USGS's longer schedule was attributable to several physical factors unique to Grand Lake, as explained below.[31] But perhaps more importantly, the longer time period is significantly attributable USGS's demanding quality assurance and quality control protocols that are needed to ensure that the final datasets are accurate and reliable, such that the Commission, resource agencies, GRDA, and other relicensing participants can confidently rely upon them.[32] Moreover, consistent with GRDA's statutory mission,

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[26] Bathymetric Survey and Area Capacity Table for Grand Lake O' the Cherokees, Northeast, OK (Nov. 14, 2018) (included in Attachment A).

[27] *See* Townsend Aff. at ¶ 14.

[28] *Id.* at ¶¶ 14-15.

[29] *Id*.

[30] *Id.* at ¶ 15.

[31] *See infra* Part II.D.1.

[32] *Id.* at Townsend Aff. at ¶ 16 (included as Attachment F); *see also* Letter from Jason Lewis, USGS, to GRDA, at 2 (Mar. 1, 2019) (included as Attachment G).

USGS is a public agency that will ensure that the information produced by this study will be independent and made available to the public via USGS's website to use in many functions that support activities at Grand Lake.[33]

While other contractors potentially could have completed the bathymetric survey in a shorter period of time,[34] based on these factors—and particularly the USGS's commitment to demanding quality assurance and quality control protocols—GRDA selected USGS to complete the bathymetric survey. GRDA's Board of Directors approved a contract with USGS for this work in its regularly scheduled meeting on January 8, 2019,[35] following which GRDA entered into a contract with USGS for this work.[36]

GRDA's flexibility to quickly contract with USGS without competitive solicitation allowed for a much more timely initiation of the bathymetric survey than what would be required in a competitive solicitation situation.[37] As detailed below, as of the filing of this Application USGS is already mobilized onsite and collecting data needed to complete the survey.[38]

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[33] Townsend Aff. at ¶¶ 8, 12 (included as Attachment F); Letter from Jason Lewis, USGS, to GRDA, at 2 (Mar. 1, 2019) (included as Attachment G).

[34] Townsend Aff. at ¶ 15 (included as Attachment F).

[35] *See* Minutes for the GRDA Board of Directors Meeting, January 8, 2019 (included at Attachment H).

[36] GRDA's contract with USGS appears in Attachment A.

[37] In this regard, the City of Miami has sought detailed information regarding GRDA's procurement process, including GRDA's written solicitation, responses to GRDA's solicitation, scoring and ranking of responses received, and GRDA's correspondence with entities that submitted responses. *See* Letter from Craig Gannett, Davis Wright Tremaine, to Jacklyn Jaggars, GRDA, at 2 (Mar. 5, 2019) (included in Attachment I). These requests from the City incorrectly assume that GRDA's competitive solicitation requirements apply to the procurement of engineering and survey services required for the bathymetric survey. Moreover, the City overlooks that the type of competitive solicitation process it incorrectly assumes to be required in this instance would have significantly delayed the initiation of the bathymetric survey, inconsistent with its expressed concern that GRDA's selection of USGS will cause delays in the relicensing process. *Id*.

[38] *See infra* Part II.E; *see also* USGS, Project Report, February 1st – April 30th, 2019 (included as

D. Unanticipated Time Period Required to Complete Bathymetry Survey and Impacts to Overall Relicensing Schedule

The unanticipated extended time period for USGS to complete the bathymetric survey will require a change to the relicensing study schedule for the Pensacola Project to allow time to complete the extensive work to survey all of Grand Lake and integrate data into the STM and CHM models.[39] Nonetheless, this additional time will produce significant benefits to the relicensing process. First, it will allow sufficient time for USGS to methodically and carefully complete a bathymetric survey upon which all relicensing participants can confidently rely. Second, an extension of the license term will afford additional time for GRDA to complete the FERC-approved Study Plan before its PLP/DLA and FLA, leading to a more robust environmental analysis and thoughtful proposal for protection, mitigation and enhancement (PM&E) measures at the time the FLA is filed with the Commission. Third, extending the license term will avoid confusion of a disjointed, piecemeal application process that otherwise would be required under the current relicensing schedule.

1. Additional Time to Produce a Reliable Bathymetric Survey

Based on Project-specific factors—and recognizing that the complexity and importance of this survey to the relicensing effort amplifies the need for USGS's independence and expertise—GRDA anticipates, based on USGS's proposal, that the

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Attachment J).

[39] The Commission's SPD required the bathymetric survey at the request of the City of Miami. *See* City of Miami's July 26, 2018 Comments on GRDA's PSP at p. 6 of H&H Study ("[b]ased on the time since the last survey, the observed changes in channel profile and the recommendation by [the Oklahoma Water Resources Board], it is strongly recommended that Grand Lake be re-surveyed to provide the most up to date bathymetry."); *see also* Determination at B-4 ("We recommend performing a new bathymetric survey of Grand Lake as part of the sedimentation study…to accurately reflect the existing distribution and volume of sediment in the reservoir and update stage-storage volume curves for the H&H model.").

bathymetry study will take at least two years to complete, i.e., by late Q1 or early Q2 2021.[40] At its normal maximum surface elevation of 745 feet (Pensacola Datum), Grand Lake covers approximately 45,200 acres.[41] With its many bays, coves, tributaries, and islands, Grand Lake is very sinuous in shape—featuring over 650 miles of shoreline and extending about 66 miles upstream from Pensacola Dam.[42] Accessing many locations of Grand Lake to stage equipment and launch into the reservoir, as will be required to complete the bathymetric survey, will be difficult.

Other factors also are likely to affect the time period needed to complete the bathymetric survey. As explained by USGS, Grand Lake experiences extreme weather events, such as spring storms and high winds, that require a longer period of time to collect data "in a consistent, objective, and replicable manner."[43] Similarly, Grand Lake for many months of the year experiences significant recreational boating traffic that may extend the time needed to complete data collection.[44]

For these reasons, the expanded relicensing schedule and associated license extension will allow sufficient time for USGS to carefully and methodically complete the bathymetric survey and produce a product that can be reasonably and confidentially relied upon by all relicensing participants.

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[40] USGS's proposal to GRDA, included as an attachment to the contract in Attachment A, anticipated that the final map report would be available on June 30, 2020. *See* USGS, Bathymetric Survey and Area Capacity Table for Grand Lake O' the Cherokees, Northeast, OK (2018). The deliverables for the survey are not expected until Q4 2020 (see chart at end of Attachment A). Out of an abundance of caution and recognizing that studies can often be delayed through unanticipated events and competing demands, GRDA believes that the final deliverables from USGS are unlikely to be available until closer to Q1 or Q2 2021. *See* Townsend Aff. at ¶ 18 (included in Attachment F).

[41] Pre-Application Document § 4.3.3, Project No. 1494-438 (filed Feb. 1, 2017).

[42] *Id.*

[43] Letter from Jason Lewis, USGS, to GRDA, at 2 (Mar. 1, 2019) (included as Attachment G).

[44] *Id.*

2. Better-Informed Relicensing Application

Approving the Application by expanding the environmental study period and extending the current license term also will result in a more complete and better-informed relicensing application—both the PLP/DLA, as well as the FLA. While USGS already is making good progress on the bathymetric study,[45] GRDA will not have the necessary bathymetric data to complete the STM Study and H&H Study by the end of the second season of field studies in 2020, as currently provided in GRDA's RSP and as approved by Commission staff in its Determination.[46] Further, several other FERC-required studies cannot be completed until the modeling results of the H&H Study model outputs are available; namely, the Infrastructure, Aquatic Species of Concern, Terrestrial Species of Concern, Wetlands and Riparian Habitat, and Cultural Resources Studies. Due to the complexity of the Pensacola Project and the number of studies required by FERC's Determination, it is imperative that the study process be thorough and accurate, and that quality assurance and quality control protocols are implemented.

USGS's completion of the bathymetry work prior to GRDA's completion of its remaining studies will enable GRDA to develop the STM and CHM models during the pre-filing relicensing process; complete other environmental studies that are dependent on these models; prepare a PLP/DLA that analyzes Project effects across resource areas and proposes PM&E measures based on a more robust effects analysis; and prepare a FLA following much better-informed PLP/DLA comments from federal and state resource agencies and other relicensing participants.

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[45] *See infra* Part II.E; USGS, Project Report, February 1st – April 30th, 2019 (included as Attachment J).

[46] *See* Revised Study Plan at 47, Project No. 1494-438 (filed Sep. 24, 2018) [hereinafter, RSP].

3. Robust Pre-Filing Process and Avoidance of Confusion and Disjointed Post-Filing Process

Finally, approving this application will avoid confusion, delays, and higher administrative burdens that otherwise would be required for GRDA to file its application as currently required, and create an opportunity for an expanded and enhanced pre-filing process that is more robust than the standard ILP process.[47]

Due to the uncontrollable delays caused by the expansion of the study plan to include a new bathymetric survey, coupled with the abeyance during the time in which the Commission lacked a quorum, the current relicensing schedule has been compromised. To meet the statutory deadline under section 15(c) of the FPA to file its FLA two years prior to license expiration,[48] GRDA is currently obligated to file its relicensing application by March 31, 2020. At that point in the current Project's ILP, GRDA will have completed only a small fraction of the Commission-approved study plan. The bathymetric survey will be ongoing, so GRDA will have no results from the CHM or STM. The numerous studies that rely on the outputs from these models—Infrastructure, Aquatic Species of Concern, Terrestrial Species of Concern, Wetlands and Riparian Habitat, and Cultural Resources—will be incomplete and unavailable. While GRDA will be able to make some progress on the study plan by March 2020 by completing an initial year of studies, this information will not come close to supporting the robust environmental reporting and analytical requirements of the FLA.[49]

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47 *See infra* Part III.B.

48 16 U.S.C. § 808(c).

49 In particular, the Commission's regulations require the FPA to include an Environmental Exhibit (Exhibit E), which analyzes the Project's effects on such resources as geological and soil resources; aquatic resources, terrestrial resources; threatened and endangered species; recreation and land use; cultural resources; aesthetic resources; and socioeconomics. *See* 18 C.F.R. § 5.18(b); FERC, *Preparing Environment Documents* (Sep. 2008), *available at* https://www.ferc.gov/industries/hydropower/gen-

Typically, the Commission's ILP regulations provide for two full study seasons prior to filing a relicensing application in anticipation of the potential need for two years of study to gather data.[50] At the outset of the relicensing process in this case, it was apparent that a full two years of study would not be available prior to GRDA's filing of the FLA, due to the over nine-month delay from the abeyance and lack of a Commissioner quorum. For this reason, GRDA has been very transparent with relicensing participants that an extension of its existing license term would be needed to align the license expiration date with the ILP process plan and schedule. This issue appears in both its PSP and RSP, and GRDA made this a specific item for discussion during the study plan meeting in May 2018.[51]

The delays associated with the bathymetric survey—together with the work on the CHM and STM that can be completed only *after* the bathymetric survey is complete—have triggered the need for a change to the license process plan and schedule and require a longer license extension than originally anticipated. Accordingly, GRDA is now requesting a license term extension of four years and nine months, to accommodate a relicensing process plan and schedule in light of the relicensing abeyance, length of time for the bathymetric survey, and studies that cannot be completed until the bathymetry study is complete.

E. Current Status of Relicensing Studies

Despite the delays to the ILP discussed above, GRDA has made substantial progress since the Commission's November 2018 Determination on a number of studies,

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info/guidelines/eaguide.pdf?csrt=6769828671005733892.

[50] 18 C.F.R. § 5.15.

[51] *See* RSP at 49; Preliminary Study Plan at 50, Project No. 1494-438 (filed Apr. 27, 2018).

including the bathymetric survey, and the Cultural Resources, H&H, STM, and Infrastructure Studies. With regard to the bathymetric survey, USGS commenced its work on February 1, 2019, shortly after executing its contract with GRDA.[52] During February and March 2019, USGS engaged in planning and ensuring that the bathymetric equipment were installed on the boat and calibrated properly.[53] USGS began collecting data on March 30, and its progress as of April 30 is shown in the figures below. During the next quarter (May-July), USGS plans to continue to survey up the lake in a northeast direction.[54]

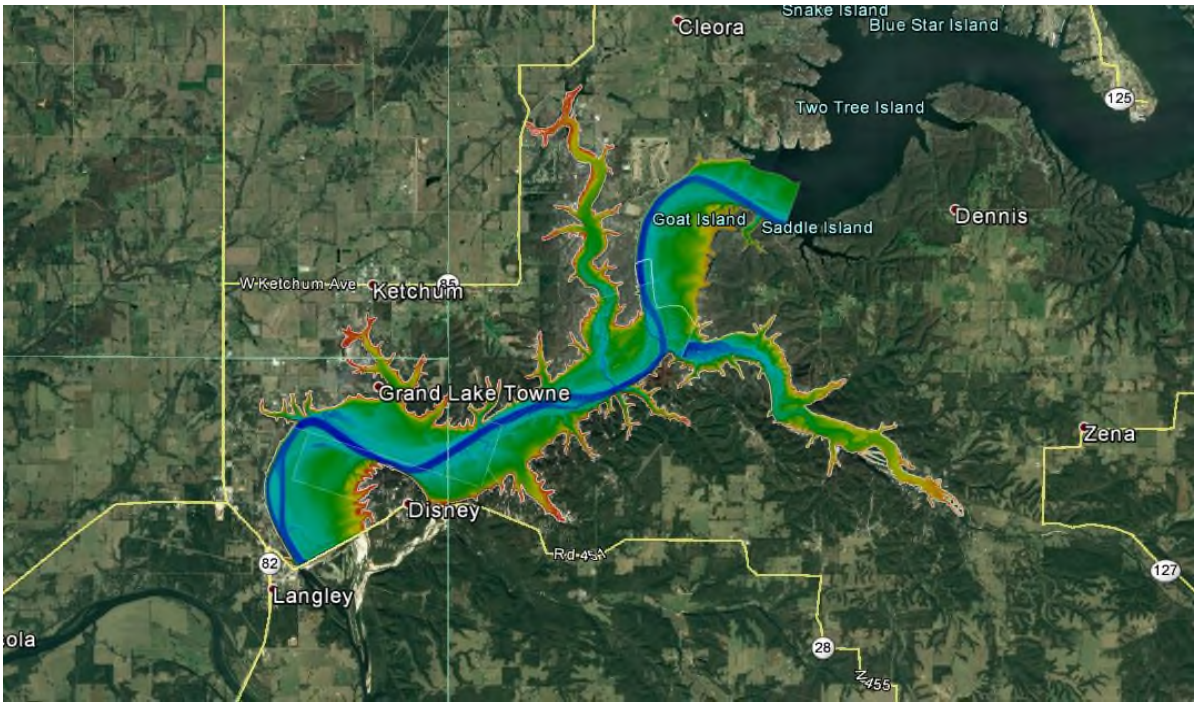

Fig. 1. The blue line represents the original Neosho Channel and the area where USGS has completed surveying as of April 30, 2019.

[52] *See* USGS, Project Report, February 1st – April 30th, 2019 (included as Attachment J).

[53] *Id.*

[54] *Id.*

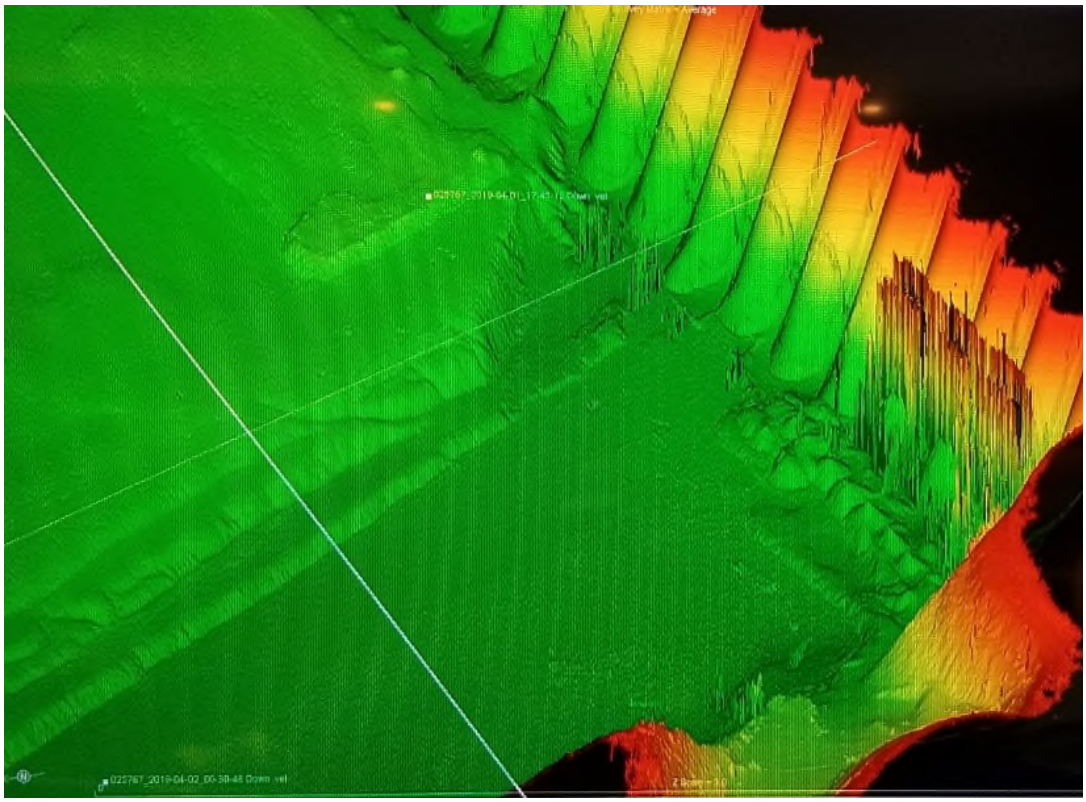

Fig. 2. This figure depicts the underwater view of a portion of the Pensacola Dam and channel.

For the Cultural Resources Study, GRDA and the Cultural Resources Working Group (CRWG) have completed significant work. Since the issuance of FERC's Determination, GRDA has held two CRWG meetings and met individually with several Native American Tribes to prepare to implement the FERC-approved Cultural Resources Study. The CRWG are working diligently to resolve issues such as the Area of Potential Effects; field methodologies for archaeological investigations in light of potentially overlapping Tribal interests and varying jurisdictional requirements; the preparation of the Traditional Cultural Properties component of the study in 2019; curation requirements; and protocols for the discovery of human remains or funerary objects.[55]

[55] *See generally* Meeting Summaries and Follow Up Action Items from March 27, 2019 CRWG Meeting, Project No. 1494-438 (filed Apr. 10, 2019).

GRDA also has prepared a pre-fieldwork report to help CRWG participants determine high-priority sites for archaeological investigation in 2019—a report that spans over 7,000 pages. The CRWG will hold the pre-fieldwork meeting on May 29, 2019.

For the H&H Study, GRDA has already commenced this work. An assessment of aerial conditions is complete, and additional assessments are pending the results of preliminary modeling. Field reconnaissance and research on storm events and flood frequency are ongoing, as is an evaluation of the proposed HEC-RAS base model to refine identified issues. Additionally, GRDA has initiated acoustic doppler flow monitoring.

GRDA has also commenced work on the STM Study, and a number of actions are in progress, including field reconnaissance, a review of the available hydraulic and sediment data and the proposed HEC-RAS base model for conversion to the STM, and the development of a sediment sampling program. Additionally, water surface elevation data have been collected, some initial total suspended solids samples have been collected during high water conditions, and sediment sampling equipment has been identified and ordered. Research and requests for 1990s cross-section data for model calibration is ongoing and available hydraulic and sediment data are currently being reviewed.

For the Infrastructure Study, GRDA has identified entities to consult with to develop a list of infrastructure types and specific locations and plans to begin developing the list in June 2019. It is also working to review structures, acquire record drawings, and begin field assessments and surveys of structures.

F. Related Extensions to Efficiently Integrate Ongoing Compliance Activities with the Relicensing Process

In addition to the proposed extension of the license term and adjustment of the relicensing process plan and schedule, GRDA is requesting herein to extend two license compliance filing deadlines. The first extension of time request concerns the Project's updated SMP, which currently is due by October 16, 2019, and the second extension of time request concerns revised Exhibit G maps, which currently are due along with GRDA's PLP/DLA on November 1, 2019. The Commission's approval of these extensions of time as proposed in this Application would integrate these requirements into the ongoing Project relicensing process, to the benefit of Commission staff, relicensing participants, and GRDA. Lastly, out of an abundance of caution, and to address a concern raised by the City of Miami,[56] GRDA seeks clarification from the Commission that it need not re-file its NOI and PAD, even though the effect of granting this Application would establish a license term that is more than 5 and one-half years prior to expiration.[57]

III. DISCUSSION

Granting this Application would serve the public interest in several different ways. First, the Commission has held that license extensions to accommodate delays in the relicensing process are warranted when such delays are beyond the reasonable control of the licensee. Second, GRDA has developed a proposed relicensing plan and schedule that takes full advantage of the extended relicensing period through a longer, more robust

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[56] *See* Letter from Craig Gannett, Davis Wright Tremaine, to Jacklyn Jaggars, GRDA, at 8 (Apr. 16, 2019) (included as part of Record of Consultation in Attachment I) [hereinafter, City of Miami Comments].

[57] 18 C.F.R. §§ 5.6(d), 5.6(a)(1).

study plan, particularly the Cultural Resources Study. Third, approving this Application would allow for GRDA to prepare a complete FLA, informed by many years of study, which should reduce the time post-filing for the Commission to review the FLA and render a relicensing decision. Fourth, integrating the SMP update and Exhibit G revisions will promote administrative economy and allow for a complete FLA package to be submitted to the Commission for analysis and decision.

A. License Extension Request

To allow sufficient time for GRDA to complete the Commission-approved study plan in light of the delay that will be caused by the bathymetric survey, GRDA seeks an extension of the current license term from March 31, 2022 to December 31, 2026—a period of 4 years and 9 months. Because GRDA currently holds a 30-year license for the Project, the FPA authorizes the Commission to amend the license by up to 20 additional years—far more than the extension sought for in this Application.[58] Granting this Application, as detailed below,[59] would provide sufficient time for GRDA to complete all relicensing studies before filing its FLA with the Commission, and thereby provide sufficient opportunity for federal and state resource agencies, Native American Tribes, and relicensing participants to comment on study results and a robust DLA/PLP, which would inform GRDA's preparation of the FLA prior to its submission to the Commission.

The Commission has approved license term extension requests during the pendency of relicensing in other proceedings in which the license applicant—like GRDA in this case—faces uncontrollable or unique circumstances.[60] In one case, the

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[58] *See* 16 U.S.C. §§ 799, 808(c).

[59] *See infra* Part III.B *see also* Attachments B, C and D.

[60] *See, e.g., City of River Falls*, 154 FERC ¶ 61,214 (2016); *TransCanada Hydro Northeast, Inc.,* 152

Commission extended a license term by three years to allow for the performance of studies where the licensee's completion had previously been precluded by dam repairs.[61] In granting the license term extension, FERC acknowledged that, while some studies could be completed during the remedial work, studies of fishery resources, shoreline vegetation, recreation, land use, and project economics "would be useless to the Commission in making its decision on a relicense application" if conducted before the restoration.[62] FERC also has granted a license term extension where the licensee was in the process of selling and transferring the project. In that case, FERC staff permitted a three-year license term extension for the licensee and purchaser to complete sales negotiations and file a joint transfer application.[63] In *TransCanada Hydro Northeast* (*TransCanada*), Commission staff granted a one-year license term extension where aquatic studies were delayed by the decommissioning of the nearby Vermont Yankee Nuclear Power Plant (Vermont Yankee).[64] In that case, FERC staff acknowledged that requiring the licensee to comply with the statutory deadline for filing new license applications would result in a "nonsensical" application of the Commission's regulations and would not permit stakeholders adequate time to provide meaningful comments on the preliminary licensing proposal or draft license application.[65]

In each of the examples discussed above, the Commission or its staff acknowledged that granting a license extension would overcome the unanticipated

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FERC ¶ 62,048 (2015).

61 *S.C. Elec. & Gas Co.*,105 FERC ¶ 61,226 (2003), *reh'g denied*, 109 FERC ¶ 61,096 (2004).

62 *Id.* at P 5.

63 See *Pacific Gas and Electric Co*., 162 FERC ¶ 62,062 (2018).

64 *TransCanada Hydro Northeast, Inc.*, 152 FERC ¶ 62,048 (2015).

65 *Id.* at P 13.

circumstance by allowing the licensee to file its relicensing application at a later date, which, in turn would result in a more complete application that accurately reflects existing conditions at the project. In fact, Commission staff have determined that a license term extension can be preferable to filing an incomplete license application for purposes of meeting the statutory filing deadline under FPA section 15(c). For example, in granting the license term extension in *TransCanada*, staff rejected a potential solution advanced by a relicensing participant in which the aquatic and non-aquatic resource components of the license applications would move forward in two separate procedural tracks to accommodate the decommissioning of the Vermont Yankee plant while adhering to the original schedule for components that would not be affected by it. Staff held that such an approach "would cause confusion and impose an unnecessary burden on all relicensing participants."[66]

In this case, a license extension would overcome the same unanticipated type of occurrences of the Commission's lack of a quorum, followed by an unexpectedly long period needed to complete the bathymetric survey. Without the license term extension and revision to the license process plan and schedule requested herein, all relicensing participants—federal and state resource agencies, Native American Tribes, other relicensing participants, Commission staff, and GRDA—all will be significantly burdened with a thinly developed relicensing application, followed by a piecemeal, protracted post-filing process.

Specifically, without a license term extension, GRDA would be forced under Section 15(c) of the FPA to file a license application by March 31, 2020. Due to the

[66] *Id.* at P 15.

delays related to the relicensing abeyance and bathymetric survey described above, by that time, the Commission-approved study plan will be far from complete: the bathymetric survey will be outstanding; the CHM and STM incomplete; and the studies that rely on the outputs of the H&H Study not yet begun. In this scenario, GRDA would be forced to circulate a sparse DLA/PLP that provides few insights into its relicensing proposal and related effects—giving relicensing participants very little content to comment on prior to GRDA's preparation of the FLA. The FLA would be similarly sparse, requiring GRDA to file supplements as the studies are completed—burdening GRDA with more administrative costs, and forcing Commission staff and relicensing participants to review and comment on GRDA's relicensing proposal in a disjointed, piecemeal fashion.

GRDA acknowledges and agrees that "lengthy delays in licensing proceedings are contrary to the public interest…."[67] Given the unique circumstances in this case, however, GRDA does not believe that the Commission's approval of this Application would delay the overall relicensing process. Granting this Application would allow GRDA to overcome the unanticipated delays in this process by completing its Commission-approved study plan within a time period that would allow for: (1) a robust Initial Study Report (ISR) and associated meeting, together with opportunities for comment;[68] (2) a complete Updated Study Report (USR) and associated meeting, again with an opportunity for relicensing participants to comment;[69] (3) a complete DLA/PLP

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[67] *PacifiCorp*, 149 FERC ¶ 61,038, at P 13 (2014) (citing *PacifiCorp*, 147 FERC ¶ 61,216, at P 12 (2014)).

[68] 18 C.F.R. § 5.15(c).

[69] *Id.* § 5.15(f).

for relicensing participant review and comment;[70] and (4) a complete FLA that is responsive to comments received.[71] Allowing these procedures to be completed prior to GRDA's filing of the FLA undoubtedly will enhance the post-filing process and allow the Commission to render a final relicensing decision more quickly than the trajectory of the current relicensing process.

Although GRDA acknowledges that granting this Application would result in its filing of a FLA later than currently required, that does not indicate whether the overall proves will be delayed. Rather, the Commission should consider whether granting this Application would delay the entire process, i.e., a significant change to the ultimate milestone of a final Commission order on the FLA. In GRDA's judgment, the pre-filing procedures proposed in this Application—which are more robust than the ILP and beyond what FERC required in its Determination—would be far superior to the current licensing process. Relicensing participants will have more opportunities to work together in reviewing study results, consulting on potential solutions, and refining any remaining disagreements for Commission resolution than under the current process. Accordingly, GRDA is confident that the Commission's approval of this Application will not result in a significant change from the existing anticipated time of the Commission's decision on the FLA.

Indeed, regardless of whether the Commission grants this Application, the bathymetric survey—although already underway—is expected to take approximately two years to complete.[72] GRDA believes that relicensing participants' resources are far better

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[70] *Id.* § 5.16.

[71] *Id.* § 5.17.

[72] *See supra* Parts II.C and II.D.1; *see also* Townsend Aff. at ¶ 13 (included in Attachment F).

spent in in pre-filing activities during this interim time—such as strategically front-loading some studies and robust engagement on studies as they are actually being implemented—rather than engaging in a meaningless pre-filing process (because studies are incomplete or have yet to begin), followed by multiple supplements to the FLA. The approach proposed in this Application undoubtedly would shorten the post-filing process and likely allow the Commission to issue a relicensing order much sooner.

For these reasons, public interest considerations would be met by the Commission's extension of the current license term as requested in this Application.[73]

B. Proposed Relicensing Process Plan and Schedule

A driving factor for this Application is the structure of the Commission-approved study plan itself. Most of the studies that GRDA will be implementing—including the Infrastructure, Aquatic Species of Concern, Terrestrial Species of Concern, Wetlands and Riparian Habitat, and Cultural Resources Studies—depend on outputs from the H&H Study. These studies simply cannot be completed until the results of the H&H Study outputs are available. For this reason, these studies are not only delayed due to the anticipated schedule for the bathymetric survey, they require additional time—after the bathymetry is available, followed by completion of the CHM, and finally followed by the H&H Study outputs—before they can be completed.[74]

To account for these compounded delays, GRDA has developed a proposed relicensing process plan and schedule that would begin immediately in 2019 and allow

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[73] *See, e.g., City of River Falls*, 154 FERC ¶ 61,214, at P 4 n.6 (2016) (Explaining that, because section 6 of the FPA, 16 U.S.C. § 799, provides that licenses may be issued for a period not to exceed fifty years, "the Commission may extend a license term for a period no longer than fifty years from the date of issuance if it determines that such an extension is in the public interest.").

[74] Additional time will also be required to integrate the results of the bathymetric surveys to the H&H and STM and complete calibration. *See* Attachment B.

two years of study prior to the availability of the bathymetry, followed by an additional two years of study prior to the ISR. Following the ISR, the process would proceed as set forth in the Commission's ILP regulations, with GRDA filing its FLA by December 31, 2024. Attachment B provides an overall study timeline, with milestones for each study. Also, a proposed Revised Process Plan and Schedule for the ILP—which is intended to update the prior process plan and schedule filed by GRDA in the RSP[75]—appears in Attachment C.

GRDA's proposed Revised Process Plan and Schedule features the following significant benefits:

- Each Study Year is concurrent with the corresponding full calendar year, to avoid confusion and achieve consistency and administrative convenience throughout the process.

- Following each Study Year 1, 2, and 3, GRDA will engage resource agencies and other relicensing participants in discussing study results for the year, reviewing studies to be undertaken in the upcoming study year, and identifying on a consensus basis any appropriate refinements to study methods or scope based on fieldwork experience and/or early study results. The annual process will consist of the following:

    - By January 31 following the end of each Study Year 1, 2, and 3, GRDA will distribute an annual Progress Report to all relicensing participants, identifying the work completed on the FERC-approved study plan during the previous year. An outline of the expected contents of the Progress Report for each Study Year—customized to the work that is expected for each Commission-approved study during the Study Year—appears in Attachment D.

    - Within 15 days of distributing the Progress Report, GRDA will convene a teleconference (or in-person meeting, as appropriate), to answer any questions from relicensing participants; discuss preliminary study results; identify any variances from the FERC-approved study plan; and decide, on a consensus basis, whether any study refinements are necessary to meet study plan

[75] *See* RSP § 6.

objectives.[76]

- Within 15 days after the Progress Report meeting, GRDA will circulate meeting minutes to all relicensing participants, which will identify if a consensus exists to make refinements necessary to meet the FERC-approved study plan objectives.[77]

- Within 30 days after distribution of GRDA's meeting minutes, relicensing participants may circulate response comments.

- With regard to the Cultural Resources Study, GRDA will conduct significantly more fieldwork surveys and site evaluations during the pre-filing phase of the relicensing effort than what FERC approved in its Determination. To take advantage of the additional time while the bathymetric survey is underway:

  - GRDA will conduct a Traditional Cultural Properties study in Study Year 1, consistent with the process specified in section 2.6.5 of the Commission-approved study plan.[78] Also in Study Year 1, GRDA will conduct a focused, reconnaissance-level field study at high-priority sites (i.e., subject to looting, vandalism, or immediate erosion).

  - GRDA will conduct reconnaissance studies and site evaluations in each of Study Years 2 and 3, consistent with the process specified in sections 2.6.3 and 2.6.4 of the Commission-approved study plan.[79] Prior to commencing field work in Study Years 2 and 3, GRDA will conduct a pre-fieldwork meeting with the Cultural Resources Working Group (CRWG) each year to prioritize work, which may consist of reconnaissance-level work, National Register evaluations, or other activities prioritized during consultation with CRWG members.

  - Following the availability of the H&H Study outputs, GRDA will conduct an additional year of reconnaissance studies and site evaluations in Study Year 4, consistent with sections 2.6.3 and 2.6.4 of the Commission-approved study plan, including a pre-

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[76] These annual Progress Reports and teleconferences are in addition to (and will not substitute) the consultation meetings and reports that will be developed during the cultural resources investigations conducted each year under the Cultural Resources Study.

[77] All such refinements will be reported to the Commission as part of the ISR. *See* 18 C.F.R. § 5.15(c)(1) (requiring the ISR to include "an explanation of any variance from the study plan and schedule").

[78] *Id*.

[79] *See* RSP, Appendix A (Cultural Resources Study).

fieldwork meeting with CRWG members.[80]

- GRDA will prepare, in consultation with Native American Tribes, Oklahoma State Historic Preservation Offer, Oklahoma Archaeological Survey, and other members of the Cultural Resources Working Group, a Historic Properties Management Plan (HPMP) in Study Year 5, which will allow for a final HPMP to be included in GRDA's FLA.

- With regard to studies that require an evaluation of existing information prior to determining whether fieldwork will be needed,[81] GRDA will conduct this evaluation in Study Year 3, in preparation for prompt review and evaluation once the outputs of the H&H Study are expected (in Study Year 4).

- For the H&H Study, the annual Progress Reports for Study Years 1, 2, and 3 will replace the interim status reports identified in section 2.8 of the Commission-approved study plan.[82]

- For the STM Study, GRDA the Progress Reports for Study Years 1, 2, and 3 will provide GRDA an opportunity—not anticipated in the RSP—to provide updates on the status of this study. Moreover, because the STM was not part of GRDA's RSP but required by the Commission in its Determination,[83] for clarity GRDA has prepared a STM Study Plan, which appears at Attachment E. As required by the Commission's Determination, GRDA's STM Study Plan follows the STM Study Plan prepared and advocated by the City of Miami—but with additional fieldwork and monitoring enhancements originally proposed by GRDA.[84]

- For the Infrastructure Study, during Study Year 1, GRDA will develop a list of infrastructure types to be included in the infrastructure study, and during Study Year 2, GRDA will begin to map their locations. Though not required to do so by the Commission's Determination, GRDA will detail these efforts in the Progress Reports for Study Years 1, 2, and 3.

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80 *Id.*

81 These studies include Aquatic Species of Concern, Terrestrial Species of Concern, and Wetlands and Riparian Habitat.

82 *See* RSP, Appendix A (Hydrologic and Hydraulic Modeling Study).

83 *See* Determination at B-8 to B-9.

84 In its comments on the draft Application, the City of Miami raised several concerns related to GRDA's STM Study Plan. To address the City's comments, GRDA has made several changes to the STM Study Plan at Attachment E. These changes are explained in GRDA's responses to the City's comments in the Attachment I Record of Consultation.

In light of these benefits, necessitated by the anticipated timeframe for completion of the bathymetric survey, a revision to the ILP process plan and schedule is warranted. The Commission has previously authorized modifications to study schedules to accommodate unique circumstances and conduct more complete studies, just as GRDA has proposed here. In *American Hydro Power Co.*, Commission staff granted an extension of time for the licensee to commence a fish entrainment and mortality study due to a Commission-ordered project shutdown that prevented the project from operating during the time of the originally scheduled study.[85] There, Commission staff found that, because the project was not operating at the time originally scheduled for the study, the licensee's request to amend its study schedule was reasonable.[86] In another example, the Commission granted a licensee's request to postpone a blueback herring study and report following a series of flooding events that resulted in unfavorable study conditions.[87] In that case, Commission staff and other resource agencies agreed that it was appropriate to defer the study and report until flows were conducive for the species' out-migration.[88] In *TransCanada*, discussed above, Commission staff amended the schedule for the completion of proposed aquatic studies that were likely to be affected by the Vermont Yankee decommissioning, finding that "[i]t is not uncommon for studies conducted as part of an approved study plan in the ILP to be delayed because of anomalous environmental conditions or for other reasons."[89] Similarly, FERC has permitted the

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85 *American Hydro Power Co.*, 71 FERC ¶ 62,186 (1995).

86 *Id.*

87 *N.Y. Power Auth.*, 137 FERC ¶ 62,234 (2011).

88 *Id.*

89 *TransCanada Hydro Northeast Inc.*, 152 FERC ¶ 62,048, at PP 22-23 (2015).

modification of a study schedule to avoid both severe winter weather and summer periods of low flow where those conditions would impede study results.[90]

In each of these cases, the Commission or its staff has permitted study schedule modifications where doing so would result in more complete studies that accurately reflect the resource areas to be studied. In instances where a study performed as originally scheduled would not yield meaningful results, Commission staff has readily granted modifications to the study schedule.

Circumstances at the Pensacola Project merit the same result. GRDA acknowledges that the delays in relicensing are unfortunate. Given the uniqueness of this relicensing, however, the unanticipated delays due to the Commission's lack of a quorum and the bathymetric survey offer an opportunity for additional years of pre-filing studies and collaboration among relicensing participants. Armed with this information, GRDA, federal and state resource agencies, Native American Tribes, and stakeholders will be better informed of Project-related influences and effects. This, in turn, will help relicensing participants seek solutions together, or focus such issues for resolution by the Commission.

GRDA also acknowledges the concern—voiced by several relicensing participants when GRDA convened preliminary conversations regarding this Application—that an extension of the license term and process plan and schedule provides opportunities to defer and delay the relicensing process.[91] This is not GRDA's

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[90] *Town of Wells*, 64 FERC ¶ 61,357 (1993).

[91] *See, e.g.,* Letter from Jessie Durham, U.S. Dep't of Interior, Bureau of Indian Affairs, to Jacklyn Jaggars, GRDA at 1 (Apr. 15, 2019) ("[T]his extension should not be used as a means to delay the studies within the FERC Study Plan Determination."); City of Miami Comments at 6-7.

intent. To allay these concerns, GRDA has developed a clear—and significantly expanded—schedule for ongoing activities during each Study Year. This schedule requires extensive, sustained effort for each Study Year, with reporting, accountability, and the possibility of study plan refinement based on implementation experience following the conclusion of each Study Year and consensus of relicensing participants. GRDA believes strongly that this proposed Revised Process Plan and Schedule—coupled with the license term extension—will result in more informed decision making and offer opportunities for involvement and problem-solving that are absent from the current ILP schedule.

C. Request for Extension of Time to File Updated SMP

In 2013, the Commission staff approved, with modifications, GRDA's SMP.[92] This 2013 Order required that, within six years of the date of the order (i.e., by October 16, 2019), GRDA complete and file for Commission approval an updated SMP that includes, at a minimum: (1) provisions for quantifying the effects of permitted vegetation removal and mitigation of those effects, identifying existing wetlands potentially affected by proposed shoreline activities and evaluating their functions and values, identifying wildlife habitat potentially affected by proposed shoreline activities, assessing the probable effects of proposed activities, and addressing adverse effects on wildlife habitats from permitted activities and mitigation; (2) any other necessary modifications to the SMP; (3) a summary of the revisions to the approved SMP incorporated into the updated SMP; and (4) a plan and schedule for filing future updates to the SMP.[93]

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92 *Grand River Dam Auth.*, 145 FERC ¶ 62,041 (2013).

93 *Id.* (Ordering Paragraph (I)).

GRDA submits that integrating the updated SMP into the ongoing relicensing process offer several distinct benefits. First, GRDA's implementation of the existing SMP has been positive. While refinements will be needed as directed by the Commission in its 2013 order and based on GRDA's experience to date in implementing the existing SMP, there is no immediately pressing need to amend the SMP now.

Second, moving forward with an immediate amendment to the SMP now—during the pendency of relicensing—would duplicate and complicate efforts of Commission staff, resource agencies, and other interested parties, and create confusion regarding the various comment deadlines and participatory opportunities between the SMP amendment and the relicensing effort. In fact, Ordering Paragraph (I) of the 2013 Order requires GRDA, in developing the updated SMP, to consult with "the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers (USACE), Oklahoma Department of Wildlife and Conservation, Oklahoma Water Resources Board, Oklahoma Department of Environmental Quality, Oklahoma State Historic Preservation Office, and other appropriate agencies, tribes, and stakeholders."[94] These same entities are also participants in the ongoing relicensing effort. FERC does not favor requiring license compliance tasks that involve "duplicative and wasteful work," and here, it is hard to see how such efforts would be in the public interest.[95]

Third, integrating the SMP with the relicensing process will avoid a circumstance in which the Commission's near-term decision on the updated SMP could predetermine similar issues raised in the relicensing effort.

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[94] *Grand River Dam Auth.*, 145 FERC ¶ 62,041, (Ordering Paragraph (I)) (2013).

[95] *PacifiCorp*, 163 FERC ¶ 61,208 (2018).

Fourth, the FERC-approved relicensing study plan will help inform proposed modifications to the SMP. The majority of the studies planned for relicensing—Aquatic Species of Concern, Terrestrial Species of Concern, Wetlands and Riparian Habitat, Cultural Resources, and Recreation—are all relevant to the SMP.

Finally, good cause justifies extending the deadline for the SMP update and integrating it into the relicensing process. The Commission has found that, "to the extent a licensee seeks … to defer deadlines for compliance with the requirements of license articles, the appropriate remedy is for it to seek extensions of those deadlines."[96] It has also found that "[e]xtensions of time to comply with a license requirement are routinely granted, where the licensee demonstrates good cause."[97] The Commission routinely grants extensions of time to file revised SMPs and other types of compliance plans.[98] Indeed, it has done so for GRDA in the past to allow time for further consultation based on comments from resource agencies.[99] For another licensee, FERC staff granted an extension of time to file a revised SMP where the licensee was finalizing a process for using project boundary maps to revise its SMP and incorporate new information on threatened and endangered species and habitat.[100]

Here, because it is possible that relicensing study findings and alternatives that may be considered for Project use in the relicensing proceeding may require

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[96] *See, e.g., Loup River Pub. Power Dist.*, 161 FERC ¶ 61,292, at P 35 (2017); *Flambeau Hydro, LLC*, 113 FERC ¶ 61,291, at P 15 (2005); *Lind and Assoc.*, 66 FERC ¶ 61,352 (1994); *Mahoning Hydro Assoc.*, 56 FERC ¶ 61,138 (1991).

[97] 18 C.F.R. § 2008; *see, e.g., Bangor Hydro-Elec. Co.*, 87 FERC ¶ 61,035 at n. 7 (1999) (noting that the deferral of license deadlines, except the statutory deadline for commencement of project construction, is appropriately sought by a request for an extension of time, not a stay).

[98] *See, e.g., Eugene Water & Elec. Bd.*, 106 FERC ¶ 62,236 (2004).

[99] *See Grand River Dam Auth.*, Project No. 1494-348 (issued May 13, 2014).

[100] *Ala. Power Co.*, 134 FERC ¶ 62,289 (2011).

modifications to the SMP, it is appropriate to address this compliance matter in the pending relicensing proceeding. This will allow the Commission to review the SMP as part of its comprehensive analysis of the license application as required by the FPA.[101] For these reasons, GRDA requests an extension of time to align the filing of its updated SMP with the relicensing process plan and schedule.

D. Request for Extension of Time to File Revised Exhibit G

In a May 13, 2016 letter order, FERC staff granted GRDA an extension of time to file corrections to its Exhibit G drawings.[102] The corrections relate to addressing 164 second-priority project boundary discrepancies identified where the difference is less than 40 feet or where the area is above the 750-foot contour. Under that letter order, GRDA is to file revised Exhibit G drawings with its PLP or DLA on November 1, 2019.[103]

For the same reasons that justify integrating the SMP update into the relicensing process, good cause exists to extend this deadline and integrate these activities related to Exhibit G into the relicensing process. As GRDA explained in its RSP, the relicensing effort includes the development of a set of proposed Exhibit G maps that will be presented for the Commission's approval in the FLA.[104] Moreover, the H&H Study

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[101] 16 U.S.C. § 803(a).

[102] *See* Letter from Kelly Houff, FERC, to Tamara Jahnke, GRDA, Project No. 1494-355 (issued May 13, 2016).

[103] *Id.*; *see also Grand River Dam Auth.*, 156 FERC ¶ 61,106, at P 65 (2016) ("On March 6, 2014, GRDA filed its first set of corrections to its Exhibit G drawings. Those corrections were approved by Commission staff on November 13, 2014. With respect to the remaining corrections, Commission staff granted GRDA an extension of time that allows GRDA to file the remaining corrections to its Exhibit G drawings with its draft relicense application on November 1, 2019.").

[104] *See* RSP at 34-36; *see also* 18 C.F.R. § 5.18(a)(5)(iii).

outputs will help inform the proper placement of the Project boundary—consistent with historical and statutory requirements pertaining to the Project.[105] For other projects, Commission staff has granted multiple extensions of time to file revised Exhibit G maps to address discrepancies similar to those at issue at the Pensacola Project.[106] While GRDA still plans to file these corrections to the Exhibit G maps as part of its PLP/DLA, the date for that submission—consistent with the other requests in this Application—would shift to June 30, 2024.

IV. CONCLUSION

WHEREFORE, for the reasons discussed above—to which the GRDA subscribes and verifies as being factually true to the best of its knowledge as provided in Attachment K,[107]—GRDA respectfully requests that the Commission approve this Application by:

1. Extending the license term for the Pensacola Hydroelectric Project to December 31, 2026;

2. Approving the proposed Revised Process Plan and Schedule appearing in Attachment C of this Application, and issuing a notification to relicensing participants regarding this revision;

3. Amending the November 8, 2018, Study Plan Determination in the above-captioned proceeding as provided in this Application;[108]

4. Extending the deadline set forth in Ordering Paragraph (I) of the Commission's 2013 Order approving GRDA's SMP to December 31, 2024;[109]

5. Extending the deadline set forth in Commission staff's May 2016 letter

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[105] *See*, *e.g.*, RSP at 1-3, 29, 34-36.

[106] *See*, *e.g.*, *PacifiCorp*, 163 FERC ¶ 61,208 (2018) (granting stay of Commission's order Amending License and Deferring Consideration of Transfer Application, including a requirement to file Exhibit G maps, until such time as the Commission acts on PacifiCorp's requested license transfer).

[107] *See* 18 C.F.R. § 4.32(a)(4).

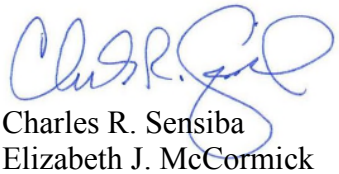
[108] The specific proposed changes to the Commission's Determination are listed *supra* Part I.4.c.

[109] *See Grand River Dam Auth.*, 145 FERC ¶ 62,041 (2013).

order to June 30, 2024; and[110]

6. Clarifying that GRDA need not re-file its notification of intent and pre-application document, even though the effect of granting this Application would establish a license term that is more than 5 and one-half years prior to expiration.[111]

Respectfully submitted,



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DATED: May 20, 2019

[110] *See* Letter from Kelly Houff, FERC, to Tamara Jahnke, GRDA, Project No. 1494-355 (issued May 13, 2016).

[111] 18 C.F.R. §§ 5.6(d), 5.6(a)(1).

Attachment A

GRDA Contract with U.S. Geological Survey Proposal for Bathymetric Survey

Form 9-1366
(May 2018)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR
Water Resource Investigations

Customer #: 6000001776
Agreement #: 19JFASH11
Project #: SH00AA5
TIN #: 73-6030343

Fixed Cost Agreement YES[X] NO[ ]

THIS AGREEMENT is entered into as of the February 1, 2019, by the U.S. GEOLOGICAL SURVEY, Oklahoma Water Science Center, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the Grand River Dam Authority party of the second part.

1. The parties hereto agree that subject to the availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation Water Resource Investigations (per attachment), herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50, and 43 USC 50b.

2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) include In-Kind-Services in the amount of $0.00

(a) $0 by the party of the first part during the period February 1, 2019 to June 30, 2020

(b) $426,000 by the party of the second part during the period February 1, 2019 to June 30, 2020

(c) Contributions are provided by the party of the first part through other USGS regional or national programs, in the amount of: $0

Description of the USGS regional/national program:

(d) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.

(e) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.

4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.

5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.

6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.

7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

8. The maps, records or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program, and if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at cost, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records or reports published by either party shall contain a statement of the cooperative relations between the parties. The Parties acknowledge that scientific information and data developed as a result of the Scope of Work (SOW) are subject to applicable USGS review, approval, and release requirements, which are available on the USGS Fundamental Science Practices website (https://www2.usgs.gov/fsp/).

Form 9-1366
(May 2018)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR
Water Resource Investigations

Customer #: 6000001776
Agreement #: 19JFASH11
Project #: SH00AA5
TIN #: 73-6030343

9. Billing for this agreement will be rendered **quarterly**. Invoices not paid within 60 days from the billing date will bear Interest, Penalties, and Administrative cost at the annual rate pursuant the Debt Collection Act of 1982, (codified at 31 U.S.C. § 3717) established by the U.S. Treasury.

USGS Technical Point of Contact

Name:	Jason Lewis Director
Address:	202 NW 66th Street Oklahoma City, OK 73116
Telephone:	(405) 810-4404
Fax:	(405) 843-7712
Email:	jmlewis@usgs.gov

Customer Technical Point of Contact

Name:	Darrell Townsend AGM Ecosystems/Lake Management
Address:	Grand River Dam Authority PO Box 409, Vinita 74301
Telephone:	918-256-5545
Fax:	918-256-0906
Email:	dtownsend@grda.copm

USGS Billing Point of Contact

Name:	Julie Murray Budget Analyst
Address:	202 NW 66th Street Oklahoma City, OK 73116
Telephone:	(405) 810-4423
Fax:	
Email:	jamurray@usgs.gov

Customer Billing Point of Contact

Name:	Christy Woodall
Address:	PO Box 409 Vinita , OK 74301
Telephone:	(918) 256-0659
Fax:	918-256-0659
Email:	cwoodall@grda.com

U.S. Geological Survey
United States
Department of Interior

Signature

By_____ **Date:** 01/22/2019
Name: Jason Lewis
Title: Director

Grand River Dam Authority

Signatures

By_____ **Date:** 1/25/19
Name: Daniel S. Sullivan
Title: Chief Executive Officer

By_____ **Date:** _____
Name:
Title:

By_____ **Date:** _____
Name:
Title:

GRAND RIVER DAM AUTHORITY
BOARD APPROVED
JAN 08 2019

Bathymetric Survey and Area Capacity Table for Grand Lake O' the Cherokees, Northeast, OK

A Project Proposal by the United States Geological Survey prepared for the Grand River Dam Authority

Photograph of Grand Lake from the Pensicola Dam

By J.M. Lewis, S.L. Hunter, K.A. Smith, and S.C. Bradford

November 14th, 2018

USGS science for a changing world

Summary

Grand Lake O' the Cherokees (Grand Lake) is located in northeastern Oklahoma, in Mayes, Delaware, and Ottawa Counties. Grand Lake dam started construction in 1935 and finished in 1940. Grand Lake covers approximately 41,779 acres and has beneficial uses of public and private water supply, hydropower, and recreation. The Grand Lake drainage area covers four states: Oklahoma, Kansas, Missouri, and Arkansas.

Bathymetric data can be used for a myriad of purposes ranging from determination of Elevation-Area-Capacity relations of a body of water, to sediment-deposition patterns. The objective of this project will be to conduct a complete bathymetric survey of Grand Lake. The collected data will then be converted to an Elevation-Area-Capacity table for the lake. Due to the importance of storage capacity, determination of the bathymetry of this lake is of primary importance. These data are critical for decision makers to better manage the day-to-day operations of the lake.

Problem

More accurate elevation data is needed for Grand Lake since the last bathymetric survey was completed almost 10 years ago (OWRB, 2009). Hydrographic survey data collected and converted into an Elevation-Area-Capacity table will provide better data to make informed decisions with regards to management of water volumes. Bathymetry data can then also be used in the calibration of possible future sedimentation studies for Grand Lake.

Objectives and Scope

The objectives of the proposed study are to:

1) Conduct a bathymetric survey (ideally done when lake is above normal pool elevation),
2) Construct a detailed bathymetry map of the lakes,

3) Using the gathered data, develop Elevation-Area-Volume tables for Grand Lake, and

4) Compare differences between this study and any previous studies done on these lakes.

Methods

The first step in developing a bathymetric map is to complete a reconnaissance survey. This survey is done to inspect lake conditions, determine navigational hazards and locate boat ramps. The lake is shown in Figure 1.

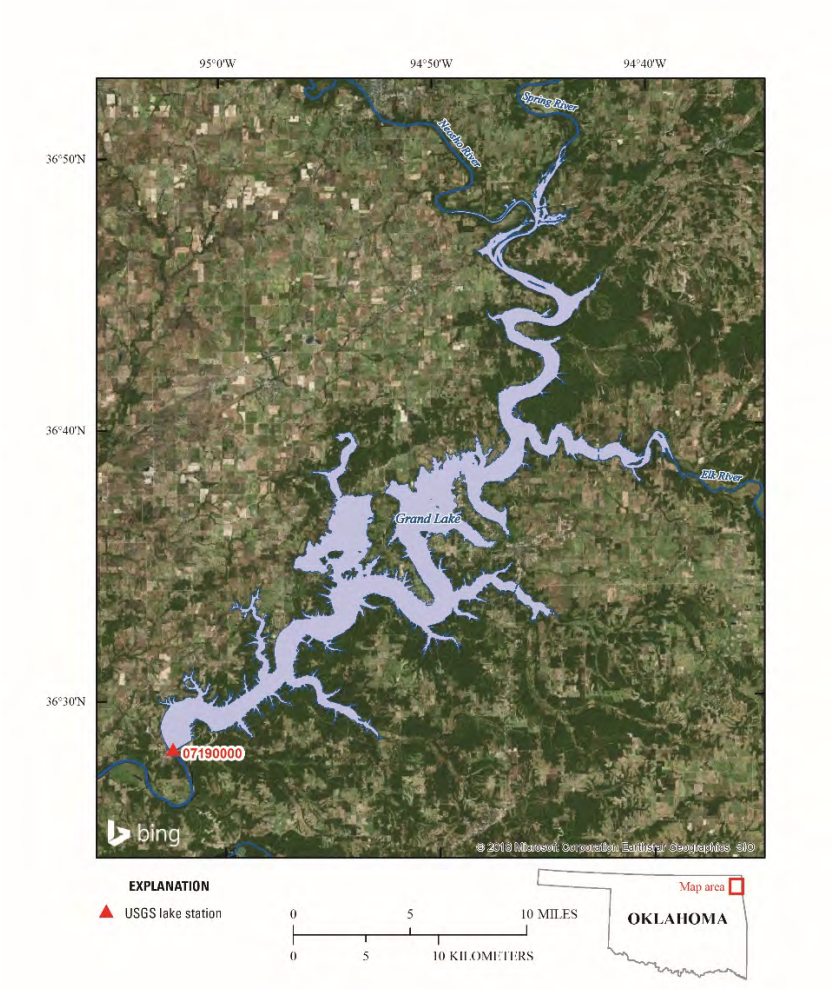

Figure 1. Map of Grand Lake O' the Cherokees, Northeast, Oklahoma, which is the location for the bathymetry data collection.

Following the reconnaissance survey, the data collection portion of this study will begin. Available digital Geographic Information System (GIS) files such as topographic maps, lake shoreline and aerial photographs will be compiled to provide base maps for the survey crew.

Survey

Surface positioning will be performed by a Differential Global Positioning System (DGPS) using real-time kinematic (RTK) surveying techniques to establish benchmarks. Positioning will be done using Trimble R8 equipment and known control points, which will yield estimated resolution of 0.1 feet or better. A dual-head Teledyne-Reson SeaBat T20-P high-resolution multibeam sonar will be used for this survey. Hypack HYSWEEP software will be used for data collection and initial processing (HYPACK, 2018). Positioning and sounding data will be collected and stored electronically at the minimum rate of four measurements per second, with a maximum spacing of 5 feet. The data will be referenced in Oklahoma State Plane Coordinate System, South Zone, North American Datum of 1983 (NAD83) with elevations referenced to North American Vertical Datum of 1988 (NAVD88). Survey lines will be spaced at approximately 200 feet, and will extend as near to the shore as safety and equipment limitations permit. Bar checks, or equivalent quality control, as well as latency checks of the GPS system will be performed daily. The surveys will be coordinated with Grand River Dam Authority so they can be performed when pool elevations are at or above desired elevations. The survey will require about 9 months of on-lake data acquisition. Survey data will be backed up and processed daily to insure against loss of data and ensure quality and integrity.

Data Processing

Hypack HYSWEEP software will be used for data collection and initial processing. After the initial collection storage and review process, the point data will then be input into GIS for analysis. A digital elevation model (DEM) of the lake bottom will be mathematically interpolated between collected data points by accepted engineering practices (U.S. Army Corps of Engineers, 2002), and will constitute a

mathematical estimate of the actual bottom. The DEM will then be used to develop contours at 2-ft intervals. Elevation-Area-Capacity tables (NAVD88) will be developed for 0.1 ft increments.

Data Management

All metadata for the project will be collected and furnished with the final map report. The map report shall include, but not be limited to, the following sections:

- Historical/Location project information,
- Survey procedures,
- GIS processing,
- Model boundary data,
- GPS measurement reports,
- Elevation-Area-Capacity tables and graphs (in NAVD88 and NGVD29)
- Maps showing the bathymetric DEM and contours.

Digital files of collected data shall include, but not be limited to, the following:

- Location of survey lines,
- Hypack project files,
- Survey notes,
- XYZ point file in shapefile format,
- All digital data and maps in GIS-readable format.

A copy of the report text, digital data, and elevation-area-capacity data will be made available to the cooperator for review and comment. Any questions regarding accuracy should be addressed in writing within 30 days, and will be addressed in the report. The approved final report will be published as a poster-format USGS Scientific Investigations Map (SIM).

Relevance and Benefits

The proposed project will provide the Grand River Dam Authority with information to better define

and manage areas of Grand Lake. The information will assist the Grand River Dam Authority by providing: (1) a bathymetric map of each lake, (2) an Elevation-Area-Capacity table for each of the lakes, and (3) a tool for water management decision making.

Quality-Assurance

Elevations and model calculations will be determined using USGS protocols (Wilson, 2006) and resulting data and the map report will be colleague reviewed by agency experts.

Products

A USGS Scientific Investigations Map summarizing results will be published online. A written draft report will be delivered to the Grand River Dam Authority for comments by March 31st, 2019. The USGS published map report will be available June 30st, 2020. The GIS data and metadata for the XYZ points and derived elevation contour lines will also be published as a data release on Science Base (http://www.sciencebase.gov). Written quarterly progress reports will be delivered to the Grand River Dam Authority.

References

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Attachment B

Study Schedule Matrix for Expanded Study Program Timeframe

ATTACHMENT B

Pensacola Project Relicensing - Study Schedule Matrix for Expanded Study Program Timeframe

Dependent on modeling results

Expected study activity

	Study Year 1 (Calendar Year 2019)		Study Year 2 (Calendary Year 2020)		Study Year 3 (Calendar Year 2021)		Study Year 4 (Calendar Year 2022)		Study Year 5 (Calendar Year 2023)		Prepare DLA (Mar-Jun 2024)		Prepare FLA (Jul-Dec 2024)	
Bathymetry	USGS work	Progress Report (Jan 31, 2020)	USGS work	Progress Report (Jan 31, 2021)	USGS work	Progress Report (Jan 31, 2022)		ISR (Jan 31, 2023)		USR (Jan 31, 2024)		Draft License Application (June 30, 2024)		Final License Application (Dec 31, 2024)
Hydraulic & Hydrologic Modeling	Use Tetra Tech's model as basis for CHM: add tributaries, add 2D flow areas Draft flood freq. analysis & proposed inflow events Begin ops model dev (historic only)		Validate historic ops model w/Riverware Final FF analysis and inflow events		Integrate bathymetry Calibration		Model runs ISR Report		ISR process Model runs (as needed) USR Report		USR process Model runs (as needed) DLA prep		DLA comment response Run scenarios (as needed) FLA prep	
Sediment Transport Model	Fieldwork, data analysis Set up HEC-RAS 1-D STM with past bathymetry, begin calibration process - coordinate hydraulic model w/o bridge routines with hydraulic model w/bridge routines		Fieldwork, data analysis STM calibration (past bathymetry) and evaluation Calibration report		Integrate 2019/2020 bathymetry Develop future conditions bathymetry by running 50-year synthetic hydrology Coordinate with H&H Study Validate model, develop model scenarios		Run scenarios Run STM (with new bathymetry) using selected model scenarios ISR Report		ISR process Study results USR Report		USR process Run scenarios (as needed) DLA prep		DLA comment response Run scenarios (as needed) FLA prep	
Infrastructure	Develop infrastructure list		Map infrastructure locations		Incorporate comments on list and mapped locations		Prepare analysis ISR Report		None (1-yr study)		DLA prep		DLA comment response FLA prep	
Aquatics					Review existing information		H&H analysis ISR Report		Potential field work USR Report		USR process DLA prep		DLA comment response FLA prep	
Terrestrial - ABB					Review existing information		H&H analysis Field work ISR Report		Field work USR Report		USR process DLA prep		DLA comment response FLA prep	
Terrestrial - Bats					Review existing information		H&H analysis Field work ISR Report		Potential field work USR Report		USR process DLA prep		DLA comment response FLA prep	
Wetlands					Review existing information		H&H analysis ISR Report		Potential field work USR Report		USR process DLA prep		DLA comment response FLA prep	
Recreation							Field work Infrastructure assessment ISR Report		None (1-yr study)		DLA prep		DLA comment response FLA prep	
Cultural	TCP Study High-priority reconnaissance		Reconnaissance study and site evaluations		Reconnaissance study and site evaluations		H&H analysis reconnaissance and site evaluations ISR Report		Potential field work Draft and Final HPMP USR Report		USR process DLA prep		DLA comment response FLA prep	
Socioeconomics							Analysis ISR Report		None (1-yr study)		DLA prep		DLA comment response FLA prep	
Shoreline Management Plan Update							Stakeholder meetings Draft SMP ISR Report		Further Stakeholder meetings Final SMP USR Report		USR process DLA prep		DLA comment response FLA prep	
Exhibit G Map Updates											DLA prep		DLA comment response FLA prep	

Attachment C

Proposed Revised Process Plan and Schedule (Clean and Redline Versions)

ATTACHMENT C

Revised Process Plan and Schedule
for the ILP Relicensing of
the Pensacola Hydroelectric Project

This process plan replaces the process plan included
in section 6 of GRDA's Revised Study Plan filed on September 24, 2018.

Shading Guide:

Green	Milestone complete
Orange	Proposed enhanced procedures
Blue	Requested waiver/extension of ILP milestones

18 C.F.R.	Lead	Activity	Timeframe	Deadline
§ 5.5(a)	GRDA	Filing of NOI and PAD	Actual filing date	2/1/2017
§ 5.7	FERC	Initial Tribal Consultation Meeting	Waived	2/13/2018, 12/14/2018
§5.8	FERC	FERC Issues Notice of Commencement of Proceeding and SD1	Waived	1/12/2018
§5.8(b)(3)(viii)	FERC/Relicensing Participants	Public Scoping Meetings and Environmental Site Review	Within 30 days of NOI and PAD notice and issuance of SD1	Week of 2/5/2018
§ 5.9	Relicensing Participants/FERC	File Comments on PAD, SD1, and Study Requests	Within 60 days of NOI and PAD notice and issuance of SD1	3/13/2018
§5.10	FERC	FERC Issues Scoping Document 2 (SD2), if necessary	Within 45 days of deadline for filing comments on SD1	4/27/2018
§5.11(a)	GRDA	File Proposed Study Plans	Within 45 days of deadline for filing comments on SD1	4/27/2018
§5.11(e)	GRDA/Relicensing Participants	Study Plan Meetings	Within 30 days of deadline for filing Proposed Study Plans	Week of 5/21/2018
§5.12	Relicensing Participants	File Comments on Proposed Study Plan	Within 90 days after Proposed Study Plan is filed	7/26/2018
§5.13(a)	GRDA	File Revised Study Plan	Within 30 days following the deadline for filing comments on Proposed Study Plan	9/24/2018
§5.13(b)	Relicensing Participants	File Comments on Revised Study Plan (if necessary)	Within 15 days following Revised Study Plan	10/24/2018
§5.13(c)	FERC	FERC Issues Study Plan Determination	Within 30 days following Revised Study Plan	11/8/2018

18 C.F.R.	Lead	Activity	Timeframe	Deadline
§5.14(a)	Mandatory Conditioning Agencies	Notice of Formal Study Dispute (if necessary)	Within 20 days of Study Plan Determination	11/28/2018
§5.14(l)	FERC	Study Dispute Determination	Within 70 days of notice of formal study dispute	2/6/2019
N/A	GRDA	Conduct Study Year 1	Calendar Year 2019	12/31/2019
N/A	GRDA	Distribute Study Year 1 Progress Report	One month following end of Study Year 1	1/31/2020
N/A	GRDA/Relicensing Participants	Study Year 1 Progress Report Meeting	Within 15 days of Study Year 1 Progress Report	2/15/2020
N/A	GRDA	Distribute meeting summary for Study Year 1 Progress Report Meeting	Within 15 days of Study Year 1 Progress Report Meeting	3/1/2020
N/A	Relicensing Participants	Comments on Study Year 1 Progress Report and Study Year 1 Progress Report Meeting	Within 30 days of GRDA's meeting summary	3/31/2020
N/A	GRDA	Conduct Study Year 2	Calendar Year 2020	12/31/2021
N/A	GRDA	Distribute Study Year 2 Progress Report	One month following end of Study Year 2	1/31/2021
N/A	GRDA/Relicensing Participants	Study Year 2 Progress Report Meeting	Within 15 days of Study Year 2 Progress Report	2/15/2021
N/A	GRDA	Distribute meeting summary for Study Year 2 Progress Report Meeting	Within 15 days of Study Year 2 Progress Report Meeting	3/2/2021
N/A	Relicensing Participants	Comments on Study Year 2 Progress Report and Study Year 2 Progress Report Meeting	Within 30 days of GRDA's meeting summary	4/1/2021
N/A	GRDA	Conduct Study Year 3	Calendar Year 2021	12/31/2021
N/A	GRDA	Distribute Study Year 3 Progress Report	One month following end of Study Year 3	1/31/2022
N/A	GRDA/Relicensing Participants	Study Year 3 Progress Report Meeting	Within 15 days of Study Year 3 Progress Report	2/15/2022
N/A	GRDA	Distribute meeting summary for Study Year 3 Progress Report Meeting	Within 15 days of Study Year 3 Progress Report Meeting	3/2/2022
N/A	Relicensing Participants	Comments on Study Year 3 Progress Report and Study Year 3 Progress Report Meeting	Within 30 days of GRDA's meeting summary	4/1/2022
§5.15(a)	GRDA	Conduct Study Year 4 (i.e., ILP "First Season" Field Studies)	Waived; Calendar Year 2022	12/31/2022
§5.15(c)(1)	GRDA	File Initial Study Reports	Waived	1/31/2023
§5.15(c)(2)	GRDA	Initial Study Results Meeting	Within 15 days of Initial Study Report	2/15/2023
§5.15(c)(3)	GRDA	File Study Results Meeting Summary	Within 15 days of Study Results Meeting	3/2/2023
§5.15(c)(4)	Relicensing Participants/ FERC	File Meeting Summary Disagreements/Modification to Study / Requests for New Studies	Within 30 days of filing Meeting Summary	4/1/2023[1]
§5.15(c)(5)	GRDA	File Responses to Disagreements / Modification / New Study Requests	Within 30 days of disputes	5/2/2023[1]

18 C.F.R.	Lead	Activity	Timeframe	Deadline
§5.15(c)(6)	FERC	Resolution of Disagreements / Study Plan Determination (if necessary)	Within 30 days of filing responses to disputes	5/31/2023[1]
§5.15	GRDA	Conduct Study Year 5 (i.e., ILP "Second Season" Field Studies)	Waived; Calendar Year 2023	12/31/2023
§5.15(f)	GRDA	File Updated Study Reports	Waived	1/31/2024
§5.15(c)(2)	GRDA	Second Study Results Meeting	Within 15 days of Updated Study Report	2/15/2024
§5.15(c)(3)	GRDA	File Study Results Meeting Summary	With 15 days of Study Results Meeting	3/2/2024
§5.15(c)(4)	Relicensing Participants/FERC	File Meeting Summary Disagreements / Modification to Study / Requests for New Studies	Within 30 days of filing Meeting Summary	4/1/2024[1]
§5.15(c)(5)	GRDA	File Responses to Disagreements / Modification / New Study Requests	Within 30 days of disputes	5/1/2024[1]
§5.15(c)(6)	FERC	Resolution of Disagreements / Study Plan Determination (if necessary)	Within 30 days of filing responses to disagreements	5/31/2024[1]
§5.16(a)	GRDA	File Preliminary Licensing Proposal (or Draft License Application) with FERC and distribute to relicensing participants	Not later than 150 days before Final License Application is filed	6/30/2024
§5.16(e)	FERC/Relicensing Participants	Comments on GRDA Preliminary Licensing Proposal, Additional Information Request (if necessary)	Within 90 days of filing Preliminary Licensing Proposal (or Draft License Application)	9/28/2024
§5.17(a)	GRDA	License Application Filed	No later than 2 years prior to license expiration	12/31/2024

Note:
1. This milestone is unnecessary if there are no study disputes.

~~Table 6.1-1.~~ ATTACHMENT C

Revised Process Plan and Schedule for the ILP Relicensing of the Pensacola Hydroelectric Project

This process plan ~~and schedule.~~[1] replaces the process plan included in section 6 of GRDA's Revised Study Plan filed on September 24, 2018.

Shading Guide:

Green	Milestone complete
Orange	Proposed enhanced procedures
Blue	Requested waiver/extension of ILP milestones

18 C.F.R.	Lead	Activity	Timeframe	Deadline
§ 5.5(a)	GRDA	Filing of NOI and PAD	Actual filing date	2/1/2017
§ 5.7	FERC	Initial Tribal Consultation Meeting	Waived	2/13/2018, 12/14/2018
§5.8	FERC	FERC Issues Notice of Commencement of Proceeding and SD1	Waived	1/12/2018
§5.8(b)(3)(viii)	FERC/Relicensing Participants	Public Scoping Meetings and Environmental Site Review	Within 30 days of NOI and PAD notice and issuance of SD1	Week of 2/5/2018
§ 5.9	Relicensing Participants/FERC	File Comments on PAD, SD1, and Study Requests	Within 60 days of NOI and PAD notice and issuance of SD1	3/13/2018
§5.10	FERC	FERC Issues Scoping Document 2 (SD2), if necessary	Within 45 days of deadline for filing comments on SD1	4/27/2018
§5.11(a)	GRDA	File Proposed Study Plans	Within 45 days of deadline for filing comments on SD1	4/27/2018
§5.11(e)	GRDA/Relicensing Participants	Study Plan Meetings	Within 30 days of deadline for filing Proposed Study Plans	Week of 5/21/~~2018~~[2]2018
§5.12	Relicensing Participants	File Comments on Proposed Study Plan	Within 90 days after Proposed Study Plan is filed	7/26/2018
§5.13(a)	GRDA	File Revised Study Plan	Within 30 days following the deadline for filing comments on Proposed Study Plan	9/24/~~2018~~[3]2018

18 C.F.R.	Lead	Activity	Timeframe	Deadline
§5.13(b)	Relicensing Participants	File Comments on Revised Study Plan (if necessary)	Within 15 days following Revised Study Plan	10/24/~~2018~~[3]2018
§5.13(c)	FERC	FERC Issues Study Plan Determination	Within 30 days following Revised Study Plan	11/8/2018
§5.14(a)	Mandatory Conditioning Agencies	Notice of Formal Study Dispute (if necessary)	Within 20 days of Study Plan Determination	11/28/2018
§5.14(l)	FERC	Study Dispute Determination	Within 70 days of notice of formal study dispute	2/6/2019
N/A	GRDA	Conduct Study Year 1	Calendar Year 2019	12/31/2019
N/A	GRDA	Distribute Study Year 1 Progress Report	One month following end of Study Year 1	1/31/2020
N/A	GRDA/Relicensing Participants	Study Year 1 Progress Report Meeting	Within 15 days of Study Year 1 Progress Report	2/15/2020
N/A	GRDA	Distribute meeting summary for Study Year 1 Progress Report Meeting	Within 15 days of Study Year 1 Progress Report Meeting	3/1/2020
N/A	Relicensing Participants	Comments on Study Year 1 Progress Report and Study Year 1 Progress Report Meeting	Within 30 days of GRDA's meeting summary	3/31/2020
N/A	GRDA	Conduct Study Year 2	Calendar Year 2020	12/31/2021
N/A	GRDA	Distribute Study Year 2 Progress Report	One month following end of Study Year 2	1/31/2021
N/A	GRDA/Relicensing Participants	Study Year 2 Progress Report Meeting	Within 15 days of Study Year 2 Progress Report	2/15/2021
N/A	GRDA	Distribute meeting summary for Study Year 2 Progress Report Meeting	Within 15 days of Study Year 2 Progress Report Meeting	3/2/2021
N/A	Relicensing Participants	Comments on Study Year 2 Progress Report and Study Year 2 Progress Report Meeting	Within 30 days of GRDA's meeting summary	4/1/2021
N/A	GRDA	Conduct Study Year 3	Calendar Year 2021	12/31/2021
N/A	GRDA	Distribute Study Year 3 Progress Report	One month following end of Study Year 3	1/31/2022
N/A	GRDA/Relicensing Participants	Study Year 3 Progress Report Meeting	Within 15 days of Study Year 3 Progress Report	2/15/2022

18 C.F.R.	Lead	Activity	Timeframe	Deadline
N/A	GRDA	Distribute meeting summary for Study Year 3 Progress Report Meeting	Within 15 days of Study Year 3 Progress Report Meeting	3/2/2022
N/A	Relicensing Participants	Comments on Study Year 3 Progress Report and Study Year 3 Progress Report Meeting	Within 30 days of GRDA's meeting summary	4/1/2022
§5.15(a)	GRDA	Conduct Study Year 4 (i.e., ILP "First Season" Field Studies)	~~November 2018 - September 2019~~Waived; Calendar Year 2022	12/31/2022
§5.15(c)(1)	GRDA	File Initial Study Reports	~~No later than one year from Study Plan approval~~Waived	~~11/8/2018~~1/31/2023
§5.15(c)(2)	GRDA	Initial Study Results Meeting	Within 15 days of Initial Study Report	~~11/23/2019~~2/15/2023
§5.15(c)(3)	GRDA	File Study Results Meeting Summary	Within 15 days of Study Results Meeting	~~12/8/2019~~3/2/2023
§5.15(c)(4)	Relicensing Participants/ FERC	File Meeting Summary Disagreements/Modification to Study / Requests for New Studies	Within 30 days of filing Meeting Summary	4/1/~~7/2020~~2023[1]
§5.15(c)(5)	GRDA	File Responses to Disagreements / Modification / New Study Requests	Within 30 days of disputes	5/2/~~6/2020~~2023[1]
§5.15(c)(6)	FERC	Resolution of Disagreements / Study Plan Determination (if necessary)	Within 30 days of filing responses to disputes	~~3/7/2020~~5/31/2023[1]
§5.15	GRDA	Conduct Study Year 5 (i.e., ILP "Second Season" Field Studies)	~~November 2019 - September 2020~~Waived; Calendar Year 2023	12/31/2023
§5.15(f)	GRDA	File Updated Study Reports	~~No later than two years from Study Plan approval~~Waived	~~11/8/2020~~1/31/2024
§5.15(c)(2)	GRDA	Second Study Results Meeting	Within 15 days of Updated Study Report	~~11/23/2020~~2/15/2024
§5.15(c)(3)	GRDA	File Study Results Meeting Summary	With 15 days of Study Results Meeting	~~12/8/2020~~3/2/2024
§5.15(c)(4)	Relicensing Participants/FERC	File Meeting Summary Disagreements / Modification to Study / Requests for New Studies	Within 30 days of filing Meeting Summary	4/1/~~7/2021~~2024[1]
§5.15(c)(5)	GRDA	File Responses to Disagreements / Modification / New Study Requests	Within 30 days of disputes	~~2/6/2021~~5/1/2024[1]

18 C.F.R.	Lead	Activity	Timeframe	Deadline
§5.15(c)(6)	FERC	Resolution of Disagreements / Study Plan Determination (if necessary)	Within 30 days of filing responses to disagreements	~~3/8/2021~~5/31/2024[1]
§5.16(a)	GRDA	File Preliminary Licensing Proposal (or Draft License Application) with FERC and distribute to relicensing participants	Not later than 150 days before Final License Application is filed	~~11/3/2019~~[4]6/30/2024
§5.16(e)	FERC/Relicensing Participants	Comments on GRDA Preliminary Licensing Proposal, Additional Information Request (if necessary)	Within 90 days of filing Preliminary Licensing Proposal (or Draft License Application)	~~2/3/2020~~[4]9/28/2024
§5.17(a)	GRDA	License Application Filed	No later than 2 years prior to license expiration	~~3~~12/31/~~2020~~[4]2024

~~Notes~~Note:

1. ~~Shaded milestones are~~This milestone is unnecessary if there are no study disputes.

~~2. Due to an unavoidable conflict identified by the Tribes the week of May 21, the PSP meeting was scheduled for the week of May 28 (see Section 1.6 of this RSP for details).~~

~~3. Due to scheduling of an additional tribal consultation meeting on August 21, pursuant to FERC's August 10, 2018 Notice of Modification of Procedural Schedule, the RSP deadline was revised to September 24, 2018,and the RSP comment deadline to October 24, 2018, with 45 days added to all subsequent deadlines.~~

~~4. Because of delay caused by ILP abeyance, these deadlines fall before completion of the ILP pre-filing milestones required by § 5.15 of FERC's regulations.~~

Attachment D

Proposed Summary of Annual Progress Reporting

ATTACHMENT D

Proposed Enhanced Progress Reporting
for the ILP Relicensing of
the Pensacola Hydroelectric Project

Year 1 Progress Report
Due January 31, 2020

1. Bathymetric Survey:
    - Ongoing status of USGS progress.
2. Hydraulic and Hydrologic Modeling:
    - Summary of updates to the Tetra Tech model, including additional tributaries.
    - Draft flood frequency analysis and presentation of proposed inflow events.
3. Sedimentation Transport Modeling:
    - Documentation of historic sediment accumulation/erosion analysis from previously-collected bathymetric data.
    - Summary report of field data and all relevant analyses completed in 2019.
    - Summary of modeling efforts and calibration of STM.
4. Infrastructure:
    - Present list of infrastructure types to be analyzed.
5. Cultural Resources:
    - Summary of Traditional Cultural Properties study.
    - Summary of the Study Year One Reconnaissance Survey Report in high-priority sites.

Year 2 Progress Report
Due January 31, 2021

1. Bathymetric Survey:
    - Ongoing status of USGS progress.
    - Expected date of final deliverable.
2. Hydraulic and Hydrologic Modeling:
    - Documented development of historic operations model and presentation of historic operations model validation.
    - Results of flood frequency analysis and finalized selection of inflow events.
3. Sedimentation Transport Modeling:
    - Summary of all field data and relevant analyses.
    - Summary of 50-year synthetic hydrograph.
    - Report detailing model calibration/validation progress.
4. Infrastructure:
    - Present map of infrastructure locations.
5. Cultural Resources:
    - Summary of the Study Year Two Reconnaissance Survey Report and an Intensive Survey Report on study activities conducted through September 2020, including the status of the shoreline survey, number of previously identified sites revisited, number of new sites identified, and the number of intensive surveys completed.

Year 3 Progress Report
Due January 31, 2022

1. Bathymetric Survey:
    - Final deliverable and accompanying data. (GRDA will distribute final dataset to interested stakeholders immediately after GRDA receives it from USGS.)
2. Hydraulic and Hydrologic Modeling:
    - Discussion of model edits based on integrated bathymetry.
    - Discussion of calibration efforts to date.
3. Sedimentation Transport Modeling:
    - Report detailing model calibration with 2019-20 bathymetry implementation. 0
    - Summary of bathymetry data generation process using STM and 2019-20 bathymetry.
    - Summary of proposed model scenarios.
4. Infrastructure:
    - Present revised infrastructure list and map, incorporating stakeholder comments.
5. Cultural Resources:
    - Summary of the Study Year Three Reconnaissance Survey Report and an Intensive Survey Report on study activities conducted through September 2020, including the status of the shoreline survey, number of previously identified sites revisited, number of new sites identified, and the number of intensive surveys completed.
6. Aquatics:
    - Results of existing information review, including existing data files generated by ODWC during the development of its *Benthic Habitat Mapping of Grand Lake Tributaries as it Relates to Paddlefish Recruitment* study, and distributions, ecological requirements, habitat preferences and life-histories for the Neosho madtom, Neosho smallmouth bass, and Neosho mucket.
7. Terrestrial:
    - GRDA anticipates providing a summary of any new, relevant material related to the American burying beetle, gray bat, and northern long-eared bat, including a summary of the results of any surveys conducted in the Project vicinity.
8. Wetlands:
    - Results of existing information review, including a wetlands base map, developed in GIS, using source data from the National Wetlands Inventory and GRDA's Shoreline Management Plan (and potentially other resources), of wetland cover types in the Project study area.

Attachment E

Sediment Transport Model Study Plan

Pensacola Hydroelectric Project, FERC No. 1494

Study Plan

Sediment Transport Model

Prepared for

Prepared by

freshwatereng.com

rksimons.com

meadhunt.com

February 2019

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

1-D.....One-Dimensional
2-D.....Two-Dimensional
ADCP .....Acoustic Doppler Current Profiler
CHM .....Comprehensive Hydraulic Model
FERC.....Federal Energy Regulatory Commission
GRDA .....Grand River Dam Authority
H&H Study.....Hydrologic and Hydraulic Modeling Study
HEC-RAS .....Hydraulic Engineering Center's River Analysis System
OWRB .....Oklahoma Water Resources Board
Project .....Pensacola Hydroelectric Project
RSP .....Revised Study Plan
SD1 .....Scoping Document 1
SSC .....Suspended Sediment Concentration
STM.....Sediment Transport Model
USACE .....U.S. Army Corps of Engineers
USGS .....U.S. Geological Survey

1. INTRODUCTION

The Pensacola Hydroelectric Project (Project), owned and operated by the Grand River Dam Authority (GRDA), is licensed by the Federal Energy Regulatory Commission (FERC or Commission) as Project No. 1494. GRDA is a non-appropriated agency of the State of Oklahoma, created by the Oklahoma legislature in 1935 to be a "conservation and reclamation district for the waters of the Grand River." As licensed by FERC, the Project serves multiple purposes, including hydropower generation, water supply, public recreation, and wildlife enhancement. As directed by Congress under the Flood Control Act of 1944, 58 Stat. 887, 890-91, the U.S. Army Corps of Engineers (USACE) has exclusive jurisdiction over Grand Lake for flood control purposes.

FERC's January 12, 2018 Scoping Document 1 (SD1) identified the following resource issue to be analyzed for Project relicensing:

- Effects of Project operations on sedimentation within the Project boundary.

On September 7, 2018, GRDA filed with the Commission a Revised Study Plan (RSP) that included a Sedimentation Study Plan. On November 8, 2018, the Commission issued its Study Plan Determination (SPD), which included a recommendation that GRDA develop a sediment transport model (STM), using the Hydraulic Engineering Center's River Analysis System (HEC-RAS), as recommended by the City of Miami, Oklahoma. This STM Study Plan has been developed to adopt the Commission's recommendation in the SPD and provide "*a more clear, comprehensive, standardized and accurate approach to adequately understand the potential effects of the project on sediment transport processes upstream." (*FERC November 8, 2018, Page B-9).

2. STUDY PLAN ELEMENTS

2.1 Study Goals and Objectives

The goal of the STM Study Plan is to investigate the overall trends and consequences of sedimentation within the Project Boundary. Specifically, this study will determine the amount of sedimentation that has occurred in the reservoir since construction of Pensacola Dam; evaluate sediment transport, erosion, and deposition in Grand Lake and its tributaries; characterize the impact of any sedimentation that has occurred in the reservoir since the construction of Pensacola Dam; and characterize the impact that any sedimentation may have on flood extents and duration in upstream tributaries.

This study is intended to provide the understanding needed to assess sedimentation and sediment transport within the Project boundaries. While GRDA recognizes that there are numerous issues concerning flooding and sediments within the Grand Lake watershed (particularly concerning contaminated sediments, see Smith, 2016 and others), a broader study is prudent to understand the overall characteristics of sedimentation and sediment transport within Project boundaries. Any detailed investigation of these complex processes will be greatly aided by the data gathered and sediment transport model developed as part of this study.

Sedimentation occurs as a result of the complex interaction among: (1) hydrology; (2) erosion processes from upstream watersheds and rivers; (3) the tendency for sediment deposition in a reservoir as affected by reservoir operation; and (4) the related effects on hydraulics and sediment transport processes in rivers as they approach and transition into a reservoir. In order to develop an understanding of these complex processes, a variety of tools and techniques are available, ranging from data collection and analysis to computer modeling. Over years of experience in conducting sedimentation studies, Simons and Simons developed a three-level approach to understanding these complex processes (1997).

Qualitative geomorphic analysis is the first level of a three-level process developed by Simons & Associates incorporating: qualitative geomorphic analysis, quantitative engineering and geomorphic analysis, and quantitative computer modeling analysis (Figure 2.1-1). This approach ensures a proper understanding of physical processes governing the flow of water, transport of sediment, river response, and interaction with infrastructure is developed, and that mutually supportive, scientifically justifiable results are obtained. Each subsequent level of analysis builds on the understanding developed by the previous level. Any inconsistencies are reconciled so as to arrive at mutually supportive conclusions. A significant benefit of this approach is that the qualitative geomorphic level of analysis provides an understandable basis for more technical, complex analyses serving as a foundation for understanding and communication as other levels of analysis are conducted. This approach ensures that an appropriate understanding of the watershed and river is developed as they interact together as a system. It also ensures that important governing geomorphic principles are considered and that the results of more technical and detailed analyses are consistent with these universal principles.

Each level of analysis builds on a foundation from the previous level(s) and corroboration or validation between levels improves confidence in the results of the overall analysis.

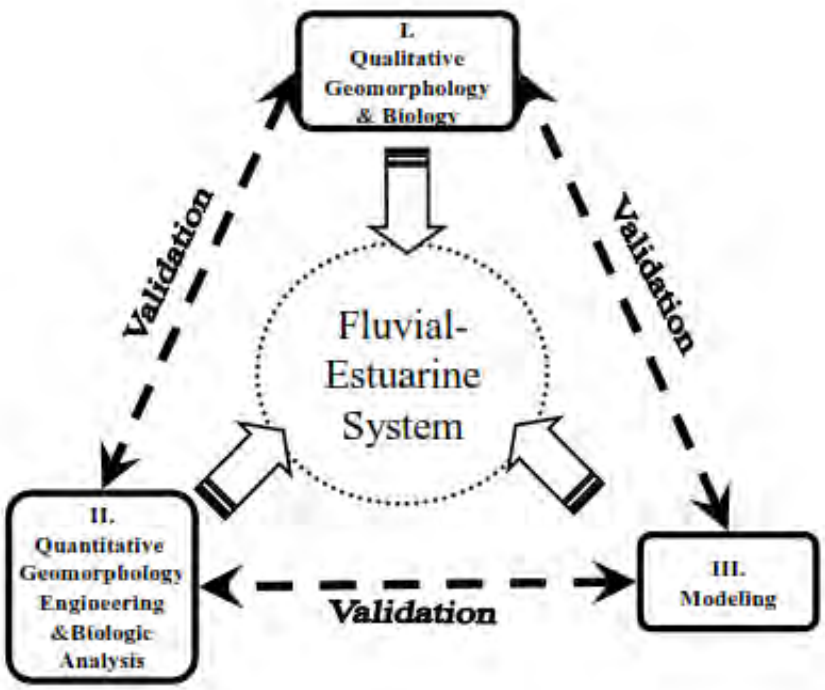

Figure 2.1-1. A conceptual schematic of the three-level approach for determining geomorphic, sediment transport, and biologic response. Validation must occur between all three levels to assure that reasonable results have been achieved.

Analysis of Existing Data

- Compile existing data on suspended sediments, sediment properties, flow, and water levels into a database.
- Review literature and past studies on sedimentation and hydraulics in the study area.

Bathymetric Change Analysis

- Compare previously collected bathymetry survey data in the study area to determine past channel/bed changes.
- Collect current bathymetric data to the same extent of the 2008 Oklahoma Water Resources Board (OWRB) survey.
- Assess areas of deposition and erosion.
- Perform specific gage analysis.
- Develop spatial and temporal understanding of geomorphological changes and rates of change and correlations between historic hydraulic patterns and historic sedimentation patterns.

Field Measurements

- Collect Suspended Sediment Concentration (SSC) and bedload transport measurements at selected monitoring sites under a range of flow conditions.
- Develop correlations between sediment transport and hydraulics based on SSC and bedload transport data.
- Collect sediment grab/core samples for material property analysis and for potential flume testing.
- Obtain flow and velocity measurements with an Acoustic Doppler Current Profiler (ADCP) at selected locations in the study area.
- Continuously monitor water levels at sites located throughout Grand Lake and its major tributaries for two years.

Sediment Transport Evaluation

- Determine site-specific sediment transport mobility criteria (critical shear stress) for locations in the study area.
- Estimate sediment transport rates at selected sites using appropriate established formulas for cohesive and non-cohesive sediments.
- Develop a HEC-RAS 1-D model from the Tetra-Tech HEC-RAS 1-D/2-D model for use as the STM.
- Calibrate the STM typical flow events and smaller flood events using water level, SSC, bedload transport rates, and bed change measurements using surveyed bathymetric change from 1995 to 2017.
- Develop a synthetic 50-year period hydrograph for use in STM.
- Evaluate sediment transport (both bedload and suspended load) at key locations in the study area using the STM under multiple Project operations scenarios.
- Evaluate changes to flood extent and duration using a Comprehensive Hydraulic Model (CHM) with bed geometries determined by STM.
- Evaluate the potential change in generation capacity due to trends in sedimentation.

Synthesis and Reporting

- Synthesize findings of bathymetric change analysis and sediment transport evaluation to inform stakeholders of the impacts of Project operations on sediment transport characteristics and projected distribution of sediment related to flood extent and duration in the study area.

- Study Year 1, provide a year-end report summarizing field data collection, sediment transport analyses, and STM modeling efforts.

- Study Year 2, provide a year-end report of additional field data collection, development of the 50-year period synthetic hydrograph, and STM calibration and validation progress.

- Study Year 3, year-end report detailing model calibration, incorporation of new bathymetric data, and summary of proposed model scenarios.

- Summarize study results and conclusions in one initial report (for the Initial Study Report) and one final report (for the Updated Study Report) during Study Years 4 and 5, respectively.

2.2 Agency and Native American Tribe Resource Management Goals

The STM Study results can inform separate analyses to assess Project effects on resources such as geology and soils, water resources, fisheries and aquatic resources, terrestrial resources, tribal lands, paddlefish spawning recruitment, wildlife lands, threatened and endangered resources, cultural resources, and power generation. Such analyses, in turn, can inform agency decision-making pursuant to their statutory obligations.

2.3 Background and Existing Information

There is considerable public information available to support and inform the STM Study. Data principally consists of U.S. Geological Survey (USGS) monitoring data, including stage, discharge, SSC, and topographic/bathymetric surveys.

The existing information outlined in the section below will be reviewed and utilized in this STM Study, as appropriate, to meet the study goals.

2.3.1 Bathymetry Data

Changes to the channel shape of the Elk, Spring, and Neosho Rivers are an important aspect of this STM Study. Differences in the channel depth and bed geometry provide insight into erosion and deposition processes in the lower reaches of those rivers. Bathymetric and topographic survey data has been collected periodically in the study area over the past several decades. Table 2.3-1 summarizes available bathymetry datasets.

Table 2.3-1. Bathymetry datasets available in the study area.

Year	Organization	Description
2019/2021	USGS	Hydrographic survey of Neosho River and Grand Lake (USGS, 2019-2021; yet to be completed)
2017	USGS	Hydrographic survey of Neosho, Spring, and Elk Rivers upstream of Grand Lake to upstream gaging stations (USGS, 2017)

2015	Tetra Tech	Surveyed cross sections in the Neosho River between Twin Bridges and Stepps Ford Bridge (Tetra Tech, 2015)
2011	USGS	LiDAR DEM collected by USGS (Dewberry, 2011)
2008-2009	OWRB	Hydrographic survey of Grand Lake, including the lower reaches of the Elk, Spring, and Neosho Rivers (OWRB)
1997	USACE	Survey of Neosho River for Real Estate Adequacy study (USACE, 1997)
1997	USACE	Digital topographic model of study area
1995/1998	Settle Engineering	Survey of Neosho River (10 cross sections)
1938-1940	USACE	Topographic survey of pre-dam conditions (USACE, 1940)

Several studies have analyzed bathymetric changes to estimate sediment accumulation rates in the watershed (OWRB, 2009; USACE, 2016). However, these studies have primarily focused on flood storage and have therefore calculated infilling of the reservoir and the lower reaches of major tributaries as a whole rather than analyzing specific reaches individually. As a result, there is an understanding that Grand Lake is gradually accumulating sediment, but limited analysis of whether depositional patterns have any impact on upstream flood extent and duration. This study will focus on the patterns of sedimentation and resulting effects on flooding within the study area.

2.3.2 Flow Velocity and Discharge Data

Information on river flows in the Elk, Spring, and Neosho Rivers is relatively well-documented, as are flow rates in Tar and Honey Creeks. The USGS maintains a network of monitoring stations throughout the watershed that continuously record data. Often, this data consists of water level (stage) measurements, which can be related to discharge through the formation of a rating curve. Table 2.3-2 lists the USGS stations located in the Grand Lake watershed as well as the period of record for discharge, stage, and SSC measurements for each site.

Table 2.3-2. USGS gages present in the Grand Lake watershed and periods of record for parameters relevant to the study.

	USGS Station ID	Site Name	Period of Record		
			Discharge	Stage	SSC
Active Sites	**07185000**	**Neosho River near Commerce, OK**	1990-present	2007-present	1944-2016
	07185080	**Neosho River at Miami, OK**	N/A	2007-present	N/A
	07185090	**Tar Creek near Commerce, OK**	2007-present	2007-present	2004-2016
	07185095	**Tar Creek at 22nd Street Bridge at Miami, OK**	1989-present	2007-present	1988-2006
	07188000	**Spring River near Quapaw, OK**	1989-present	2007-present	1944-present

	07189000	**Elk River near Tiff City, MO**	1990-present	2007-present	1993-2009
	07189100	**Buffalo Creek at Tiff City, MO**	2000-present	2007-present	2005
	07189540	**Cave Springs Branch near South West City, MO**	1997-present	2007-present	2007
	07189542	**Honey Creek near South West City, MO**	1997-present	2007-present	2007
	07190500	**Neosho River near Langley, OK**	2016-present	2016-present	1945-1947
Inactive Sites	**07188007**	**Beaver Creek above Spring River near Quapaw, OK**	2000-2006	2006	2004-2006
	07188180	**Spring River near Wyandotte, OK**	2004-2006	2006	2004-2006

The USGS also periodically measures discharge directly at gaging stations using an Acoustic Doppler Current Profiler (ADCP). ADCPs measure channel cross-section depths and flow velocities throughout the water column and across the width of the channel to obtain discharge values that can be used with water level measurements to create or validate a rating curve for a gaging station. Velocity measurements can also be analyzed to obtain parameters necessary for evaluating sediment transport, such as average channel velocity or critical shear velocity. Table 2.3-3 lists information about existing USGS ADCP measurements.

Table 2.3-3. ADCP data available from past USGS measurements.

USGS Station ID	Location	Period of Record	Range of Flows (cfs)
07185000	**Neosho River near Commerce, OK**	May 2006 - present	931 - 129,000
07185080	**Neosho River at Miami, OK**	May 2013 - Oct. 2017	172 - 57,100
07185090	**Tar Creek near Commerce, OK**	May 2008 - Apr. 2017	402 - 4,930
07185095	**Tar Creek at 22nd Street; Miami, OK**	May 2012 - Oct. 2016	398 - 2,400
07188000	**Spring River near Quapaw, OK**	Dec. 2004 - present	639 - 62,600
07189000	**Elk River near Tiff City, MO**	Jan. 2008 - Apr. 2017	2,340 - 24,800
07189542	**Honey Creek new South West City, MO**	Jan. 2008 - Apr. 2017	277 - 6,950

2.3.3 Channel Sediment Properties

Several studies have investigated channel and upland sediments in the Grand Lake watershed (e.g., Pope, 2005; Andrews and others, 2009; Ingersoll and others, 2009; Juracek and Becker, 2009; Smith, 2016). These studies provide detailed information on the presence of heavy metals and other contaminants in specific areas, particularly in Tar Creek. While the studies have produced a great deal of

sediment analysis, they do not contain information that can be used to determine properties necessary for the proposed study such as critical shear stress or detailed grain size distributions. Furthermore, due to the heterogeneous nature of channel sediments, samples obtained for this sediment study must be collected from carefully-selected, known locations in the study area along with measured flow characteristics so that sediment transport rates can be accurately estimated.

2.3.4 Bedload Sediment Transport Data

Bedload sediment transport makes up a significant portion of the total sediment load moving through the Grand Lake watershed. Bedload consists primarily of sand-, gravel-, and cobble-sized sediments which move along the streambed. Many studies of bedload sediment transport have resulted in empirical relationships between flow velocities, shear stress, sediment properties, and transport rates (Ackers and White, 1973; Copeland and Thomas, 1989; Engelund and Hansen, 1967; Laursen, 1958; Meyer-Peter and Müller, 1948; Toffaleti, 1968; Wilcock and Crowe, 2003; Yang, 1973, 1979, 1984). Because this is such a crucial aspect of sediment transport in any fluvial system, measurements of bedload will be required for developing and validating the STM. Details of the bedload transport measurement plans are provided in Section 2.6.3 of this study plan.

2.3.5 Suspended Sediment Data

Measurements of suspended sediments in the study area have been collected by USGS since the 1940s. Past measurements are infrequent and generally collected during specific events. The USGS reports SSC at some gaging stations. Locations and sampling durations of SSC within the Grand Lake watershed are provided in Table 2.3-2. Because the available records are temporally and spatially limited, the study team will collect SSC measurements as detailed in Section 2.6.3.1 of this study plan.

2.3.6 Water Level Data

Water level data is continuously collected by USGS gages located in the study area (Table 2.3-2).

GRDA has also collected continuous water level data at 16 locations throughout the watershed since December 2016. These gages log a record every 30 minutes and provide suitable data to calibrate the CHM to observed flood events. For the purposes of this study, one additional water level sensor will be installed in Duck Creek.

2.3.7 Contaminated Sediment Transport

City of Miami, Miami Tribe, Eastern Shawnee Tribe, Ottawa Tribe, Seneca Cayuga Nation, Wyandotte Notion, and N. Larry Bork (counsel for the City of Miami citizens) provided a list of existing information to be used in their requested contaminated sediment transport study. The toxicity of the sediments is not within the scope of this STM Study. However, the list of existing information provided in these study requests has been reviewed and, as applicable, will be incorporated into this STM Study.

2.4 Nexus between Project Operations and Effects on Resources

The operation of the Pensacola Project affects elevations of Grand Lake. The STM Study will allow relicensing participants to understand the relationship between Project operations and sedimentation pertaining to the extent and duration of inundation. The STM Study will also provide an understanding of

the magnitude and extent of sedimentation and sediment transport associated with Project operations on upstream flooding.

2.5 Study Area

The STM Study will encompass the channel and overbank areas of the Grand/Neosho River that are considered in the Hydrology and Hydraulics Study. This will include the Grand/Neosho River from Pensacola Dam to approximately 3 miles from the Kansas state line, the Spring River from its confluence with the Grand/Neosho to approximately 6.5 miles from the Kansas state line, and upstream along the Elk River beyond the state line into Missouri. It will also include Tar Creek downstream of the 22nd Street Bridge. Additionally, this study will encompass the bays within Grand Lake associated with Honey, Horse, Drowning, and Duck Creeks.

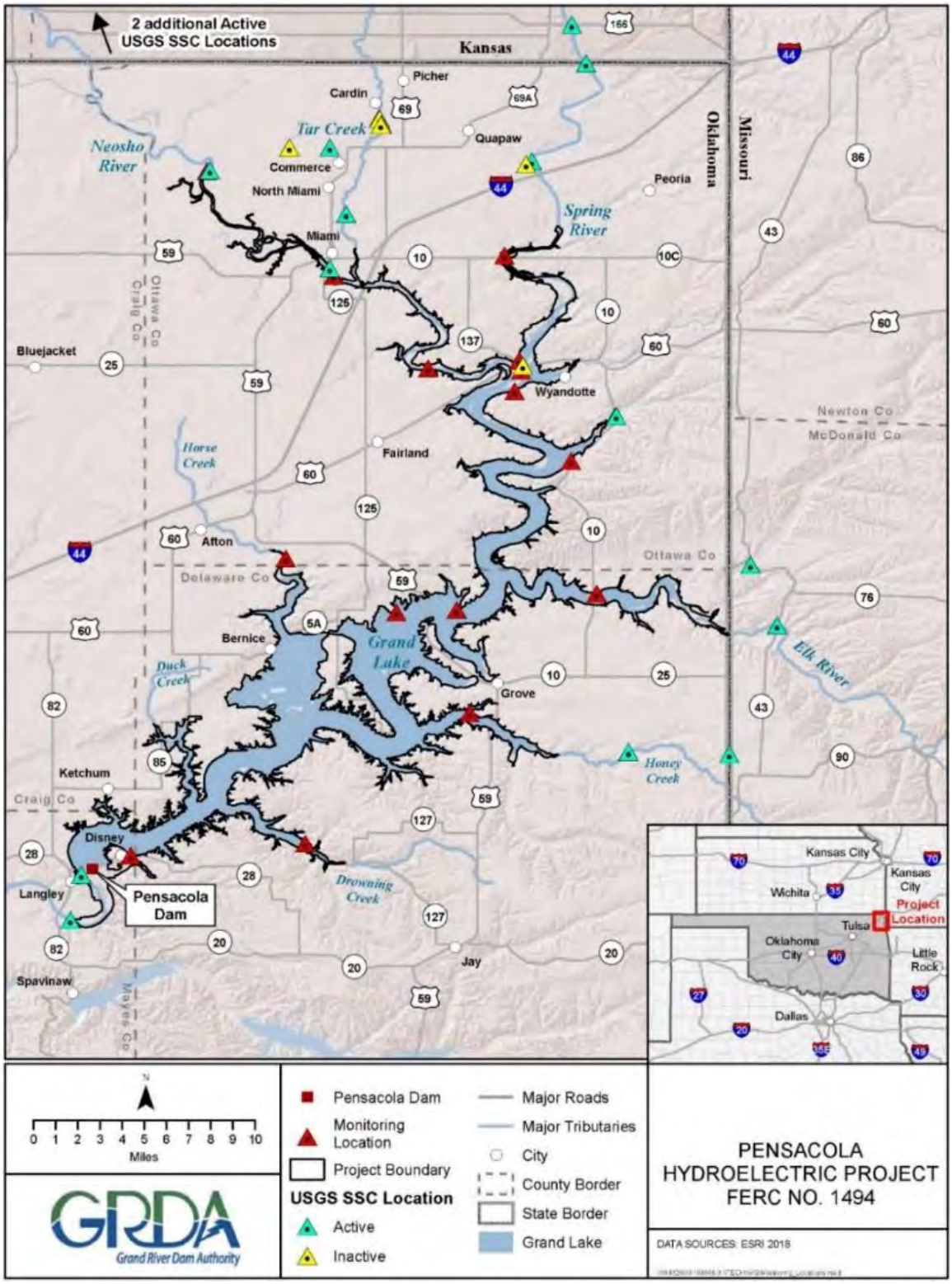

Figure 2.5-1. Map of the study area.

2.6 Methodology

2.6.1 Background Data and Literature Review

Sediment transport is influenced by interactions between water flowing in a river and sediment particles; accordingly, any investigation of sediment transport phenomena requires detailed information on river flow and sediment properties (Knighton, 1998). Due to the heterogeneous nature of the variables controlling sediment transport, field data is an essential component of any study. These key variables include:

- River discharge
- Flow depth
- Flow velocity
- Channel shape
- Channel slope
- Sediment composition
- Sediment grain size (often D_{50})
- Sediment grain size distribution
- Bedforms present on channel bottom
- Bed-material gradation
- Sediment unit weight/density
- Critical shear stress of sediment
- Suspended sediment load and concentration

Several specific studies have taken place within the Grand Lake watershed with respect to local sediment properties. These studies focused on contaminant-laden sediments from Tar Creek but have not produced data points that would be useful for estimating transportation rates and deposition within the Neosho River downstream of its confluence with Tar Creek.

For physical data, there is a sediment concentration record along the Grand/Neosho, Spring, and Elk rivers and Tar Creek that has been collected by the USGS. Recent suspended sediment data exists for several sampling locations while the USGS continues to monitor the basin. The data collected at these stations is limited, but may still be useful for calibration and validation of the STM.

All relevant previous reports and historic sediment sampling investigations conducted within the basin will be reviewed. GRDA will develop an organized database to store the data found as a part of the existing data review and analysis. All data will be fully documented. A technical memorandum will be provided in the Year 1 Progress Report describing the type and quality of data available.

An initial review of the existing data has identified several gaps in the key variables listed above and will need to be filled during field data collection. The necessary field data required to fill these data gaps will be collected during the study period and include: bathymetric survey data, sediment cores and grab samples, suspended sediment samples, discharge and velocity measurements, bed material samples for gradation, and water level measurements.

2.6.2 Bathymetric Change Analysis

Changes in bathymetry provides valuable information about sedimentation and erosion. Reaches or cross-sections where sediment has accumulated or eroded over time will be apparent when looking at bathymetric changes from one survey to the next. The extent and rate of change may indicate areas where sediment deposition or erosion is likely to have some effect on flood duration and severity, helping determine areas of focus for ongoing analysis.

Bathymetric Comparisons

Bathymetric comparisons will be performed based on the type of data available. The 2017 and 2008-2009 surveys performed by the USGS and OWRB overlap in the lowest 3-5 river miles of the Neosho, Spring, and Elk rivers. The 2008-2009 OWRB survey overlaps significantly with the scheduled 2019/2020 USGS survey which will collect the most current bathymetric data. For these river reaches, survey data will be compared using surface differencing to evaluate erosion and deposition between survey time periods.

Elsewhere, channel survey data is limited to cross sections surveyed infrequently since the construction of Pensacola Dam in 1940. The long-term range of the data will permit broader analysis of channel aggradation, erosion, or migration. Where data is limited to cross-sections, bathymetric changes at each cross-section will be analyzed (see example in Figure 2.6-1), then volumetric changes will be computed between cross-sections to determine the volume of sediment accreted or eroded in a given reach.

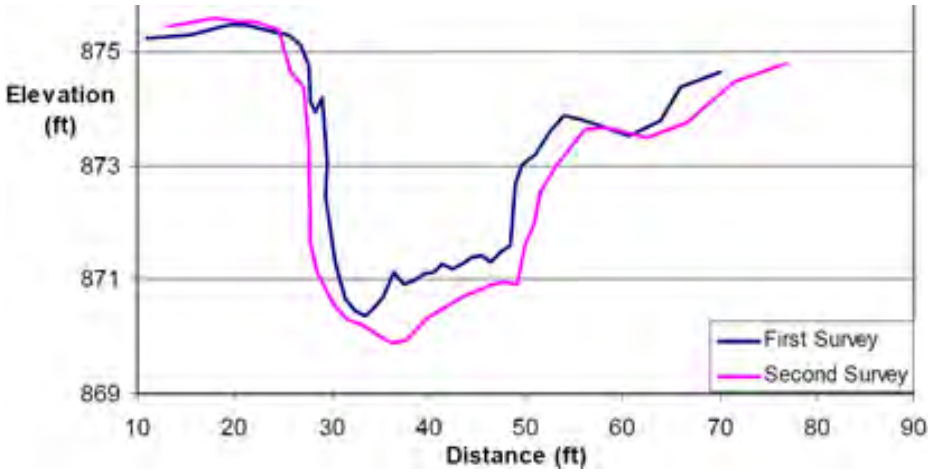

Figure 2.6-1. Example: Bathymetric cross-section comparison.

Where data is sufficient, floodplain deposition will also be analyzed to determine areas of overbank sediment accretion or erosion. This will provide information about whether significant sediment deposits are accumulating along riverbanks in the study area and how much sediment is entering and leaving the river.

Additionally, ADCP surveys have been conducted by the USGS at the following gaging stations:

- 07185000 (Neosho River near Commerce)
- 07185080 (Neosho River near Miami)

- 07188000 (Spring River near Quapaw)
- 07189000 (Elk River near Tiff City)

These surveys have collected highly accurate bathymetry data across each channel cross-section and have been repeated between 5 and 25 times, depending on the site. These channel cross-sections will be analyzed along with accompanying flow data for volume changes, channel migration, and effects of flood events.

Stage and flow volume measurements will also be used during bathymetric change analysis. Gaging station records often report simultaneous measurements of both flow rates and river stages. The relationship between water surface elevation and flow rate through time will be analyzed and related to observed bathymetric changes. This evaluation will provide an indication of the effects of sedimentation and erosion on water levels in the specified reach.

The bathymetric comparison analysis will be synthesized into the Year 1 report detailing the temporal and spatial sedimentation patterns. Volume changes will be reported on a reach and basin scale.

Bathymetric comparisons will also be used to calibrate and validate the STM. The changes found in the historical analysis will be compared to the modeled changes during the late stages of model development to ensure accurate evaluations of sediment deposition and erosion. More detailed information on STM development is presented under "Sediment Transport Model (STM) Development."

2.6.3 Field Data Collection

Currently, there are four pieces of information necessary for sediment analysis in the Grand Lake watershed which are not available with sufficient spatial and temporal resolution: SSC, bedload sediment transport, channel sediment properties, and flow velocity within the river channel. Bedload measurements will consist of the primarily coarse-grained sediments moving along the river bed. SSC measurements will allow estimation of suspended sediment transport through a given reach in the system, sediment grab and core sampling will provide information about material properties of bed sediments, and current velocity profiles can be used in conjunction with bedload sampling, SSC, and sediment properties to calculate sediment flux at sampling locations.

Bedload Sediment Transport Measurements

Bedload transport is the most important means of transferring sand-, gravel-, and cobble-sized sediments through a fluvial system. Bedload is defined as the sediment moving along the river by rolling, sliding, and/or saltating. In the Grand River, a significant portion of the sediment coming into Grand Lake is transported in the form of bedload.

Bedload sampling will be performed using a Helley-Smith sampler or similar piece of equipment. This device consists of a metal frame with a mesh sample bag and sits on the river bed during use. The sample bag strains flow and collects sediment as it moves along the bed and into the sampler. Sediment can then be analyzed for mass (quantity of sediment collected), grain size distribution, and density to determine the bedload transport under given flow conditions and to aid in parameterization of the STM.

Site selection and deployment will be overseen by an expert in riverine sediment transport study who is well-versed in bedload sampling efforts. Efforts will be made to sample bedload transport during a variety of flow conditions. All work will be performed according to USGS standard procedures for bedload sampling (Edwards and Glysson, 1999).

SSC Measurements

Suspended sediment records from the USGS will be supplemented by field collection of depth-integrated SSC samples. USGS SSC measurements, as mentioned earlier in this document, span several decades, but there are only limited samples for any given year. Due to the poor temporal resolution, supporting data will be required. Depth-integrated sampling methods will provide SSC data at a variety of flow events.

Depth-integrated samples consist of a collection vessel and an inflow/outflow valve assembly. The intake valve is pointed directly into flow and lowered to the riverbed, then raised again in a smooth motion. Water flows into the intake, expels air through the outflow valve, and gradually fills the sampling container. Lab analyses will provide information on SSC as well as the percentage of silt particles in the water column (grain size below 0.0625 mm). All sampling will follow standardized USGS procedures (Edwards and Glysson, 1999) and be performed by a field team under the guidance of a fluvial sediment transport expert. At a minimum, SSC measurements will occur over a period of 10 months in spring, summer, and fall. All reasonable efforts will be made to ensure that a wide range of flow events are captured by sampling.

Bed Sediment Samples

Substrate properties are crucial to parameterize river sediment and model transport rates. Analysis of sediment grab and core samples will provide bulk density, grain size, composition, and critical shear stress data.

Sediment samples will be used to parameterize sediment characteristics within the study area. Sampling will consist of at least the following:

- 7 samples in the Neosho River
- 10 samples in the Spring River (upstream of Twin Bridges)
- 3 samples between Twin Bridges and the Elk River confluence
- 5 samples in the Elk River
- 10-15 samples in smaller tributaries (including Tar Creek)

Sampling will be performed using an Ekman grab sampler or similar instrument for non-cohesive sediments.

Where grab samples show cohesive sediments, core samples will also be taken for analysis. Core samples will be obtained using a Shelby tube or similar device and will be capped, sealed, and transported to a testing facility without draining excess water, per USGS standard procedures (Shuter and Teasdale, 1989). Excess water helps prevent compaction and disturbance of the core sample during transportation. Erosion resistance testing will be performed following procedures similar to those

presented in SEDFLUME studies (McNeil, Tayler, and Lick, 1996). Testing will determine critical shear stress (the minimum bed shear necessary to initiate sediment grain motion), an important parameter for analysis of cohesive sediment transport in fluvial systems.

Grab samples showing predominantly sand or gravel will not require additional core sampling. Where sediment is non-cohesive, the sieve grain size analysis will provide sufficient information for sediment transport modeling.

Velocity Profile Measurements

Velocity profiles and discharge data supply valuable information about sediment transport in fluvial systems. Bed shear determines the likelihood of sediment moving downstream and is calculated using velocity profile information. The USGS has several locations with ADCP measurements, but analysis at other locations will require site-specific velocity and discharge measurements. Flow measurements will be taken with an ADCP at the locations of existing water level monitors as well as SSC and bedload transport sampling sites within the study area for multiple flow events. As field conditions allow for safe access, measurements will be collected during both high- and low-flow conditions to ensure data availability under a range of flow regimes for use in the CHM and STM calibration and validation processes.

An ADCP can provide important information about sediment transport in a riverine system. It measures velocity throughout a water column using sonic pulses. The sonic signals reflect off suspended particles in the water, and applying Doppler shift principles to the returned signals, the ADCP can calculate flow velocities in a vertical column of the stream. The device is towed across the channel to produce a full velocity profile (Figure 2.6-2). The velocities near the bed can be analyzed to determine bed shear stress and the velocities measured throughout the profile provide total discharge and average velocity. Both parameters can then be combined with an understanding of local substrates and used to evaluate sediment transport in the channel.

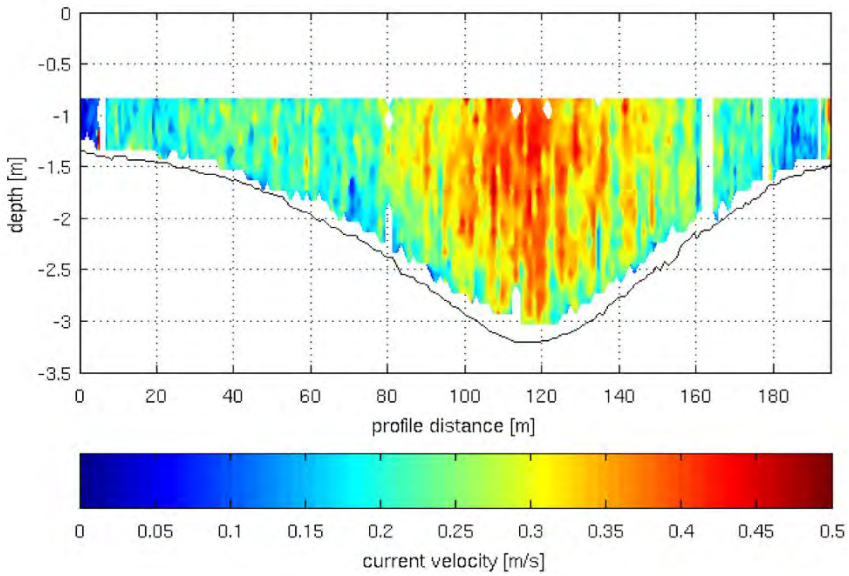

Figure 2.6-2. Example: ADCP velocity profile data.

Velocity profiles are most useful when they describe a range of flow events at a given transect. This will require multiple efforts to record ADCP measurements during the study. A wide range of flow events can be used to accurately determine the effects of different stream velocities, water levels, and sediment transport regimes on overall sedimentation within the study area. Measurements will be taken a minimum of 3 times during the study period at critical water level monitoring stations. Data will then be incorporated into STM calibration and validation procedures.

ADCP data can also be used to calibrate and validate the CHM. Datasets will be provided to model developers and can be used in conjunction with water level monitoring to help calibrate the model. Once calibration is complete, additional ADCP and water level data can be used to verify that the CHM is accurately predicting flow depths and velocities. A similar process can be employed to calibrate the hydraulic aspects of the STM as well. For more details on the CHM validation process, please refer to the Hydrologic and Hydraulic Modeling Study Plan.

2.6.4 Sediment Transport Model (STM) Development

The study team will develop a detailed STM as part of this study. The model will evaluate sediment transport in the lower reaches of the Elk, Spring, and Neosho Rivers using existing and collected data on flows and sediment properties. Sediment and flow data will be integrated with a 1-D HEC-RAS model to evaluate the effects of reservoir operations on sediment transport, erosion, and deposition in the study area.

STM Cross-Section Data

The project team will use the 1995 bathymetry information as a basis for the STM. HEC-RAS currently limits sediment transport calculations to 1-D models with no bridge cross-sections. As a result, bridges and other in-stream structures will not be included in the model and will instead be substituted with modified cross-sections which maintain flow geometry while still permitting sediment transport calculations.

STM Calibration

Calibration of the 1-D STM will begin with hydrologic and hydraulic calibration. It is standard procedure to begin with the simplest version of a model and add complexity once the basic parameters have been defined. In this case, that means ensuring that the model accurately captures hydraulic phenomena before attempting to calibrate sediment transport parameters.

Hydraulic calibration will begin with defining smaller events to which the team will calibrate the model. While large flows move significant volumes of sediment in a short time, they occur less frequently so that their relative contribution to sediment transport is smaller than what is seen with more frequent, smaller flow volumes (Leopold, Wolman & Miller, 1964). Therefore, the model will be calibrated to the 1-year, 2-year, and 5-year events to accurately capture the types of flows that move a majority of sediment through the river and define the channel morphology. Data for these flow events will be gathered from the historic record of USGS gaging stations and collected water level data within the watershed.

Non-Cohesive Sediments

Non-cohesive sediment transport will be the next calibration process once STM hydraulic output has been validated. This will be done at all sites where the channel bed is composed of sand, gravel, or cobbles. Non-cohesive transport functions in general rely on regression, probabilistic, or deterministic functions to estimate sediment transport. These formulas are derived from specific sets of laboratory or field data, and caution will be used in selecting approaches suitable for use in the given conditions of the Elk, Spring, and Neosho Rivers following guidance provided in Yang (2006) and ASCE (1982).

Calibration of non-cohesive sediment transport will involve selecting appropriate transport equations. The main criteria used to select formulas will be sediment grain size (D_{50}). Other criteria considered will include dimensionless parameters such as dimensionless unit stream power as suggested by the US Bureau of Reclamation in the *Erosion and Sedimentation Manual* (Yang, 2006). If bed materials in the study area consist of sand-sized particles, formulas considered for use will include those of Meyer-Peter and Müller (1948), Yang (1973, 1979, and 1984), Ackers and White (1973), and Engelund and Hansen (1967), Wilcock and Crowe (2003), Laursen-Copeland (Copeland and Thomas, 1989; Laursen, 1958), and Toffaleti (1968). Each formula above is available for use in the HEC-RAS sediment transportation calculations. All were developed for a specific range of sediment sizes and were fit to laboratory or field measurements. Based on sediment sampling results and field measurements, the modeling team will select the most appropriate formula for use in the STM.

Sediment transport formulas will be compared with measured bedload, SSC, and flow data to compare their suitability. Agreement between measured and calculated values of sediment loads will be evaluated across a range of flows and sediment fluxes to determine their accuracy. To the extent necessary, parameters in the selected sediment transport formula will be adjusted so that computed transport reasonably matches measured data through the calibration process.

Cohesive Sediments

The movement of silts and clays through the basin will be considered following non-cohesive analysis. Cohesive sediments, composed of fine-grained clay and silt particles, have strong inter-particle forces which largely determine the resistance of sediments to shear stresses. Since grain size cannot be used to determine the shear strength of these sediments, the critical shear stress must be experimentally determined to evaluate sediment transport potential. In general, erosion of cohesive sediments occurs when the bed shear stress is greater than sediment critical shear stress, and deposition occurs when bed shear is less than the critical shear stress.

No comprehensive theory exists regarding the erosion of cohesive soils. The equations used to determine the erosion rate of cohesive soils are empirical and require a laboratory or field measurement of critical shear stress. Attempts to correlate erodibility with traditional soil parameters, such as bulk density or plasticity indices, are less useful to determine erodibility due to the large number of factors and their complex interactions.

Sediment transport within HEC-RAS uses relationships developed by Krone and Partheniades (Partheniades, 1965). The calculations require laboratory analysis of cohesive sediment samples to determine relevant parameters such as the critical shear stresses for particle and mass erosion and the rates of increase with higher bed shear.

Laboratory analysis of critical shear stress will depend on core sampling in locations where cohesive sediment is present. Core samples will be transported to a facility for SEDFLUME erosion testing. The critical shear measurements will then be used to parameterize the STM accordingly.

Cohesive sediment erosion or deposition will be determined at areas where sediment sampling shows cohesive sediments are dominant. Erosion rates will be determined for specific scenarios and compared with field observations, SSC measurements, bedload transport data, and bathymetric changes to determine suitability for use in operations assessment.

Calibration to Bathymetric Data

Following calibration of the hydraulics and sediment transport rates of the STM, the final step will require analysis of bed changes within the system. The purpose of the study is to determine whether and to what extent Project operations impact sedimentation within Grand Lake and its tributaries. To do this requires a STM that accurately predicts bed elevations based on the hydraulic conditions and accurate channel evolution mechanisms.

The model will be built using the earliest available surveyed bathymetry data comprehensive enough to allow adequate analysis. In the Neosho River, that will likely be the 1995 survey, and Grand Lake will likely be represented with the 2003 bathymetry data. Following hydraulic and sediment transport calibration, a continuous model simulation will be run for the time period between the original surveys and the 2008-2009 OWRB bathymetry survey. The resulting bathymetric predictions will be compared to the measured 2008-2009 survey data and the model will be further calibrated as needed. Following calibration and completion

of the USGS 2019-2020 bathymetric survey, a continuous model run from 2009 to 2020 will be simulated to validate the STM. Thalweg profiles of the STM output will be compared to those of the 2019-2020 survey to determine suitability of the model for predicting sedimentation and erosion.

Model Evaluation

Results of model calibration will be compared with surveyed patterns of bathymetric change, sediment transport rates, and historic water level data to evaluate the accuracy and reliability of the model as part of the three-level approach. As stated in Simons and Simons (1997), "*If it is not possible to adequately calibrate and verify a model in a given application, it is appropriate to utilize interpretations of available data, geomorphic and other analysis techniques for prediction purposes."* Interpretations of data would include relations between historic operational hydraulic patterns resulting in historic patterns of sedimentation which would then be utilized to develop potential future patterns of sedimentation with proposed operational hydraulics.

Synthetic Hydrograph Development

All previous steps of STM development will use historical stream data, but to predict future effects of Project operations will require a synthetic hydrograph. GRDA will compile a 50-year period hydrograph by randomizing the past years of flow recordings. Any long-term trends in magnitude will be included in the hydrograph development process by multiplication of a scaling factor. The synthetic 50-year period hydrograph will incorporate a range of inflow events from normal flow up to the 100-year inflow event.

2.6.5 Model Simulations

The STM will be used to determine sedimentation patterns and rates within the reservoir under several operational conditions. Following calibration, simulations will focus on predicting future sediment transport, bathymetric changes, and flooding. The starting channel geometry for all simulations will be the 2019-2020 USGS bathymetry data.

Operational Analyses

Analyses of Project operations and their future effects on sedimentation within the Grand Lake watershed are the central purpose of this evaluation. There are three planned operation comparisons; one will focus on the current operations, the second will use historic operations, and the third will use operations proposed as part of relicensing.

The first simulation will be run over a 50-year synthetic flow period as discussed above, with the current operational targets applied to reservoir operations. The predicted channel geometry at the end of the simulation will then be incorporated into the CHM for analysis. The CHM will be re-run for the same hydrographs used in the initial Hydrologic and Hydraulic Modeling Study (H&H Study) with evaluation of flood extents, durations, and elevations as compared to the baseline conditions.

The second simulation will use the same 50-year synthetic flow period, but the operational targets will be selected to match past operations. This resulting bed geometry will also be evaluated using the CHM to determine changes in flood extents, durations, and elevations with respect to the baseline conditions.

The third and possibly subsequent simulations will use the same 50-year synthetic flow period, but the target operations will be selected to match operating scenarios proposed by GRDA as part of this relicensing process. This resulting bed geometry will also be evaluated using the CHM to determine changes in flood extents, durations, and elevations with respect to the current operating targets.

These operational analyses will be further evaluated to determine the extent to which rates of sedimentation may have an effect on generation at the Pensacola Dam.

2.6.6 Executable Model and Model Documentation

The executable STM and relevant documentation will be made available to other relicensing participants upon request. This will be for:

- Evaluation of the appropriateness of the STM, including input geometry, model parameters, flow data, sediment data, calibration, and all scenario runs
- Assessment of methods used to develop maximum water surface and bed-elevation profiles as well as GIS maps showing predicted inundation depths and durations for all modeled scenarios
- Provision of the model to other studies as appropriate

A technical report will accompany the STM files. This will detail the following:

- Data sources
- Input hydrographs
- Model development process
- Modeling assumptions
- Calibration procedures
- Outputs and results, including the water surface and bed elevation profiles and maximum flood-inundation mapping

2.7 Consistency with Generally Accepted Scientific Practice

The STM Study follows generally accepted scientific practice regarding field data collection, sediment transport analysis, and modeling. The scope of the study includes data collection in area found to be necessary through relicensing participants scoping. Field data collection and modeling will be conducted using methodologies consistent with those used by the USGS and other accepted scientific practices.

2.8 Project Schedule

The fieldwork and modeling aspects of this project are expected to begin in early 2019 and continue through the end of calendar year 2023. Annual progress updates will be provided with major milestones reported as appropriate.

2.9 Level of Effort and Cost

The estimate cost for completion of the STM Study including the current scope of bathymetric study being conducted by USGS is approximately $2,860,000.

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Attachment F

Affidavit of Darrell E. Townsend II

AFFIDAVIT OF DARRELL E. TOWNSEND II

STATE OF OKLAHOMA)
)
COUNTY OF CRAIG)

DARRELL E. TOWNSEND II, of lawful age and being first duly sworn upon oath, states:

1. My name is Darrell E. Townsend II. I am employed by the Grand River Dam Authority (GRDA) as its Vice President for Ecosystems and Watershed Management. I have served in this capacity for the past seven (7) years. As Vice President, I have coordinated a multi-state effort to develop a multidisciplinary team of scientists, researchers and stakeholders tasked with deciphering and understanding complex-feedback relationships associated with broad-scale watershed management. This multi-faceted team allows for efficient use of labor, maximizes resources, and takes advantage of a scientific knowledge base spanning multiple scientific disciplines that draws on environmental engineers, modelers, water resource managers, ecologists and social scientists to meet the challenges of these complex ecosystems.

2. I am a graduate of Oklahoma State University with a Ph.D. in Ecology. In addition to my service with GRDA, I serve as an adjunct faculty member within the Department of Integrated Biology at Oklahoma State University (OSU) and serve as an affiliated faculty member within the University of Oklahoma's School of Civil Engineering and Environmental Science (OU). I currently serve on two Ph.D. committees within the School of Civil Engineering and Environmental Science and have served on various Master's level committees at OSU and OU. Additionally, I have published numerous peer-reviewed manuscripts dealing with various scientific aspects of watershed ecology and animal interactions among the biotic and abiotic components of ecosystems. I also serve as a board member and acting Secretary on the Environmental Federation of Oklahoma (EFO). The EFO ensures that Oklahoma provides an environment conducive to a high quality of life for all Oklahoma businesses by promoting a balanced approach between economic growth and environmental stewardship. Finally, I also serve on the Grand Lake Watershed Alliance Foundation Inc. (Alliance) as an original Board Member since its inception in 2007. The Alliance serves to assist in preserving, protecting and restoring water quality in the 10,000+ square mile watershed with a population of more than 500,000 people.

3. As part of my duties at GRDA, I am responsible for watershed and lake management of Grand Lake. I managed the Federal Energy Regulatory Commission (FERC) relicensing for the Markham-Ferry Project (Project No. 2183) and the Salina Pumped Storage Project (Project No. 2524) and currently manage the GRDA staff responsible for complying with the license terms for GRDA's Pensacola Project (Project No. 1494) issued by FERC.

4. Also, as part of my responsibilities for Grand Lake management, I have senior management oversight of GRDA's FERC relicensing for the Pensacola Project, which began in early 2017. This includes administration of our procurement of engineering and

environmental consulting services that are needed to assist GRDA in preparing regulatory documents, conducting environmental studies, managing the relicensing process, assisting in administrative responsibilities, and other similar services.

5. In my capacity with GRDA, I am familiar and have experience with GRDA's procurement regulations and policies. As a conservation and restoration district and non-appropriated agency of the State Oklahoma, GRDA is recognized by its enabling statute as "unique" among the government instrumentality family, because its mission requires GRDA to function in competition with private industry within the competitive power market. As such, GRDA's enabling statute also recognizes that GRDA may enter contracts with both public agencies, including the subdivisions and agencies of the United States, as well as private entities. Okla. Stat. Ann. tit. 82, § 861A. GRDA is governed by a Board of Directors (Board) that is empowered with rulemaking authority to manage acquisitions and is responsible for approving business expenses necessary to carry out the business of the GRDA. Okla. Stat. Ann. tit. 82, § 863.2.

6. In addition, GRDA's enabling laws authorize GRDA "to request engineering aid of the Corps of Engineers of the United States Army, the Federal Power Commission, or any other federal agency, in the designing and construction of any project authorized under the terms of" its enabling legislation, "to use such aid, if and when offered, and to pay any reasonable cost therefor." Okla. Stat. Ann. tit. 82, § 872.

7. Under these statutory requirements, GRDA's Board-approved acquisition policy generally provides for a competitive bidding process, although some acquisitions are exempted from competitive bidding. Okla. Admin. Code 300:20-1-1. Among the listed exemptions are contracts for professional services, which includes engineering and land surveying. *Id.* In addition, the Board may, by majority vote, grant exemptions from rules, including the acquisition policy, that deal with the waters of the Grand River and its tributaries. Okla. Stat. Ann. tit. 82, § 863.2.

8. Consistent with its enabling laws and Board-approved policies, it is my understanding and experience that GRDA has a long-standing commitment to procuring services of federal and state agencies and entities, when consistent with law and Board policy.

9. On November 8, 2018, FERC issued its study plan determination (SPD) for its relicensing of the Pensacola Project. One of the studies required in FERC's SPD is a Hydrologic and Hydraulic modeling study (H&H), which involves development of a Comprehensive Hydraulic Model (CHM). The H&H study plan provides for the CHM to be an analytical tool for identifying areas inundated under different flow scenarios and operational parameters, both upstream and downstream of the Pensacola Project.

10. Since the beginning of the FERC relicensing, GRDA had proposed the H&H modeling study, including development of the CHM. To develop the CHM, GRDA had proposed to use existing bathymetric data for Grand Lake and its tributaries. The existing bathymetric data that GRDA proposed to utilize for the CHM was collected in 2009 by the Oklahoma Water Resources Board.

11. Although FERC approved the H&H model and CHM, it required some changes to GRDA's proposed methodologies. Among the changes, FERC required GRDA to undertake a new bathymetric survey of Grand Lake.

12. In response to this new requirement in FERC's SPD, I contacted the U.S. Geological Survey (USGS) to gauge its availability to complete the FERC-required bathymetry survey. My decision to reach out to the USGS before any other potential contractor was based on the following factors:

    a. As a contract for engineering and land surveying services, the bathymetry survey is a type of service that is exempt from the competitive bidding requirements of GRDA's acquisition requirements.

    b. As a federal agency, USGS met GRDA's long-standing commitment to working with federal and state agencies and entities when appropriate.

    c. From experience, I concluded that USGS would provide an independent, high-quality product that all parties to the relicensing process could reasonably accept and rely upon. The development of the environmental study plan for the FERC relicensing process had been highly adversarial to that point, and my objective was to select an independent, highly respected expert contractor who could be trusted by all relicensing participants.

    d. Based on my long-standing experience at GRDA and involvement in scientific programs throughout Northeast Oklahoma, I knew that USGS has significant, direct experience at Grand Lake. It has maintained the Grand Lake gage at Pensacola Dam since the project was constructed in the 1940s. It has previously conducted bathymetric surveys within the three major tributaries to Grand Lakes, and it is currently involved in concurrent studies related to the storage capacity of Grand Lake.

    e. Due to the critical importance of the H&H modeling study and CHM to the overall relicensing study program, the bathymetry survey must be accurate and reliable. Based on my experience, I know the USGS's Oklahoma Water Science Center to be perhaps the best and most highly regarded team in this region of the United States in providing the bathymetric survey services required by FERC's SPD. I concluded that the USGS, if retained to conduct this survey, would bring an extraordinary level of expertise and reputation to this project.

13. On November 14, 2018, I received USGS's Proposal entitled *Bathymetric Survey and Area Capacity Table for Grand Lake O' the Cherokees, Northeast, OK* (Proposal). The Proposal described the methods, deliverables, cost, and schedule for preparing the bathymetry survey required by FERC's SPD. The Proposal included a budget of $426,000, and the schedule included deliverables beginning in the third quarter of 2019, and concluding in the fourth quarter of 2020.

14. Although GRDA was authorized under its procurement requirements to retain USGS for the bathymetry survey without a competitive bidding process, as a matter of prudence we (GRDA) reached out to other firms to help gauge whether the budget and schedule in USGS's Proposal was consistent with industry practice. On or about the week of January 14, 2019, we spoke with Mead & Hunt, who advised that the USGS's budget appeared reasonable, and perhaps incrementally lower than what a private consulting firm would charge for similar services. Mead & Hunt indicated that USGS's schedule was not surprising, particularly because of the scope of work and USGS's quality control/quality assurance standards.

15. At the request of representatives for the City of Miami, Oklahoma (City), I also spoke informally on or about January 16, 2019 with Tetra Tech. It is my understanding and belief that Tetra Tech advises the City in technical matters relating to the FERC relicensing process. Consistent with Mead & Hunt's reaction to the Proposal, the representative from Tetra Tech stated that the USGS's proposed budget appeared consistent with industry practice. The Tetra Tech representative, however, stated that the USGS's schedule appeared unreasonably long, and that a bathymetric survey of this magnitude could be completed in approximately six to nine months.

16. Based on the concerns expressed by Tetra Tech, I re-engaged the USGS regarding the schedule set forth in its Proposal. USGS advised that the six to nine month timeframe for a bathymetric survey for all of Grand Lake was untenable, and that the schedule set forth in the Proposal was more realistic and based on the following factors:

    a. The frequency of weather events in Northeast Oklahoma, particularly spring storms and high winds;

    b. High boating traffic on Grand Lake, particularly during the summer recreation season;

    c. USGS's quality control and quality assurance process, which itself can take several months; and

    d. Preparation of the final report and approval through the USGS publications process.

17. Based on the information received from these contractors and USGS, I determined that the USGS Proposal was reasonable. On January 8, 2019, I presented the USGS Proposal and contract to GRDA's Board, which approved the contract. USGS signed the contract on January 22, 2019, and GRDA signed the contract on January 25, 2019.

18. After the Board finalized the contract with USGS, I was next challenged with determining how the overall relicensing process would be affected by this lengthy study. The schedule in the USGS Proposal provides that all deliverables will be completed by the fourth quarter of 2020. Out of an abundance of caution, however, I conservatively added an approximately three-month buffer to the survey schedule to account for potential

unanticipated delays, as the schedule for many other relicensing studies depend on the delivery and integration of the bathymetry survey data into the modeling effort. This decision was based on: (1) a desire to ensure that the entire relicensing study plan can be completed by the end of calendar year 2023, to allow sufficient time for GRDA to complete the pre-filing process under the Commission's Integrated Licensing Process and avoid another license extension request; and (2) a practical recognition that significant environmental studies, such as the bathymetry survey currently underway by USGS, often experience unanticipated delays.

AFFIANT FURTHER SAYETH NOT.

Darrell E. Townsend II, Affiant

Subscribed and sworn to before me this 20th day of May, 2019 by Darrell E. Townsend II.

Notary Public

JACKLYN JAGGARS NOTARY # 10005885 EXP. 07/22/22 PUBLIC STATE OF OKLAHOMA

My Commission Expires: 7/22/2022

Commission No.: 10005885

Attachment G

Letter from Jason Lewis, USGS (March 1, 2019)

United States Department of the Interior

U.S. GEOLOGICAL SURVEY
Oklahoma Water Science Center
202 NW 66th St, Building 7
Oklahoma City, OK 73116

March 1, 2019

Grand River Dam Authority
PO Box 409
Vinita, OK 74301

Dear Grand River Dam Authority:

The following letter is in response to an affidavit request by the Grand River Dam Authority. The following questions were answered to the best of the Oklahoma Water Science Center's knowledge as of March 1st, 2019.

1. USGS's experience in conducting bathymetric surveys at Grand Lake and other reservoirs in the region.

The USGS Oklahoma Water Science Center (OKWSC) has experience conducting bathymetric surveys in tributaries to and in the upper part of Grand Lake near the Twin Bridges area. We completed a bathymetric survey study of three major tributaries (Neosho River, Spring River, and Elk River) as well as the upper most portion of Grand Lake. The published report can be found at: https://pubs.er.usgs.gov/publication/sir20175101
We are currently working on a project comparing the storage capacity tables throughout the history of Grand Lake so we have experience in reviewing and analyzing historic bathymetric data sets used to develop storage capacity tables.
The USGS has maintained the Grand Lake gage in Langley since 1940 and we are very familiar with lake elevations and current and past lake capacity tables.

2. USGS's expertise in this technical area, and particularly the expertise of USGS staff involved in this project.

The USGS throughout the country has completed bathymetric surveys for decades. Our agency has beeu involved with survey methods using single-beam and multi-beam ecosounders, acoustic doppler current profilers, and LiDAR methods to map the depths underneath the water surface and adjacent overland areas. The staff of the Oklahoma Water Science has been using these methods for almost 15 years. The staff that will work on the Grand Lake bathymetry projects has completed two bathymetric projects in the last three years. They also are asked by other USGS offices to complete scientific reviews for their bathymetric projects.

3. USGS's objectivity in producing this information, and how it will be used for public purposes.

"As the Nation's largest water, earth, and biological science and civilian mapping agency, USGS collects, monitors, analyzes, and provides science about natural resource conditions, issues, and problems. Our diverse expertise enables us to carry out large-scale, multidisciplinary investigations and provide impartial scientific information to resource managers, planners, and other customers."

https://www.usgs.gov/about/about-us/who-we-are

The data and information collected and published by the U.S. Geological Survey follows the Information Quality Act. In the Information Quality Act, Congress directed the Office of Management and Budget (OMB) to issue government-wide guidelines that "provide policy and procedural guidance to Federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by Federal agencies" (Public Law No. 106–554, § 515(a)). https://www2.usgs.gov/info_qual/

"USGS data collection and research activities are carried out in a consistent, objective, and replicable manner that has been vetted through a vigorous and open process of peer review to ensure that the best possible results are achieved and that there are no weaknesses or errors in the data or conclusions. USGS scientific information is subject to a high degree of transparency about the data and methods used to facilitate the reproducibility of such information by other qualified scientists. Data collected for publication must be documented to describe the methods or techniques used to collect, process, and analyze data; the structure of the output; description of accuracy and precision; standards for metadata; and quality assurance processes." https://www2.usgs.gov/info_qual/

The report and data collected from this project will be served to the public from USGS websites. Anyone is allowed to retrieve this information once the project has been completed from our websites.

4. The exact factors that led to USGS's anticipated time period of 18 months to complete this bathymetric study (lack of land access; travel times; weather delays; other factors).

The proposed survey time of nine months included several contingency factors such as spring storms, windy days, and times when Grand Lake is extremely busy with boat traffic (ex. July 4th). Our goal is for the field work (bathymetric survey data collection) to take less than 9 months but it's our experience that sometimes internal and external factors could cause delays. The next phase after data collection is data processing. We estimate this phase will take two to three months to process and quality control and quality assure the bathymetric and GPS data. The time it takes to draft the report and send it through the USGS publications process is approximately 6 months. During this time the report and data will be examined by USGS scientists (colleagues) outside of Oklahoma that have expertise in bathymetric projects. Once the report is back from colleague review it will go to the USGS publications group for layout and editorial review. During this time a copy with be given to the Grand River Dam Authority for review. Then the last step it will go to our regional office for publication review and approval.

We will send monthly reports to the Grand River Dam Authority on the project so they will be able to track the progress being made.

Sincerely,

Jason Lewis
Director, Oklahoma Water Science Center

Attachment H

GRDA Board Meeting Minutes (January 8, 2019)

Minutes of Regular Meeting
Grand River Dam Authority
Board of Directors
Tulsa, Oklahoma
January 8, 2019

A regular meeting of the Board of Directors of the Grand River Dam Authority was held at the Grand River Dam Authority Administration Headquarters, Vinita, Oklahoma, on January 8, 2019. Notice was given pursuant to 25 O.S.A. § 301 et seq. by submitting a schedule of regular monthly meetings to the Secretary of State on November 27, 2018, at 1:12 p.m.; by posting the agenda with the Craig County Clerks' offices on January 7, 2019, at 9:56 a.m.; by posting said agenda at www.grda.com; and by posting said agenda at the principal office of GRDA at least 24 hours prior to the meeting.

Chair Kimball called the meeting to order at 10:02 a.m. The Secretary called the roll. All members were present, and Chair Kimball declared a quorum. Mr. Philpott introduced guests.

BOARD MEMBERS

Tom Kimball, Chair	Present
James B. Richie, Chair-Elect	Present
Pete Churchwell	Present
Dwayne Elam	Present
Mike Lewandowski	Present
Chris Meyers	Absent
Joseph Vandevier	Present

ADMINISTRATIVE

Daniel S. Sullivan, Chief Executive Officer	Present
Tim Brown, Chief Operating Officer	Present
Lorie Gudde, Chief Financial Officer/ Corporate Treasurer	Present
Steve Wall, Chief Information Officer	Present
Heath Lofton, General Counsel	Present
Ellen Edwards, Executive VP – Compliance	Present
Brian Edwards, Executive VP – Law Enforcement/Lake Operations	Present
John Goodwin, Executive VP – Human Resources	Present
Nathan Reese, Executive VP – External Relations	Present
John Wiscaver, Executive VP – Corp. & Strategic Communications	Present
Mike Herron, VP – Engineering, System Operations and Reliability	Present
Darrell Townsend II, VP – Ecosystems/Watershed Management	Present
Robert Ladd, VP – Grand River Energy Center Operations	Present
Steve Jacoby, VP – Hydroelectric Projects	Present
Mike Waddell, VP – Transmission and Distribution Operations	Present
Ed Fite, VP – River Operations and Water Quality	Present
Justin Alberty, VP – Corp. & Strategic Communications	Present
Sheila Allen, Corporate Secretary	Present

Others present were as follows: Rusty Flaming, Grand Times; Tom Elkins, Cherokee Nation; Kristin Sexter, WorkWise Productions; Mike Doublehead, TPWA; Jaren Crisp,

Pryor MUB; Jeff Brown, Melanie Earl, Michelle Day, Ash Mayfield, Brylee Harbuck, Jennifer Marquis, Holly Moore, Spencer Moore, Tamara Jahnke, Christine Burmaster, West Hilburn, Matt Martin, Laura Townsend, GRDA.

Election of Officers

a. Nominations for Treasurer

b. Election of Treasurer

c. Nominations for Secretary

d. Election of Secretary

e. Nominations for Secretary Pro Tem

f. Election of Secretary Pro Tem

Chairman Kimball declared nominations for Treasurer, Secretary, and Secretary Pro Tem open, and moved to nominate Lorie Gudde as Treasurer, seconded by Director Vandevier. There being no other nominations, the nomination was voted upon as follows: Churchwell, Elam, Kimball, Lewandowski, Richie, Vandevier, yes. *Motion passed (6-yes, 0-no, 0-abstained).*

Chairman Kimball moved to nominate Sheila Allen as Secretary, seconded by Director Vandevier. There being no other nominations, the nomination was voted on as follows: Churchwell, Elam, Kimball, Lewandowski, Richie, Vandevier, yes. *Motion passed (6-yes, 0-no, 0-abstained).*

Chairman Kimball moved to nominate Susan Wagoner as Secretary Pro Tem, seconded by Director Vandevier. There being no other nominations, the nomination was voted on as follows: Churchwell, Elam, Kimball, Lewandowski, Richie, Vandevier, yes. *Motion passed (6-yes, 0-no, 0-abstained).*

CONSENT AGENDA

2. December Claims, $39,458,975.92.

4.a. Resolutions of Commendation

1) Edward L. Rothermel

4.b. Declare Surplus and Not Necessary to the Business of the District

Description and/or Make of Item	Serial Number	Model Number
Gauge, Pressure, 0-30 PSIG, 2-1/2" Dial, 1/4" NPT Bottom Connection,	Ashcroft	1008S
Gauge, Pressure, 0-200 PSIG, 6" Dial, 1/4" NPT Bottom Connection, Brass,	Ashcroft	60 1010A 02L 1200
Gauge, Pressure, 0-1000 PSIG, 4-1/2" Dial, 1/4" NPT Bottom Connection,	Ashcroft	N/A
Gauge, Pressure, 0-60 PSIG, 4-1/2" Dial, 1/4" NPT Lower Back	Ashcroft	45 1017A 02B 60
Gauge, Pressure, -30 To 60 PSIG, 4-1/2" Dial, 1/2" NPT Bottom	N/A	N/A
Gauge, Pressure, 0-1500 PSIG, 4-1/2" Dial, 1/2" NPT Bottom Connection,	Ametek	1982-150055
Gauge, Pressure, -30 To 100 PSIG, 4-1/2" Dial, 1/2" NPT Bottom	Ashcroft	45-1279AS
Gauge, Pressure, 0-2000 PSIG, 4-1/2" Dial, 1/4" NPT Lower Back	Ametek	1322
Gauge, Pressure, 0-2000 PSIG, 4-1/2" Dial, 1/2" NPT Bottom Connection,	Helicoid	397717
Switch/Gauge, Pressure, 0/8" Water Column, 1/8" NPT Female Bottom	Dwyer	3008
Gauge, Sight, Oil	Foster Wheeler	3956B30H009
Gauge, Pressure, 0-100 PSIG, 4-1/2" Dial, 1/4 NPT Bottom Connection,	Ashcroft	45-1377SS-02B
Kit, Repair, Glass Gauge	Kenco	A1145K-22
Kit, Repair, Glass Gauge	Kenco	5736-K-70
Kit, Repair, Glass Gauge	Kenco	A1145K-10
Tube, Siphon, Loop, 1/2"	Ashcroft	50-1098CD
Glass, Sight, Reflex, #5	Macbeth	B5
GASKET: SIGHT GLASS, 1-11/32 X 8-21/32 X 1/32"	N/A	N/A
Ring, Sight Glass, Hycar	Jerguson	G-24
BALL: CHECK	Jerguson	P-1-I
COUPLING: DRIVE SHAFT, ROUGH BORE, W/ SHIM PACK, SS	Rexnord	26630
ASSEMBLY: REPLACEMENT HARDWARE KIT	Rexnord	16323-19
DISC: REPLACEMENT PACKS SS ONLY	Rexnord	10957
NOZZLE: DISTRIBUTION SYSTEM, MODEL IC	Munter	70201
NOZZLE: DISTRIBUTION SYSTEM, MODEL 1B	Munter	70101
TURBULATOR: SIZE B	Munter	N/A
ORIFICE: SIZE B	Munter	N/A
TUBULATOR: 2 1/2"	N/A	N/A
ORIFICE: SIZE C	N/A	N/A
GASKET: FITS ALL NOZZLES	Munter	N/A
KIT:	Westinghouse	373B331G09
COIL:	Westinghouse	505C806G01
FUSE BLOCK: FOR 1/4" X 1 1/4" FUSES, 3AG MDL OR MDX	Westinghouse	257A574G01
RETAINER: OIL SEAL INPUT	N/A	N/A
Module, Motor Control, Voltage,120 VAC, 60 HZ	Monitrol	2000
INDICATOR: VERITRAK	N/A	N/A
ELEMENT: SCREW-IN TYPE FOR WATER HEATING, 2500W,	N/A	N/A
METER: OUTPUT, FP CONTROLLER	Fischer Porter	158C002U01
SWITCH: PUSHBUTTON, INTERLOCKING	Fischer Porter	154D097U01

PULLEY: ASSEMBLY, W/SHAFT, FP RECORDER	Fischer Porter	655B068U01
SPOOL: CHART DRIVE, TIMING, FP RECORDER	Fischer Porter	413A010U01
SPRING: RELAY VALVE, FP CONTROLLER	Fischer Porter	424A010T12
LATCH: UPPER, FP CONTROLLER	Fischer Porter	326A070U01
PIN: HINGE, BEZEL	Fischer Porter	396C204U01
PIN: HINGE, BEZEL, RIGHT SIDE	Fischer Porter	396C232U01
BELT: RECORDER, FP CHART DRIVE, TIMING	Fischer Porter	393D001U01
BELT: RECORDER, FP CHART DRIVE, REWIND	Fischer Porter	393D001U02
BUSHING: SPACER (IDLER), FP CHART DRIVE	Fischer Porter	104D056U01
SHAFT: IDLER, FP CHART DRIVE	Fischer Porter	624B015U01
PULLEY: DRIVE, FP CHART DRIVE	Fischer Porter	413E034U01
SCREW: SHOULDER, SHOULDER DIA. 3/16", OVERALL LENGTH 3/8"	Fischer Porter	396C197U01
SHAFT: REWIND ASSEMBLY, FP CHART DRIVE	Fischer Porter	635B031U01
ROD: GUIDE	Fischer Porter	402E181U01
BRACKET: CAM PLATE, FP RECORDER	Fischer Porter	355K351U01
LIFTER: PEN	Fischer Porter	649B038U01
HOLDER: PEN CARRIER, FP CHART DRIVE	Fischer Porter	624B198U01
PET: CHART (ASSEMBLY)	Fischer Porter	639B008U01
MOTOR: TORQUE ASSEMBLY, FP CHART DRIVE, 1ST PEN	Fischer Porter	669B047U01
MOTOR: TORQUE ASSEMLBY, FP CHART DRIVE, 2ND PEN	Fischer Porter	669B047U02
MOTOR: TORQUE ASSEMBLY, FP CHART DRIVE, 3RD PEN	Fischer Porter	669B047U03
LINKAGE: LEVER ARM, FP CHART DRIVE	Fischer Porter	647B043U01
LINKAGE: LEVER ARM, FP CHART DRIVE	Fischer Porter	647B122U01
CABLE: FLAT ASSEMBLY	Fischer Porter	677B183U01
LINK: ASSEMBLY, ROD COUPLING	Fischer Porter	648A141X99
LINKAGE: COUPLING ROD, FP CHART DRIVE	Fischer Porter	648B022U01
LINKAGE: INNER PEN ARM, FP CHART DRIVE	Fischer Porter	647B167U01
LINKAGE: OUTER PEN ARM, FP CHART DRIVE	Fischer Porter	647B166U01
LINKAGE: PEN ARM (GREEN), FP CHART DRIVE	Fischer Porter	647B168U01
Bearing, Pillow Block, 2-7/16",	Rexnord	MEP2207
NOZZLE: SPRAY, 2 1/4"	N/A	N/A
MOTOR: ISOLATION VALVE ACTIVATOR	N/A	N/A
MOTOR: BYPASS VALVE ACTIVATOR	N/A	N/A
BOLT: HH, SS, NC, SIZE 3/8" X 1-3/4"	N/A	N/A
PUMP: S/N NP88-1386, SUMP W/MOTOR, 120GPM	Nagle	N/A
Flex Element, For CTC-700.1125 (Old Style Driveshaft)	Addax	200917-070
Kit, Hardware, Stainless, For CTC-700.1125 (Old Style Driveshaft)	Addax	600567-2096
Shaft, Drive, Sectional Assembly, Motor End,	Rexnord	301 DBZ-X/SF
Shaft, Drive, Sectional Assembly, Gearbox End,	Rexnord	301 DBZ-X/SN
Pack, Shim, .291", 301 Stainless, Half Hard, For 301 DBZ-X/SN Coupling	Rexnord	620359
Assembly, Seal Disc, 5 Sections, AP, 13.3 Diameter, 8000	Hudson	D8053
1 Lot General Electrical Material	N/A	GREC 090 Section
1 Lot General Instrument Material	N/A	GREC 143 Section
1 Lot Rail Car Inventory	N/A	GREC 259 Section
Bracket: Header; Lot of 6		Securitron WFB-62
Bracket: Header; Lot of 6		Securitron CHB-62
Tool: Blind Nut; Lot of 3		Securitron BPT-1
Reader: Card; Lot of 2		Schlage 808-S & 804-S
Warning: Horn; Lot of 5		Benjamin 8590-115v
Warning: Horn; Lot of 16		Vibratone 450
Warning Horn; Lot of 4		Vibratone 450 w/PR2 Projector
Enclosure: Aluminum		Bogen FS WB
Warning: Horn; Lot of 2		Thomas 8170
Speaker: Horn		WAH
Driver: 30 Watt RMS; Lot of 5		Bogen DR-30T
Speaker: Wall Mount		WBS8T725
Speaker: 15 Watt		Bogen SPT-15A
Speaker: Cover 8"; Lot of 8		
Processor: 8 Door		Schlage 808-5
Power Supply Module		Schlage 3708A-1

Monitor: 4 Switch		Schlage 774
Switch: Exit: Lot of 7		PB2
Bracket: Z		Securitron Z-62
Ready Index: 10 Tab - 10 Boxes		11134 Avery
2" 3 Ring Binder - 16 Cases of 12		Round Ring
2" 3 Ringer Binder - 9 Cases of 12		Round Ring
Clark Forklift / GPS-25 / 1987		
High Pressure Sodium Light Fixtures: Lot of 20		VML0-0-900

2013 Honda Civic Sedan		Civic CNG
2013 Honda Civic Sedan		Civic CNG

4.c. Power Cost Adjustment (PCA) of $0.00052 per kWh for February 2019

4.d. Power Purchase and Sale Agreement – Batchelor & Kimball, Inc.

4.e. Recommendation to Award Contract 42434 – Railroad Track Services

5.b. Purchase Order Report (* Denotes Addenda Items)

Standard Purchase Orders & Contracts			
PO Number	**Vendor Name and City State**		**Amount**
42546	TECHLINE INC., VAN ALSTYNE, TX		68,400.00
42542	PRYOR STONE INC., PRYOR, OK		389,900.00
42541	VALMONT INDUSTRIES, VALLEY, NE		1,951,015.00
42544	SABRE INDUSTRIES, SIOUX CITY, IA		1,027,406.00
42549	STUART C IRBY, TULSA, OK		3,144,783.28
42550	DISTRAN STEEL LLC, PINEVILLE, LA		268,353.00
42551	ASC ENVIRONMENTAL SERVICES INC., SEAGOVILLE, TX		100,000.00
96727	PINNACLE BUSINESS SYSTEMS, EDMOND, OK		71,415.36
42552	INDUSTRIAL WELDING & TOOL SUPPLY DBA GAS & SUPPLY, TULSA, OK		51,051.50
42553	AIR PRODUCTS AND CHEMICALS, INC., ALLENTOWN, PA		450,000.00
42554	SAPPHIRE WINDOW CLEANING LLC, TULSA, OK		27,320.00
42560	KEMCO INDUSTRIES, SANFORD, FL		61,065.00
42434	AM-RAIL CONSTRUCTION INC., TULSA, OK		254,700.00
42363	A2V PARTNERS LLC, SPRINGFIELD, MO		377,364.00
	Grand Total Standard POs & Contracts:		**$8,242,773.14**
Change Orders & Renewals			
PO Number	**Vendor Name and City State**		**Amount**
42176	AMERICAN TIRE DISTRIBUTOR, TULSA, OK		20,000.00
41485	1577 PRODUCTIONS INC., OKC, OK		1,161.00
96747	SHI INTERNATIONAL CORP, SOMERSET, NJ		55,497.00
96774	PINNACLE BUSINESS SYSTEMS, EDMOND, OK		81,880.32
42556	CONSOLIDATED COMMUNICATIONS, WESTFIELD, NY		67,116.00
96853	PINNACLE BUSINESS SYSTEMS, EDMOND, OK		204,962.56
41078	EXPRESS PROFESSIONAL SERVICES INC., OKLAHOMA CITY, OK		900,000.00
	Grand Total Change Orders & Renewals:		**$1,330,616.88**
Grand Total			**$9,573,390.02**

Director Churchwell moved to approve the consent agenda as presented, seconded by Director Richie, and voted upon as follows: Churchwell, Elam, Kimball, Lewandowski, Richie, Vandevier, yes. *Motion passed (6-yes, 0-no, 0-abstained).*

REGULAR AGENDA

1. Special Board Minutes of November 26, 2018.

Director Vandevier moved to approve the special Board minutes of November 26, 2018, seconded by Director Elam, and voted upon as follows: Churchwell, yes, Elam, yes, Kimball, yes, Lewandowski, yes, Richie, abstain, Vandevier, yes. *Motion passed (5-yes, 0-no, 1-abstained).*

3. Unfinished Business

3.a. Progress Reports

(1) Recognition of John Goodwin

(2) Introduction of Robert Braun

(3) Current Operations Reports

a) Monthly Video Update – GRDA January 2019

- **I am GRDA – Travis Henshaw**
- **I am GRDA – Laurel Swift**

Mr. Sullivan recognized Mr. John Goodwin for his contributions to GRDA and introduced Mr. Rob Braun who will be filling Mr. Goodwin's position as the Executive Vice President – Human Resources. He also recognized Mrs. Kristine Sexter with WorkWise Productions for her work in finding Mr. Braun. Mr. Sullivan said she sorted through over 100 applicants for the position. He commented that Mrs. Sexter had suggested GRDA bring in Mr. Braun for his final interview, but making certain to invite his spouse. Mr. Sullivan said he thought this was a great idea, particularly with the move they would be anticipating form Kansas City, Missouri. This would give a better understanding of what GRDA is all about to both of them, and how it will impact the family. He thanked Mrs. Sexter for all of here help with everything at GRDA.

Mr. Sullivan reported that GRDA's confined space rescue rope team held their quarterly training at Northeast Tech-Pryor campus last month. The training was led by

Brandon Merritt and the group worked on drills that included repelling down a five-story tube to perform a patient rescue. Once on the bottom, inside the confined space, the team members provided necessary emergency medical responder care. Following that, they then removed the victim by pulling him back up the tube to the top. Next, the team repelled from the fifth floor and practiced locking off to perform drills and lastly, repelling down to rescue a suspended victim. He showed photos of the training and said it was a great opportunity for GRDA law enforcement officers at the Grand River Energy Center (GREC), and everyone involved, as there was an incident at the dam approximately a month ago.

Mr. Sullivan told the Board GRDA Police recently assisted other area law enforcement agencies in search and rescue efforts. On December 18, he said GRDA Police assisted in a massive search in hopes to find a missing person. The team searched for eight hours on foot, covering approximately 68 miles total as a team, which included over 1,200 acres of rough terrain and frequent elevation changes. In a separate set of circumstances, he said officers also assisted in searching for another missing person last week.

Mr. Sullivan said there was an Emergency Action Plan (EAP) exercise held December 19, 2018, at the Training, Safety and Environmental Building (TSE) at the GREC. The EAP contains all the steps that would need to be taken in order to deal with certain emergency situations at GRDA dams and associated structures, and is an important part of the Authority's ongoing hydroelectric operations and overall preparedness. He stated the Federal Energy Regulatory Commission (FERC), which licenses each of GRDA's hydroelectric facilities, requires having these EAPs in place and reviewing them on a regular basis. Mr. Sullivan told the Board agencies and organizations in attendance this year included American Red Cross, Burns & McDonnell, Ft. Gibson Powerhouse personnel, GRDA, Cherokee County, Mayes

County, Muskogee County, Wagoner County, Oklahoma Emergency Management, FERC, MESTA, National Weather Service, Oklahoma Highway Patrol, United States Army Corps of Engineers-Tulsa District, along with several area Fire, Police and Sheriff Departments.

Mr. Sullivan reported that recently Mr. Jerry Cook and Mr. Cameron Philpott of GRDA's External Relations Team delivered GRDA public power partner signs. He stated GRDA is proud to provide this new signage recognizing their community involvement with GRDA, and showed photographs of the signs.

Mr. Sullivan said GRDA employees came together and raised nearly $18,000 in 2018, benefitting 40 different charities (local, state, nationally & internationally). He explained the support came from employees who connected with a cause during the Oklahoma State Employee Charitable Campaign (SCC). The yearly campaign provides state employees the opportunity to contribute, through voluntary payroll deduction, several fully accountable private nonprofit, social, health and welfare organizations. Support also came from fundraisers initiated by GRDA's Employee Charitable Campaign Committee throughout the year.

Director Richie left the room at 10:35am, and returned at 10:38am.

Mr. Sullivan introduced Mr. Steve Wall to give the Board an update on the Enterprise Resourced Planning (ERP) Project.

3.a,3,b, Enterprise Resource Planning (ERP) Project Status Update – 4th Quarter 2018

Mr. Wall greeted the Board and said Miya Boyken recently resigned, but left the team with a very detailed plan and notes. He stated the project is in very good shape and the team is diligently working to stay on track. Mr. Wall Introduced Mr. West Hilburn and asked him to provide the update for the Board.

Mr. Hilburn provided project highlights, to include the November 2018 ERP Team visit with Sopris and Starboard on-site in Vinita and the Grand River Energy Center

(GREC), Sprint Sessions beginning in September 2018, early Sprints focused on setup and configuration of modules (Finance, Human Resources and Inventory), and later Sprints that will be focused on data refinement, integration design and reporting. He said there is still work to do in Inventory and Maximo integration since there are a lot of moving parts to this process. Although, Mr. Hilburn stated the team begins meetings again next week to make certain tasks are caught up. He went over the ERP project expenses already approved by the Board of Directors, and said the implementation is on track for this year, and the amount for purchasing 32 Microsoft Dynamics 265 licenses and Azure Hosting Services will not run out in January 2020. GRDA will need to renew the ERP licenses and hosting services for a 3-year term then, as it will require Board approval. He showed a graph of the project budget to date showing the invoices paid, remaining project budget, and the portion for Managed Services. Mr. Hilburn showed the Board what the ERP front page (all modules) will look like, and said once things are more complete each person will only see the modules they will be working in. Right now all can be seen. Mr. Hilburn showed screen shots of a Personnel Management Dashboard for Human Resources and for Finance. He commented there has been good feedback from those looking at the data currently. Mr. Hilburn stated the next steps are to continue with design, build, and data refinement to populate the TEST environment of the ERP. The next update will be provided in April 2019. Future integration under consideration are Travel Management and Fleet Management to continue with centralizing financially impacted areas of GRDA.

Director Vandevier asked Mr. Hilburn what is keeping him up at night on this. Mr. Hilburn said he is just making certain he understands what needs to be done and is able to execute. He said the team has been doing great keeping everyone on track and staying in touch. Mr. Hilburn said he does not see GRDA getting behind, but there are items moving slower than anticipated. Director Vandevier asked if there is any feedback

on how challenging or successful the Sprints were. Mr. Hilburn said the people who have been using it seem to like it much better and say it is much easier to access information.

Director Elam asked if the team feels like they are “over the hump” or still “climbing the mountain” in the transition. Mr. Hilburn said I think we are over the hump but I think it is like a snowball, as we add more components it will get larger and more difficult.

Mr. Lewandowski asked how this would affect system security. Mr. Wall said GRDA has a cyber security team that works to ensure information is safe as we enter systems into the cloud. He also told the Board GRDA does have a new information security officer that is tasked with keeping tabs on all of that infrastructure and working with the team to make certain data is protected.

4. New Business
4.f. Capital Work Order Report (* Denotes Addenda Items)

Number	Title	Gross Work Order Amount	Reimbursement	Net GRDA Cost
RF018-00932	Salina Generator Rotor Pole Replacement	$ 2,858,400	$ -	$ 2,858,400
RF018-00940	Tahlequah Interconnect Upgrade	2,399,300	-	2,399,300
RF018-00941	Armin Road Distribution Line	440,900	-	440,900
RF018-00942	PACS Server and Redundancy Project	86,400	-	86,400
Grand Total Work Orders		**$ 5,785,000**	**$ -**	**$ 5,785,000**

Mr. Sullivan said that after some discussion last month with the Audit Committee in preparing the budget there was a request the staff take a different approach to how they handle capital work orders. He stated he would like to have any feedback or questions from the Board on the full report they were provided or the summary of items on the agenda. He noted multi-year projects.

Director Vandevier said he did not believe the Armin Road Distribution Line item was originally included in the list of projects he saw. He asked Mr. Sullivan for a little detail on this. Mr. Sullivan said this is a request from the MidAmerica Industrial Park because they are trying to pre-build some areas in the park and lay out some

minimal infrastructure to encourage potential projects when prospective companies come to look. The park can show this infrastructure is in place and GRDA can quickly move to extend service to any new industries. Mr. Sullivan said he and the staff are aware that this item would be taken out of the overall budget, and could likely push another project back a bit. Director Vandevier asked if this will provide any near term opportunity for GRDA or if this is a long-term opportunity. Mr. Sullivan this is probably a mixture of the two. He explained it will depend on how quickly new businesses come in. Mr. Brown also added this is not only for future load, but GRDA will actually need the substation now to accommodate a key customer in the park already.

Director Vandevier said he did not see the PACS Server and Redundancy Project item in the capital budget. Mr. Wall stated it is on the list of capital projects and is within budget. He said it does a technology refresh on 3 of GRDA's PACS servers that run the physical security system, and 3 are to implement a redundancy factor to ensure there is a better redundancy posture. Director Vandevier asked if this is a requirement or only best practice. Mr. Wall said it is a best practice for the servers GRDA currently has.

Director Churchwell moved to approve the capital work orders as presented, seconded by Director Vandevier, and voted upon as follows: Churchwell, Elam, Kimball, Lewandowski, Richie, Vandevier, yes. *Motion passed (6-yes, 0-no, 0-abstained).*

4.g. Resolution of Support - Formation of Northeast Oklahoma Regional Advanced Manufacturing & Materials R&D Task Force

Mr. Sullivan stated Mr. Tom Gray put GRDA in touch with Mr. Paul Mason that is working with others in the Northeast Oklahoma area to get funding from the U.S. Department of Commerce on advanced manufacturing. He said one of the key areas being looked at in the MidAmerica Industrial Park is advanced manufacturing companies and development of workforce. Mr. Sullivan explained GRDA would like to

create this resolution to lend support to their effort to make this application for the program.

Chairman Kimball asked if this was a no cost item to GRDA. Mr. Sullivan confirmed this. Chairman Kimball stated he understood there is no cost in the future as well, and said Mr. Mason has been very successful in this. Mr. Sullivan said GRDA foresees some real benefit to this program being in place.

Director Lewandowski moved to adopt the resolution as presented, seconded by Director Richie, and voted upon as follows: Churchwell, Elam, Kimball, Lewandowski, Richie, Vandevier, yes. *Motion passed (6-yes, 0-no, 0-abstained).*

4.h. Proposed Cooperative Program – U.S. Geological Survey – Surface Water Operation, Maintenance and Water-Quality Sampling of Gaging Stations in the Illinois, Neosho, Spring and Elk River Basins

Mr. Fite provided a program description, saying the proposed program is for the collection of streamflow data and the collection and analysis of periodic water quality data at locations in the Illinois, Neosho, Spring and Elk River Basins. He said GRDA must rely upon a third party water quality sampling program to defend their position as an agency on water quality and to allow it to discern what is happening upstream states. Mr. Fite stated surface-water data collection consists of collecting continuous records of river stage, maintenance of a stage-discharge relation, and publication of mean-daily river discharges annually. All continuous monitor values for surface-water are available through real-time satellite telemetry on the U.S. Geological Survey (USGS) Web site. Periodic water-quality samples covered in this agreement are for six event samples and for six base flow samples of field parameters; temperature, specific conductance, pH, and D.O.; nutrients consisting of ammonia, ammonia plus organic nitrogen, nitrite, organic nitrogen, orthophosphate, total nitrogen, suspended sediment concentration, suspended sediment sieve diameter percent less than 0.063 mm; and turbidity. Mr. Fite

said in 2018 GRDA added new stream gaging sites on the Neosho, Spring and Elk Rivers. He stated a webcam and a stage-only stream gage was also located on the Illinois River, near Moody's. Mr. Fite explained this information gives the public an idea of what conditions are before they come to the river for recreation.

Director Vandevier asked where on the Neosho, Spring and Elk River Basins these monitors are located. Mr. Fite said GRDA has located these monitors as close to the state line as possible. He also said, generally, they are on a bridge crossing. Director Vandevier asked how long the monitors have been in place. Mr. Fite explained the Tahlequah gage site has been there 83 years. He said the others have all been there under 63 years. Mr. Fite stressed the importance GRDA maintain a long-term water quality record given the ever-increasing population and associated urban sprawl throughout those watersheds within GRDA Jurisdiction.

Director Lewandowski asked if there is any other water quality monitoring being done on the Scenic Rivers. Mr. Fite confirmed this and said it is extensive. He also reported on the new water quality lab that GRDA has established on the campus of Northeastern State University (NSU) - Tahlequah. He also said Dr. Townsend has a continual effort going on in his lab as well at the GRDA Ecosystems & Education Center. Dr. Townsend stated there has been a lot of work on the Illinois River and the staff is trying to focus on, through the NSU partnership, on the Scenic Rivers. Mr. Fite said out of 82 watershed basins in the state, the Illinois River is the most armored by stream gaging stations/water quality monitoring. He stated that he is trying to bring this type of focus and extensive sampling to the other water resources in GRDA's jurisdiction.

Director Vandevier said he assumes with all of this data it would be possible to get to a predictive analysis type approach. Dr. Townsend said the staff is wrapping this work up now. He explained several years ago GRDA entered into a partnership with the

Oklahoma Department of Environmental Quality (ODEQ) and has done a comprehensive modeling for the Spring and Neosho Rivers. It is going to lay out target areas primarily associated with nutrient inputs which will give GRDA a foundation baseline to begin working on target areas for active management, and how to address those going forward. Dr. Townsend said GRDA is almost at the point of being able to develop management plans to do this.

Director Lewandowski asked if the bordering states are collecting data as well. Dr. Townsend confirmed this, and said GRDA is currently working with the Kansas Department of Health and Environment as well as working with Missouri and Arkansas Departments of Agriculture.

Mr. Fite showed a breakdown of the funding required for the project, with GRDA's share being $147,700 of the total cost of $292,350 program. He said additional funding is provided by the U.S. Army Corps of Engineers-Tulsa District, and the USGS National Streamflow Information Program in support of the Illinois River Basin data collection program. Related to the Elk River Gage Site, he noted the reduced cost for that site as USGS- Missouri District Water Center already collects monthly base flow samples at Tiff City stream gage.

Chairman Kimball said the state should be extremely proud to have Ed Fite with GRDA with his vast knowledge and the information he brings to GRDA to share and assist with activity around the other GRDA water resources. He commented there is nothing much more important than this for GRDA, and thanked Mr. Fite.

Director Churchwell moved to approve the U.S. Geological Survey (USGS) Joint Funding Agreement # 18C4SH003100000 for the project of Surface Water Operation, Maintenance and Water-Quality Sampling of Gaging Stations in the Illinois, Neosho, Spring and Elk River Basins during the period January 1, 2019 through December 31, 2019, in the amount of $147,700, seconded by Director Richie, and voted upon as

follows: Churchwell, Elam, Kimball, Lewandowski, Richie, Vandevier, yes. *Motion passed (6-yes, 0-no, 0-abstained).*

4.i. U.S. Geological Survey Bathymetric Survey and Area Capacity Table for Grand Lake O' the Cherokees

Dr. Townsend said this item is related to previous discussions on relicensing and what came out of the Federal Energy Regulatory Commission's (FERC) Study Plan Determination. The requirement to acquire the bathymetry report was a bit unexpected. He state the staff felt like the data needed to move forward was provided, but FERC was convinced by other parties that GRDA needed to provide some additional information. Dr. Townsend said the commission suggested this report for Grand Lake to provide information specifically for the license application. He explained this will set GRDA back in the process, which was initially 5 years. It will add approximately 4 years. Dr. Townsend said it is essentially a 2-year project for U.S. Geological Survey to complete as Grand Lake is a significant sized resource, and grossly underestimated both in scope and cost by FERC. He stated the last bathymetry report was in 2009 and used single beam technology and was performed by the Oklahoma Water Resources Board. GRDA will now be utilizing a multi-beam technology. He showed a diagram to illustrate the difference in the technologies, and said before the modeling can be completed this baseline information will be needed.

Director Churchwell asked if this would tell us anything about sedimentation. Dr. Townsend said there is a second component of the relicensing that will address sedimentation, and FERC has made this a part of the Study Plan Determination.

Director Vandevier asked if there is value beyond the relicensing process to this, and possibility could GRDA recover some of this cost. Chairman Kimball said he assumes this will be very accurate and worth something to many people around the lake or that visit the lake. Dr. Townsend confirmed this and said this will be more

accurate and valuable to many. He also said there could be potential to monetize this. Mr. Sullivan agreed that GRDA will want to investigate this further.

Director Richie asked if this is all done at a consistent lake level. Dr. Townsend confirmed this, but said it does not have to be and the reporting would be adjusted for the level.

Director Elam asked if there would be an opportunity to use this to GRDA's advantage from an operational standpoint. Dr. Townsend confirmed this and said this would be utilized as the foundation for the modeling work.

Director Lewandowski asked if GRDA will own the data. Dr. Townsend confirmed this.

Director Churchwell moved to approve an interagency agreement between GRDA and USGS for an amount not to exceed $426,000 for multi-beam bathymetric mapping of Grand Lake, subject to final approval by the CEO and General Counsel, seconded by Director Richie, and voted upon as follows: Churchwell, Elam, Kimball, Lewandowski, Richie, Vandevier, yes. *Motion passed (6-yes, 0-no, 0-abstained)*.

4.j. Fleet Monitoring and Tracking System – RFP 42465

Mr. Herron said this project is needed to reduce unscheduled vehicle downtime through automated remote diagnostics, achieve "just-in-time" vehicle maintenance, protect vehicle engines with remote diagnostics, and reduce fuel expenses caused by excessive engine idling and low fuel economy. These will save money over time on unnecessary maintenance and provide alerts when a vehicle needs emergency servicing and information on speeding. He stated that the hope is to also reduce risk to employees in accidents by identifying aggressive drivers and speeders to allow behavior modification before an accident occurs. It will also reduce liability exposure in insurance claims, simplify fleet management oversight through online availability,

manage the fleet from anywhere, saving time and improving efficiency, and will provide a more automated transfer of data to other management programs such as the ERP. Mr. Herron explained there are a number of employees that work by themselves, and this system would provide lone worker safety improvements by allowing accurate geolocation of employee worksites in case of emergencies or accidents. He showed a breakdown of what idling costs are according to AAA, and said the fleet currently on the operational side would be for 55 sedans or small SUV's, 179 half-ton to 1-ton trucks, and 43 heavy vehicles. These numbers exclude GRDA Police vehicles. Mr. Herron stated GRDA staff received input from a State contractor for a similar system and learned a lot from that contractor regarding system capabilities. He said GRDA staff did Web research and found other possible systems. Ultimately, deciding to put this project out for competitive bid and an Request for Proposal (RFP) was prepared with input from several affected departments. The main system goals were to identify and track each vehicle while in use in real time, identify the individual driver operating the vehicle, maintain and display individual vehicle records for location and speed, track vehicle status and driver operational data. The original plan was to include additional diagnostic information only on heavy equipment, to include engine operating conditions, engine alarms and warning indications, and PTO operation. This bid would require computer programs for monitoring the system, installation services, training of GRDA mechanics for future installation and removal, training of GRDA personnel in the use of the monitoring system program, and quotes for purchase or rental on the first year, with 2 one-year renewal options. Mr. Herron stated GRDA staff opened responses on November 14, 2018, with 5 responses received and evaluated. Only 2 respondents were non-conforming in required documentation and 1 additional respondent had technical areas of non-compliance and was removed from further evaluation. The remaining 2 bidders were requested to provide demonstrations of their products during

early December 2018. Based on the demonstration and lower cost, he explained GRDA staff chose LB Technologies. Based on the evaluation, the staff decided to use 2-minute reporting, get full diagnostics package on all GRDA vehicles, require driver identifiers only on passenger pool vehicles, and attempt to use swipe cards rather than key FOB's if available from the vendor at similar costs. After further investigation, Mr. Herron said the staff learned from our physical security staff that the information on the swipe cards GRDA has is proprietary and would not be able to be used for this purpose. He provided a cost summary of the LB Technologies quote for the system. LB Technologies quoted $54,385.56 for the first year, $52,974.94 for the second year and $52,974.94 for the third year. In contrast to this, the organization used by the State quoted approximately $100,000 for the first year, and approximately $75,000 for the second and third year. Mr. Herron said there is no direct funding included in the 2019 budget, but the system will be funded through anticipated savings in reduced fuel use, better control of trip mileage, reduced maintenance, more crew productivity, evidence when a vehicle is involved in an accident, a savings in time in completing paper mileage forms and manual data entry, and trip documentation. To clarify, Mr. Herron said this system tracks real time data and will be coming in continuously, but only records the data on a 2-minute basis.

Chairman Kimball asked if this has the possibility to reduce the number in GRDA's fleet. Mr. Sullivan said that is actually a separate issue that the staff is working on right now as they finalize the new vehicle policy. He also stated GRDA is changing the criteria on how vehicles are assigned.

Director Elam asked if this was the entire fleet we are discussing. Mr. Herron said it is all of our fleet, with the exception of the GRDA Police vehicles because they already have a system similar to this in place, and have had it for some time. Mr. Edwards commented it is like others that local law enforcement have in this part of the state.

Chairman Kimball asked who would be monitoring this data and would it take additional personnel. Mr. Herron said it is set up so that each department supervisor can login and monitor their own crew vehicles, and GRDA's Fleet Department will also get notifications, etc. He confirmed there will not be any personnel added. Chairman Kimball asked if there is the possibility to share this contract with some of the customer cities or would it be just as economical for them to handle this on their own. Mr. Herron said he did not have an answer for that, but it would be up to this contractor if they agreed to offer and guarantee the same rates. Chairman Kimball asked what happens if it doesn't pay for itself. Mr. Herron said if there is doubt then this project would need to be postponed as more research is done and approval might not be needed right now.

Director Elam asked Mr. Herron if he believes this system will save GRDA enough to pay for itself. Mr. Herron confirmed this.

Director Vandevier shared his personal experience with systems like this when he worked with a very large corporation, with hundreds of vehicles. He said the system they employed was similar to this and the biggest challenge was the culture change they experienced at the company. Director Vandevier stated there could be some Human Resources policy issues GRDA needs to think about, as well as some discipline issues to think about tied to this, and that is the biggest challenge. He commented that once you get through all of this, it becomes more accepted.

Chairman Kimball asked if the ERP fleet module would replace this system. Mrs. Gudde said the ERP includes this. Mr. Herron explained GRDA would be provided a file that will be handed off to the ERP and there could be a cost to integrate this data. Mr. Brown stated this is just an option and we will only pursue that if we are convinced that the cost savings would provide a benefit.

Director Richie asked Director Vandevier if he felt the vehicle tracking system used at his previous company saved them money. Director Vandevier said it absolutely did. He also said he is sold on these types of systems for fleet management.

Director Vandevier asked if GRDA is committed to the 3 years, or is there an opportunity to make a change should there be an issue. Mr. Herron stated it is a 12-month commitment and would have to be renewed by the Board of Directors each year. This approval would only lock down the cost for the 3 years.

Director Churchwell said his personal experience with systems like this is the same as Director Vandevier's. He stated that overcoming the cultural aspect of it was the far more difficult part. Once that is overcome, Director Churchwell stated the system really does pay for itself.

Director Kimball said his experience was the same as the other directors, and commented there would likely be more cultural issues than anticipated. He stated it is very important for the Human Resources policies to be in place to handle this.
Mr. Sullivan commented that this information will be available to our system operators and anyone with a need to monitor the activity.

Director Churchwell moved the Board approve award of RFP #42465 – Fleet Monitoring and Tracking System, to the low evaluated bidder, LB Technologies, for the first year rental cost of $54,385.56 with the option to extend the agreement for 2 more years based on the quoted per-unit rates, seconded by Director Elam, and voted upon as follows: Churchwell, Elam, Kimball, Lewandowski, Richie, Vandevier, yes. *Motion passed (6-yes, 0-no, 0-abstained).*

Director Churchwell and Chairman Kimball left the room at 11:24am, and both returned at 11:29am.

4.k. Second Reading and Modification of Board of Directors' Policy No. 2-3

Mr. Lofton explained this item is regarding Board of Directors' committees. He said this is the final reading and consideration for approval of this policy to amend the policy and update the Assets Committee responsibilities to include Scenic Rivers rules, to amend the Audit, Finance, Budget, Policy & Compliance Committee responsibilities to place emphasis on the committee's oversight concerning financial reporting and regulatory policies, and to tailor the responsibilities of the Compensation and Marketing Committee, making it clear the committee overseas compensation for the Chief Executive Officer. This will also eliminate the Power Capacity and Utilization Subcommittee and the Compliance Ad Hoc Committee.

Director Churchwell moved to approve the modification to the Board of Directors' Policy No. 2–3 as presented, seconded by Director Lewandowski, and voted upon as follows: Churchwell, Elam, Kimball, Lewandowski, Richie, Vandevier, yes. *Motion passed (6-yes, 0-no, 0-abstained).*

4.l. Other New Business

There was no other new business.

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5. Reports

5.a. Board of Directors Committee Reports

1. **Assets Committee:** Director Churchwell had no report.
    a) **Consideration, Discussion, and Possible Approval of an Assignment of a License to Encroach from John W. and Sherry L. Bouman to Roy G. Jalbert for Property Located in Ottawa County, Oklahoma.**
    b) **Consideration and Discussion Regarding the Status of Habitable Structures.**

Regarding item a, Director Churchwell said the committee reviewed the assignment of a license to encroach from John W. and Sherry L. Bouman to Roy G. Jalbert for this property. The committee agreed that this be assigned to the new owner of this property. The yearly value would be $215.50.

Director Churchwell moved the Board approve the Assignment of the 30 year License to Encroach from John and Sherry Bouman to Roy Jalbert in Ottawa County, Oklahoma, for the amount of $215.50 per year, and it was voted upon as follows: Churchwell, Elam, Kimball, Lewandowski, Richie, Vandevier, yes. *Motion passed (6-yes, 0-no, 0-abstained).*

Regarding item b, Director Churchwell said the committee received an update on the status of habitable structures on GRDA waters and what it will take to move the recommended program forward. There will be more review on this in the future.

2. **Audit, Finance, Budget, Policy & Compliance Committee:** Director Vandevier had no report.

    a) Compliance Committee: Director Vandevier had no report.

3. **Compensation & Marketing Committee:** Director Kimball had no report.
    a) Power Capacity Utilization Subcommittee: Director Kimball had no report.

4. **Fuel and Long-Range Planning Committee:** Director Meyers was absent, but Director Churchwell said there is a committee conference call scheduled for January 18, 2019.

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6. Executive Session:

a. Proposed Executive Session Pursuant to 25 O.S. §307(B)(4) for the Purpose of Confidential Communications between GRDA and its Attorneys Concerning a Pending Claim Against Nooter–Eriksen, Disclosure of Which Will Impair the Ability of GRDA to Process the Claim.

b. Proposed Executive Session Pursuant to 25 O.S. § 307(B)(4) for the Purpose of Confidential Communications Between GRDA and Its Attorneys Concerning the Pending Investigation, Claim, or Action, related to Federal Energy Regulatory Commission Project No. 1494-348, Which GRDA has

Determined, with the Advice of Its Attorneys, that Disclosure of Such Communication Would Seriously Impair the Ability of the GRDA to Process the Pending Investigation, Claim, or Action in the Public Interest.

c. Proposed Executive Session Pursuant to 25 O.S. § 307(B)(4) for the Purpose of Confidential Communications Between GRDA and Its Attorneys Concerning the Pending Claim Related to Enel Green Power North America Which GRDA has Determined, with the Advice of Its Attorneys, that Disclosure of Such Communication Would Seriously Impair the Ability of the GRDA to Process the Pending Claim in the Public Interest.

Director Churchwell moved to go into executive session at 11.47 a.m., seconded by Director Richie, and voted upon as follows: Churchwell, Elam, Kimball, Lewandowski, Richie, Vandevier, yes. *Motion passed (6-yes, 0 no, 0-abstained).*

Director Elam moved to return to regular session at 12:37 p.m., seconded by Director Richie, and voted upon as follows: Churchwell, Elam, Kimball, Lewandowski, Richie, Vandevier, yes. *Motion passed (6-yes, 0 no, 0 abstained).*

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7. Action on Executive Session Items

a. Action, as Necessary, Concerning a Pending Claim Against Nooter-Eriksen.

b. Action, as Necessary, Concerning the Pending Investigation, Claim, or Action, related to Federal Energy Regulatory Commission Project No. 1494-348.

c. Action, as Necessary, Concerning the Pending Claim Related to Enel Green Power North America.

Regarding item a, Director Churchwell moved to proceed as discussed in Executive Session, seconded by Director Richie, and voted upon as follows: Churchwell, Elam, Kimball, Lewandowski, Richie, Vandevier, yes. *Motion passed (6-yes, 0 no, 0-abstained).*

Regarding item b, no action was needed on this item.

Regarding item c, Director Elam moved to proceed as discussed in Executive Session, seconded by Director Richie, and voted upon as follows: Churchwell, Elam,

Kimball, Lewandowski, Richie, Vandevier, yes. *Motion passed (6-yes, 0 no, 0-abstained).*

Director Richie moved for adjournment at 12:46 p.m., seconded by Director Elam, and voted upon as follows: Churchwell, Elam, Kimball, Lewandowski, Richie, Vandevier, yes. *Motion passed (6-yes, 0 no, 0 abstained).*

Sheila A. Allen, Secretary

DATE APPROVED:

February 13, 2019
GRDA Board of Directors

Attachment I

Record of Consultation

GRDA's Response to Comments Received on Draft Amendment Application

Comment No.	Commenter	Date	Comments	Response
1	**US Fish and Wildlife Service (USFWS)**	19-Feb-19	The USFWS supports the proposed extension to allow a more thorough evaluation of potential impacts and mitigation options for relicensing the Pensacola Project.	GRDA appreciates USFWS's involvement in the consultation process and its support for this important matter. GRDA agrees that the proposed license extension and relicensing schedule adjustment will allow a more thorough evaluation of project effects and mitigation options.
2	**US Department of the Interior - Bureau of Indian Affairs (BIA)**	15-Apr-19	The BIA does not object to the GRDA's extension request. However, the BIA asserts that this extension should not be used as a means to delay the studies within the FERC Study Plan Determination. *See* 16 U.S.C. § 797(e).	GRDA appreciates BIA's involvement in the consultation process and its non-objection for this important matter. The extension will not at all be used as a means to delay implementation of studies, and GRDA added language to the Application (Part III.B) to clarify its plans to expand the study work during the extended period; to ensure accountability for the expanded studies through progress reporting and meetings; and to acknowledge BIA's concern regarding potential delay and affirmatively state GRDA's intent not to use the additional time to delay the process. This extended process, if approved by FERC, is expected to generate far more information than the current ILP schedule for resource agencies, Native American Tribes, and stakeholders to use when evaluating Project effects and developing mitigation and enhancement measures. And GRDA's proposed process will afford many more opportunities than the current ILP schedule for BIA, Native American Tribes, and other relicensing participants to be involved in, and help shape, the environmental study program for the relicensing of the Project.
3	**BIA**	15-Apr-19	Under the Federal Power Act, the Department of the Interior may prescribe mandatory conditions for the protection and use of Indian reservations occupied by a project. *See* 16 U.S.C. § 797(e). Additionally, the Department of Interior may recommend other conditions to protect Indian reservations and trust assets from any adverse effects. *See id.* , § 803. The proper and informed exercise of the Department of Interior's authority to impose any such license conditions depends on a thorough and complete review of the results of the required studies. Therefore, the BIA is encouraged that the extended schedule will allow a more adequate time to complete the required studies and result in a better work product to inform Interior's conditioning authority.	See GRDA response to Comment #2, above. GRDA agrees that the extended study schedule will allow a more adequate time to complete the required studies and develop a more robust record supportive of agency decision making.
4	**BIA**	15-Apr-19	Before filing the final version of the Draft Extension Application, the BIA requests that GRDA clarify with more specificity how it will use its extended license term. On pages 17 to 19 of the Draft Extension Application, GRDA provides some details of how the longer timeline will benefit certain studies. The BIA wishes to see particulars provided in this section of the application, including, but not limited to, will the additional time allow more in-depth site evaluations for the Cultural Resources Study, will the additional time result in a higher quantity of site evaluations in the Cultural Resources Study, and whether the scope of any specific study be altered or expanded under the proposed extension. Finally, GRDA should revise the proposed timeline in "Attachment B" to move Traditional Cultural Properties studies to Year 1, in accordance with the discussions which took place at the March 27, 2019 Cultural Resource Working Group Meeting.	GRDA has included some clarifying language in Part III.B of the Application to explain that the specific scope of work under the Cultural Resources Study Plan will be determined in consultation with the Cultural Resources Working Group members prior to the field season each year. As such, GRDA cannot comment at this time on the exact scope of work for each year. GRDA does expect, however, that each year will involve a range of work, including field reconnaissance surveys and National Register-eligibility evaluations. And, of course, the proposed extension allows for 3-4 seasons of this work to be completed prior to GRDA's filing of the relicensing application--as opposed to only 1.5 seasons that otherwise would occur prior to application filing. The final Application's Attachment B incorporates the change requested by BIA to move the Traditional Cultural Properties studies to Year 1.
5	**Oklahoma Department of Wildlife Conservation (ODWC)**	9-Apr-19	We are in agreement with GRDA's statement that "while this period is needed to accommodate circumstances beyond the reasonable control of GRDA, the additional time will be advantageous to all relicensing participants." The Proposed Study Plan (PSP) contains several ambitious projects and this proposed extension would provide not only the time needed to get the updated bathymetric data that is crucial to complete these studies, but also provide additional time to prepare for and fully undertake the projects identified in the PSP. Indeed, under the current timeline, there were significant doubts regarding the ability of the applicant to fully address the questions at the basis of the requested studies. However, as they have duly shown in their request, the extension would provide GRDA the ability to more fully address the identified concerns of stakeholders and greatly improve their ability to provide useful and meaningful results from the undertaken studies. The requested period of extension appears to be reasonable and still maintains an aggressive approach towards completion of the relicense process.	GRDA appreciates ODWC's involvement in the consultation process and its support for this important matter.
6	**ODWC**	9-Apr-19	While this extension is reasonable and expedient for the relicense process, approval of this extension will also have additional consequences on activities within the current license. In 2016, the ODWC and GRDA entered an Interagency Agreement which outlined specific partner contributions and responsibilities associated with developing adjacent site mitigation to replace current activities identified under Article 411 and the associated Fish and Waterfowl Habitat Management Plan. One identified contribution by GRDA was the provision of funds from the Technical Committee Mitigation Fund, totaling $2.7 million, the current value of the fund plus the anticipated deposits into the fund through the remainder of the license. With a nearly 5-year extension of the license, we would recommend the estimated value of the fund be recalculated to reflect the new termination date of the current license, which is in accordance with current Article 411 requirements.	GRDA values its partnership with ODWC in our Interagency Agreement. We recognize that even after completion of the currently proposed Coal Creek Wildlife Management Area, monies will remain in the Technical Committee Mitigation Fund, and we agree that the proposed license extension will afford us more time to work together to identify and carry out projects to exhaust those funds during the existing license term, as extended by FERC. GRDA also agrees with ODWC's comment that, as part of the extended license term, additional annual contributions of $100,000 to the Technical Committee Mitigation Fund will be required, per the FERC-approved Article 411 plan. *See Grand River Dam Auth.* , 103 FERC ¶ 62,102, at 64,165 (2003).
7	**ODWC**	9-Apr-19	ODWC also supports the extension of the Shoreline Management Plan (SMP) and Revised Exhibit G to align with the License extension. Both of these items will be significantly influenced by results of studies from the PSP and allow better data-driven decisions. Additionally, these extensions will reduce redundancy in efforts of the applicant, other stakeholders, and the Federal Energy Regulatory Commission and staff.	GRDA agrees with ODWC's comments regarding the Shoreline Management Plan and Revised Exhibit G maps. We included these additional projects into the extension as a means of achieving the benefits articulated in ODWC's comment.
8	**Oklahoma Water Resources Board (OWRB)**	9-May-19	The OWRB as both a Relicensing Participant and sister state agency, is pleased to support the Grand River Dam Authority's request to extend its relicensing deadlines in order to create a more robust relicensing study program while fulfilling the request of the City of Miami to perform a bathymetric survey of the Grand Lake. While such a study will be time-consuming, a current study of the lake done with the undisputed expertise of the U.S. Geological Survey will greatly enhance and further validate many of the relicense studies, most notably the Hydraulic and Hydrologic Model as well as the Sediment Transport Model. We agree with GRDA that the proper course of action for all related studies that depend on such data should be delayed in accordance with their respective timelines.	GRDA appreciates the OWRB's involvement in the consultation process and its support for this important matter.

Comment No.	Commenter	Date	Comments	Response
9	**Oklahoma State Historic Preservation Office (OSHPO)**	5-Apr-19	The OK/SHPO believe the Draft Application for Non-Capacity Amendment of License and Modification of the Relicensing Plan and Schedule is an appropriate action based on the bathymetric survey required by USGS. This timing will allow for other studies to be accomplished before the HPMP is developed. We noted in Attachment D that you have a proposed schedule for issuing reports on your studies but did not include time frames for review and comment. Including review and comment time frames in your scheduling is important so that participants in the project review have a clear understanding of the expectations.	GRDA appreciates OSHPO's involvement in the consultation process and its support for this important matter. GRDA's final Application in Part III.B includes new language to clarify the annual progress reporting that GRDA envisions in this enhanced process (during Study Years 1, 2 and 3). Basically, the annual process will be as follows: --By January 31 each year, GRDA will distribute a Progress Report to relicensing participants, documenting its study work during the prior calendar year. --By February 15 each year, GRDA will hold a meeting (teleconference or in-person, depending on the need and desire of relicensing participants) to review the Progress Reports, answer any questions, and discuss any refinements to study methods that may be appropriate and agreed to on a consensus basis. --Following the progress report meeting, GRDA will circulate meeting notes within 15 days, which will include any agreed-upon action items and study refinements developed during the meeting. --GRDA will welcome comments from relicensing participants within 30 days after circulating its meeting notes. For Study Years 4 and 5, FERC's ILP regulations will apply. For Study Year 4, FERC's Initial Study Report will apply, and for Study Year 5, FERC's Updated Study Report will apply.
10	**OSHPO**	5-Apr-19	Finally, should any of the reports indicate that flooding issues are the result of the generation of power or any other influence of GRDA, we would expect to see that study area include those areas of inundation.	GRDA agrees with OSHPO's comment. This is precisely why the Area of Potential Effects is subject to refinement as the study program proceeds.
11	**Osage Nation Historic Preservation Office (ONHPO)**	19-Feb-19	The Osage Nation supports the FERC-required studies and concurs with the terms of the Application.	GRDA appreciates ONHPO's involvement in the consultation process and the Osage Nation's support for this important matter.
12	**Miami Tribe of Oklahoma**	16-Apr-19	The Tribe recognizes that a license extension to December 31, 2026, would in theory allow for GRDA to complete all facets of its Cultural Resources Study in consultation and coordination with interested tribes before the license is issued. The Tribe appreciates efforts to ensure that the Cultural Resources Study is completed in a timely manner and the progress that the Cultural Resources Working Group has made working with GRDA. As the Tribe has argued in past filings and correspondence, the first ever study of cultural resources should be comprehensive and thorough, and we understand that this work takes time and will benefit from additional time spent effectively. That said, the Tribe shares in many of the concerns advanced by the City of Miami (the "City") in its comments on the Draft Application that relate to other aspects of the Draft Application, including concerns regarding shortcomings and omissions in revised study plans, failure to address processes for evaluating environmental impacts during the extension period, and inadequate stakeholder consultation, among other concerns. The Tribe requests that GRDA address these concerns in its final application to FERC.	GRDA values the close engagement of the Miami Tribe of Oklahoma during the relicensing process and appreciates its recognition that GRDA's Application will help achieve a primary objective that the Tribe and other relicensing participants have advocated for some time--i.e., a complete and robust Cultural Resources Study at the Project. We look forward to continuing to work with the Tribe in this important effort. GRDA's responses to the concerns raised by the City of Miami appear below, in our responses to Comments #24 through #57.
13	**Miami Tribe of Oklahoma**	16-Apr-19	The Tribe joins the concerns articulated in the City's Comment II.A.2 that the Draft Application does not justify GRDA's proposed extension of the Sediment Transport Model by an additional three years. In particular, GRDA's draft Attachment E is flawed in that it omits important elements from the methodology proposed by the City and adopted by FERC Staff in the Study Plan Determination ("SDP"). GRDA should correct the specific shortcomings and omissions identified by the City in the new draft Attachment E (the Sediment Transport Model Study Plan).	Please see GRDA's responses to Comments #27 through #34, below.
14	**Miami Tribe of Oklahoma**	16-Apr-19	The Tribe joins the concerns articulated in the City's Comment II.C.1 of continuing under the current rule curve for nearly five extra years without FERC having undertaken a review of the additional environmental impacts caused during that time. The Tribe adamantly opposed GRDA both the variance and amendment to the reservoir elevation rule curve in 2016, in part because neither FERC nor GRDA had ever engaged in a Section 106 review with respect to the Project—neither when the Project was initially constructed nor anytime thereafter. The Tribe also expressed concerns that amending the rule curve would increase the likelihood of backwater flooding events, resulting in significant environmental and other harms to tribes, the City, and proximate flora and fauna. In approving the rule curve amendment, FERC made clear that longer range impacts of the amendment would be considered in the relicensing proceeding set to commence no later than March 2017. As a result, the Tribe joins the City's position that GRDA must address how FERC will assess environmental impacts of the rule curve amendment during the license extension, if granted.	Please see GRDA's response to Comment #51, below.
15	**Miami Tribe of Oklahoma**	16-Apr-19	The Tribe joins the concerns articulated in the City's Comment II.A.4 that GRDA's Draft Application does not explain why the dependency on H&H inputs should now extend the study process from two to five years. GRDA should articulate with specificity what factors bear on the additional three years requested and how those factors are tied to the precise time requested.	Please see GRDA's response to Comment #36, below.
16	**Miami Tribe of Oklahoma**	16-Apr-19	The Contaminated Sediment Transport Study is important to the Tribe and the trigger for that Study is not clearly described in the Draft Application. The Tribe joins the request articulated in the City's Comment II.A.3 that GRDA amend its draft Attachment B to reflect that a contaminated sediment transport study will be required if study results from the H&H modeling and sedimentation studies during review of the ISR indicate that project operation affects transport of potentially-contaminated sediment.	Please see GRDA's response to Comment #35, below.
17	**Miami Tribe of Oklahoma**	16-Apr-19	The Tribe joins the request articulated in the City's Comment II.B.2 that GRDA include in its application for extension a status update and description of all work that GRDA has accomplished during that time.	Please see GRDA's response to Comments #42 through #44, below.

Comment No.	Commenter	Date	Comments	Response
18	**Miami Tribe of Oklahoma**	16-Apr-19	Throughout the ILP, the Tribe has pushed for FERC's and GRDA's continued and meaningful consultation with interested tribes as required by federal law. Consistent with that priority, the Tribe shares in the concern articulated in the City's Comment II.B.4 that the Draft Application does not give stakeholders a serious opportunity to influence the direction of studies, or to seek FERC intervention until four years of studies have elapsed. GRDA must consult with tribes and other stakeholders on a timely basis regarding study plan progress and decisions that affect tribal interests. Thus, GRDA should clarify that each annual progress submitted by GRDA will be subject to review and modification by stakeholders, including interested tribes, under the same procedures that will apply to the ISR.	Please see GRDA's response to Comment #9, above, and to Comment #48, below.
19	**City of Grove, OK**	9-Apr-19	Please consider this correspondence from the City of Grove, Oklahoma as our letter of support of a request from the Grand River Dam Authority (GRDA) to the Federal Energy Regulatory Commission (FERC) for an extension of the licensing term to accommodate the relicensing process per FERC's Integrated Licensing Process. This extension request is being driven primarily by the FERC required bathymetric survey and the timeframe that is necessary to complete that survey. Because most of the other studies as required in the Revised Study Plan cannot be completed without the results of the bathymetric survey, it is important that the survey be given ample time to be completed. As you know, the survey results form the basis for the Hydraulic and Hydrologic Model and the Sediment Transport Model which are prerequisites to complete other studies in the FERC approved study plan (i.e. infrastructure, aquatic species of concern, terrestrial species of concern, wetlands and riparian habitat and cultural resources). Hence, the City of Grove strongly supports the GRDA's request for a license term extension and extended study plan for the relicensing of the project. This will allow sufficient time to complete the various studies and ensure that the information is accurate and correct.	GRDA appreciates the City of Grove's involvement in the consultation process and its support for this important matter.
20	**South Grand Lakes Area Chamber of Commerce**	1-Apr-19	With the addition of unanticipated required studies, GRDA should be given adequate time to complete the additional requirements thoroughly and accurately. As stakeholders, Grand Lake Property owners will all have to live with the results of these studies, as well as the subsequent orders from FERC. The additional extension of time to have additional work done in a proper and detailed manner is far more important than the initial time frame. The South Grand Lake Area Chamber of Commerce is totally supportive of the Grand River Dam Authority's requested licensing extension in order to allow adequate time for professional completion of the FERC-required studies.	GRDA appreciates the Chamber's involvement in the consultation process and its support for this important matter.
21	**Shangri-La Golf Club Resort & Marina**	1-Mar-19	The requirement of a new bathymetric survey necessitates completion of that survey before the required Hydraulic and Hydrologic Model and Sediment Transport Model can be completed. Output from those Models must be utilized to properly complete other required studies, including Infrastructure, Aquatic Species of Concern, Terrestrial Species of Concern, Wetlands and Riparian Habitat, and Cultural Resources. The initial complicating factor is that the United States Geological Survey, GRDA's contractor for the bathymetric survey, indicates the necessity of a two-year time frame to complete the survey, further delaying proper completion of the subsequent studies. GRDA should be given adequate time to complete the additional requirements in order to ensure thorough and accurate results. As stakeholders, we will all have to live with the results of these intricate studies as well as the subsequent orders from FERC. IT is far more critical to have the work done in a proper and detailed manner than to hit an arbitrary timeline. We offer our strong support for the Grand River Dam Authority's requested licensing extension in order to allow adequate time for professional completion of the FERC-required studies.	GRDA appreciates the Resort's involvement in the consultation process and its support for this important matter.
22	**Arrowhead Yacht Club**	11-Apr-19	Please accept this correspondence supporting the requested license extension for management of the Pensacola Project by the Grand River Dam Authority (GRDA). The GRDA is an outstanding organization and operator of the project and has spent an exhaustive amount of time and resources on this process. Time and resources are money. It comes from the rate payers and stakeholders. Please be aware there will always be those requesting further time and studies be conducted. There is little doubt in my mind that many of these additional studies being asked for are simply to increase the cost to GRDA. Many studies and tasks have been completed by GRDA multiple times. Please use your position and influence to bring this process to an end and grant the license extension. The benefits of granting the license extension will allow for better and more informed management decisions during the next license term and provide an opportunity for meaningful collaboration and consultation. From my perspective of being a recreational user of Grand Lake for 66 years, and in business on Grand Lake for the past 50 years, it has never been operated better! This is the universal opinion of all the other vendors on Grand Lake.	GRDA appreciates the Yacht Club's involvement in the consultation process and its support for this important matter.
23	**Kent Carson**	4-Mar-19	This e-mail is in support of allowing GRDA an extension to complete the proper bathymetric survey required by FERC. It only makes sense that if this procedure is required for the re-licensing that the GRDA be given time to perform the survey. In my opinion, the GRDA is a good guardian and manager of the lake. So, give them time to do the job FERC has asked them to do.	GRDA appreciates Mr. Carson's involvement in the consultation process and his support for this important matter.
24	**City of Miami, OK**	5-Mar-19	On page 1 of his cover memo, Dr. Townsend states that: "Our need to further extend the relicensing process became more pronounced very recently, when GRDA learned that the U.S. Geological Survey -- GRDA's contractor for the FERC-required bathymetric survey -- will require about two years to complete this survey." In that regard, please provide a copy of all correspondence (including but not limited to emails) between GRDA and the USGS regarding the bathymetric study. The City is particularly interested in correspondence relating to the length of time it would take the USGS to complete the bathymetric study.	The justification for the length of time needed to complete the bathymetric survey can be found in Part II.D of the Application, together with the following attachments to the Application: --Attachment A, GRDA Contract with USGS, including USGS's project proposal. --Attachment F, Affidavit of Darrell Townsend, GRDA. --Attachment G, Letter from Jason Lewis, USGS.

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25	**City of Miami, OK**	5-Mar-19	On page 7 of the Draft Application, it states that: "GRDA solicited proposals from several candidates and ultimately selected the United States Geological Survey (USGS) to perform the bathymetric survey." In that regard, please provide: (a) The written solicitation(s) issued by GRDA, a list of entities to which the solicitation was sent, and a copy of each solicitation response. (b) A copy of any written criteria used by GRDA in selecting the USGS over other entities that responded to the solicitation, including details and results of any scoring or ranking used as part of the selection process. If no written criteria exist, please list the unwritten criteria applied by GRDA, in the order of importance. (c) A copy of all correspondence (including but not limited to emails) between GRDA and the entities other than the USGS that submitted responses to the solicitation. The City is particularly interested in correspondence relating to the length of time it would have taken each entity other than the USGS to complete the bathymetric study.	Information detailing GRDA's process for selecting the USGS to conduct the bathymetry appears in Part II.C of the Application, as well as Attachment F, Affidavit of Darrell Townsend, GRDA. The City's questions appear to assume, incorrectly, that GRDA's competitive bidding requirements applied to the procurement of USGS to perform the bathymetry survey. Because GRDA's procurement requirements exempt engineering and surveying services from competitive bidding requirements, and because Oklahoma law expressly authorizes GRDA to enter into contracts with the United States and its agencies, GRDA's contract with USGS did not produce the type of documentation requested by the City--e.g., a solicitation, written criteria, responses to solicitation, scoring, and email communications regarding the solicitation.
26	**City of Miami, OK**	16-Apr-19	The City is very concerned by the potential for a license extension of four years and nine months, to December 31, 2026, nearly eight years from now. As the City has detailed in its prior comments, flooding caused by the Project has harmed the City, its residents, and the surrounding communities for decades. The City regards the relicensing process as the best opportunity to mitigate that ongoing harm, if not bring it to an end. The proposed extension would substantially expand the window within which flooding would continue to occur before a remedy or remedies can be adopted by FERC in a new license and implemented by GRDA.	GRDA does not agree with the City's position on this matter. Flood control operations are governed exclusively by the U.S. Corps of Engineers (Corps) under section 7 of the Flood Control Act of 1944. As the Corps has explained in the record of the relicensing proceeding, FERC's licensing decisions cannot interfere with established flood control operations. Thus, the City's assumption that GRDA's Application will delay resolution of its flooding concerns is incorrect. Regardless of the timing of FERC's relicensing order, it cannot override the Corps' flood control requirements. Finally, the City is incorrect in asserting that GRDA's operations under its license have harmed the City, its residents, and surrounding communities. All modeling work completed to date demonstrate otherwise.
27	**City of Miami, OK**	16-Apr-19	In addition to the questions and document requests in the March 5 letter, please expand the narrative in the license extension application to address the following: a. The issue of the need for a new bathymetric study for Grand Lake was raised from the outset of the study process. Prior to FERC staff issuing the Study Plan Determination (SPD) on November 8, 2018, what contingency planning did GRDA undertake with respect to the length of time it would take to conduct the new bathymetric study? b. When did GRDA first initiate discussions with USGS regarding conducting a bathymetric study? c. When did GRDA learn that the USGS bathymetric study would require about two years to complete? d. Attachment A states that the USGS study "is scheduled to start in January 2019." When did it actually start? e. The minutes of the GRDA Board Meeting where the USGS contract was approved have not yet been posted. Please include them along with the final license extension application.	The information sought in these questions is not relevant to the Commission's decision of whether to grant GRDA's Application. Regardless: a. No amount of contingency planning would have reduced the length of time to conduct the bathymetric surveys. The factors driving the survey length include the size of the project, weather uncertainties, boating traffic during high recreational use, and quality assurance/quality control protocols. Short of commencing the study survey prior to FERC's November 8, 2018 Study Plan Determination, contingency planning would not have resulted in completing the bathymetry survey an earlier than currently anticipated. And as the City is aware, throughout the study development process, GRDA objected to the need for an updated bathymetry survey, so it would have been imprudent to begin work on a study that it believed unnecessary until such time as FERC imposed the requirement. Because GRDA's competitive bidding requirements did not apply to the procurement of USGS's services for the bathymetry study, GRDA was able to quickly receive Board approval of the USGS contract and begin work. See Application Part II.E. b. See Attachment F, Affidavit of Darrell Townsend, GRDA. c. See Attachment F, Affidavit of Darrell Townsend, GRDA. d. See Application Part II; Attachment F, Affidavit of Darrell Townsend, GRDA. e. The minutes of the GRDA Board of Directors' meeting on January 8, 2019, appear at Attachment H to the Application. These minutes are also publicly available for download at https://www.grda.com/downloads/board-meetings.

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28	**City of Miami, OK**	16-Apr-19	The SPD, at B-9, determined that GRDA should use the Sedimentation Study Plan presented by the City of Miami's consultants, Tetra Tech, as included in the City's July 26, 2018 comments on the Proposed Study Plan (PSP). At the same time, FERC Staff rejected the April 2018 Sedimentation Study prepared by GRDA's consultants' Mead & Hunt, and included in the PSP. Attached to the draft license extension application is a new draft Attachment E, a Sediment Transport Model study plan, which GRDA states "follows the sediment transport model study plan prepared and advocated by the City of Miami—but with additional fieldwork and monitoring enhancements originally proposed by GRDA." See Draft License Extension Application at 19. At page 25 of the draft, under Section IV, number 3, GRDA asks that the Commission, in granting its extension request, also amend the SPD to accept its Attachment E. GRDA cannot modify the SPD as part of its effort to extend the license term. GRDA did not seek rehearing of the SPD, and is therefore bound by it. See Order No. 2002-A at PP 16-17; FirstLight Hydro Generating Co., 162 FERC ¶ 61,235 at P 24 (2018). The Tetra Tech study, as approved by the FERC Staff, can be completed in a period of 8¬12 months after receiving the bathymetric data. (As addressed elsewhere in these comments, the City also questions GRDA's estimate of the time required for a new bathymetric study.) GRDA's Sediment Transport Model as set forth in the study schedule included in draft Attachment B, would take an additional three-plus years to complete. The City believes GRDA modifications to the previously approved Tetra Tech Study Plan would unnecessarily add substantially to the cost and time needed for the pre-licensing study process and thereby unnecessarily delay completion of the relicensing process. Without prejudice to the prior comments, the City offers the following substantive comments on draft Attachment E. This is not a comprehensive list of the shortcomings of GRDA's proposal, but merely examples explaining why GRDA should return to the City's study plan.	Attachment E to the Application contains GRDA's proposed Sediment Transport Model Study Plan. The Study Plan is consistent with FERC's November 8, 2018 Study Plan Determination, and adopts all elements of the Sediment Transport Model Study Plan proposed by the City and approved by the Commission. As described in GRDA's response to Comments #29 through #31, below, GRDA has made some adjustments to the Study Plan based on the City's comments--to precisely adopt the Study Plan that the City submitted during the study development phase on the relicensing. GRDA appreciates the City's detailed review of the draft Study Plan. GRDA does not dispute the City's statement that the Study Plan can be completed over a period of 8-12 months once the bathymetric data are available. As explained in the Application and Attachment F, GRDA expects to receive the bathymetric data late Q1 or early Q2 2021. As demonstrated in the Attachment B table, GRDA plans to then complete the model during the remaining months of 2021, including validation of the model and development of modeling scenarios. Some of this timing is contingent on what will be the concurrent development and coordination with the Hydraulic and Hydrologic (H&H) Model effort, but as a general matter, GRDA expects to have the Sediment Transport Model completed by the end of calendar year 2021--less than a year after receiving the bathymetric data, and consistent with the City's anticipated timeframe. Once the Sediment Transport Model is complete, GRDA will run scenarios during 2022, which will be available for review as part of the Initial Study Report process that will begin in early 2022. The City also seems to be concerned by GRDA's decision to expand the FERC-approved Sediment Transport Model Study to collect additional data, taking advantage of the time before the bathymetric survey is complete. There is no logical basis for this concern. Collecting and analyzing additional data will make the Sediment Transport Model a more accurate and useful tool for ascertaining project effects--a result that will benefit all parties, including and especially the City. Moreover, this improved accuracy and reliability of the model will be accomplished without any delays in the study schedule as proposed in GRDA's Application. Finally, nothing in FERC's ILP regulations and FERC's Study Plan Determination precludes GRDA from conducting additional work that will result in a more representative and accurate model. In any event, the City has already indicated that it has no objection to conducting this additional work. *See* Motion to Reject and, in the Alternative, Request for Leave to Answer and Answer of City of Miami, Oklahoma, at 4, Project No. 1494-438 (filed Nov. 5, 2018) ("Still, the City and Tetra Tech have no objection to collecting that data to comfort GRDA, nor using the data in model calibration."). Its inconsistent position on this issue appears to be aimed at obstructing the process rather than engaging on sound scientific methods that will improve analysis and decision making in this process.
29	**City of Miami, OK**	16-Apr-19	At page 4 of draft Attachment E, Mead & Hunt plans to conduct a Sediment Transport Evaluation to Determine critical shear stress. Because the bed material is mostly sand-sized material (which is likely mobile over a full range of flows), such an evaluation is unnecessary, as previously indicated in the City's comments on the RSP.	Please see GRDA's response to Comment #28. The City's statement about bed material is incorrect and demonstrates precisely why additional data collection is needed. GRDA's relicensing team, both over time and more recently in implementing the FERC-approved study plan, has observed bed material on a number of occasions. These observations indicate that bed material includes sediment sizes ranging from silt and clay through gravel sized material. At a number of locations, the sediment consists of a bi-modal distribution of sediment primarily consisting of silt/clay and gravel, without much sand. Very recently, GRDA's relicensing team during a site visit took surface-level suspended sediment samples during high flow conditions. The flows these locations were turbulent and appeared well-mixed, and the GRDA team observed virtually no sand in the samples. Based on experience, numerous recent observations, and preliminary sampling, determination of critical shear stress over a wide range of particle sizes is necessary in developing an understanding of sediment transport into and through this river/reservoir system. GRDA's proposed data collection will clearly determine the extent of the full range of sediment particles including clay, silt, sand and gravel rather than focusing only on sand, which appears to be a relatively small component of the overall range of sizes in this system.
30	**City of Miami, OK**	16-Apr-19	Similarly, there is no need for Mead & Hunt to estimate sediment transport rates for cohesive sediment, as suggested on page 4 of Attachment E, since there is no evidence of cohesive sediments, as also indicated in the City's comments on the RSP.	Please see GRDA's response to Comments #28 and #29. Again, the City's statement regarding the lack of cohesive sediments is wrong. Since the bed consists of a wide range of sediment particle sizes from silt/clay through gravel and since incoming sediment loads include a significant percentage of silt/clay sized particles, the City's suggestion to ignore sediment transport in the fine sediment range, which may exhibit cohesive tendencies, is scientifically unsound. Adopting the City's suggestion would compromise the very purpose for which the Sediment Transport Model is being developed, as it would exclude a significant portion of sediment in the system.
31	**City of Miami, OK**	16-Apr-19	The Acoustic Doppler Current Profile (ADCP) measurements proposed by GRDA at Attachment E, pages 4 and 15-16 are not necessary, and were not included in the City's study plan.	Please see GRDA's response to Comment #28. GRDA disagrees. ADCP measurements, in conjunction with sediment transport sampling, provides important data in developing relationships between hydraulics and sediment transport, which is key in understanding sediment transport and deposition in this river/reservoir system.
32	**City of Miami, OK**	16-Apr-19	Attachment E proposes to calibrate the model to the 1, 2, and 5 year flood events. The City views this as an incomplete calibration of the model, and inconsistent with the Tetra Tech model as adopted in the SPD. The majority of sediment-transport and bed-forming changes occur during large floods. Therefore, the model should be calibrated over longer periods, as detailed in the following excerpt from the City's Sedimentation Study Plan (Attachment 5 to the City's Comments on the PSP at page 17): To calibrate the sediment-transport components, the first model will be run over the continuous series of intervening flows between the two surveys (e.g. 1995 to 2017). The predicted channel bathymetry at the end of the run will be compared to the corresponding measured data. The STM will also be calibrated by comparing the suspended component of the predicted sediment-transport rates with the measured SSC data.	By singling out just one statement in GRDA's Study Plan and ignoring other passages regarding calibration, the City misapprehends GRDA's proposed calibration method. GRDA is not proposing only to calibrate the model to the 1, 2, and 5 year flood events, as alleged by the City. Rather, as stated throughout the Study Plan (e.g., §§ 2.1, 2.6.2, 2.6.4), GRDA's proposed calibration includes running the model over a continuous period from the 1990s to 2017 (depending on availability of bathymetric and cross-section data), and comparing predicted channel geometry at the end of the modeling period to surveyed data. Calibration will also include comparing computed sediment transport rates and hydraulics to data for a range of available historic flood events. In any event, GRDA has included additional language in the Study Plan (§ 2.6.4) to clarify this intent and alleviate GRDA's misunderstanding of GRDA's proposed methods for calibrating the Sediment Transport Model.

Comment No.	Commenter	Date	Comments	Response
33	**City of Miami, OK**	16-Apr-19	Attachment E does not evaluate potential operational alternatives designed to mitigate dam-related sedimentation effects associated with the operation of the Project. Attachment E section 2.6.5, Model Simulations (pages 19-20), under the heading "Operational Analyses," describes a first and second simulation with language based on paragraphs (1) and (2) of section 3.6.8 of the City's sedimentation study plan. However, GRDA then goes on to describe the "third and possibly subsequent simulations" to evaluate only those "operating scenarios proposed by GRDA as part of this relicensing process." This is a crucial departure from the Tetra Tech study, apparently intended to limit the range of operational alternatives to those proposed by GRDA. In contrast, Section 3.6.8 of the Tetra Tech study specifies that the contractor "will identify and evaluate potential mitigation alternatives to eliminate or mitigate the dam-related sedimentation effects over the license period. Potential mitigation alternatives may include dredging and modifications to the Rule Curve."	GRDA has modified the Study Plan (§ 2.6.5) to clarify that a reasonable number of simulations that are representative of conditions expected to be experienced can be run, based upon realistic project operation scenarios and guided by sensitivity analyses of prior model runs. If the City desires to conduct additional simulations that are outside of these parameters, the Study Plan (§ 2.6.6) provides for GRDA to make the Sediment Transport Model to relicensing participants upon request. GRDA notes, however, that the City's position that dam-related sediment effects can somehow be "eliminated" is completely unreasonable and unrealistic, as incoming sediment necessarily deposits in Grand Lake. This is part of the existing environmental baseline for purposes of FERC's environmental analysis. *See Am. Rivers v. FERC* , 201 F.3d 1186, 1195-96 (9th Cir. 2000); *Conservation Law Found. v. FERC* , 216 F.3d 41, 46-47 (D.C. Cir. 2000). While the distribution of sediment deposition possibly could be modified to some extent by alternative hydropower operational scenarios, hydropower operations are limited by the fact that reservoir operation during high flow/flood events (when sediment transport rates are greatest) are controlled by the U.S. Army Corps of Engineers and not GRDA. Sediment deposition patterns will be evaluated for a range of operation scenarios. Evaluation of flooding will also include analysis of the effects of channel constrictions such as bridges (with associated debris trapping) and other significant hydraulic causes of flooding. Finally, GRDA's study plan does not include a requirement to identify and evaluate mitigation alternatives as part of this study because an evaluation of potential mitigation measures requires an analysis across all studies and resource areas, and not solely sediment transport. For example, the results of the FERC-required H&H and Infrastructure Studies will be particularly important in understanding whether and to what extent GRDA's operations influence inundation and infrastructure in areas subject to flooding. Thus, it is premature at this time to speculate what mitigation alternatives, if any, may be warranted. Based on the results of all studies, GRDA's Environmental Exhibit of its relicensing application (i.e., Exhibit E) will include an evaluation of proposed protection, mitigation and enhancement measures.
34	**City of Miami, OK**	16-Apr-19	Attachment E fails to clarify the specific locations and methodology for collecting water-surface elevations, bedload, and suspended load sediment measurements during flood events.	GRDA disagrees with the City's comment. The Study Plan has consistently provided (§ 2.6.3) that sediment transport data collection will follow the methodologies described in "Field Methods for Measurement of Fluvial Sediment," Techniques of Water Resources Investigations of the U.S. Geological Survey, Book 3, Application of Hydraulics, Chapter C2, Thomas K. Edwards and G. Douglas Glysson, 1999. Moreover, the Study Plan explains (§§ 2.3.6, 2.6.3) the methodology for collecting water-surface elevations. Although the City's comment is unfounded, GRDA has included additional text in the Study Plan (§ 2.6.3) to clarify locations and methodology for sediment data collection.
35	**City of Miami, OK**	16-Apr-19	Please amend draft Attachment B to reflect that a contaminated sediment transport study will be required if study results from the H&H modeling and sedimentation studies during review of the ISR indicate that project operation affects transport of potentially-contaminated sediment. See SPD at B-39.	There is no need to adjust Attachment B. FERC's Study Plan Determination stands on its own, and FERC's ILP regulations establish the process for the Commission's determination of whether any new or modified studies are warranted as part of the ISR evaluation. 18 C.F.R. § 5.15(c), (d).
36	**City of Miami, OK**	16-Apr-19	Page 16 of the Draft Application states that most studies are dependent on inputs from the H&H study. This dependency on the H&H inputs was also identified in the RSP, and yet the RSP proposed to maintain a two-year study schedule. See e.g., RSP at pages 15 (re Sediment Transport); 17 (re: Terrestrial Species of Concern, Wetlands and Riparian Habitat); and 31 (re: Aquatic Species of Concern). Please explain why the dependency on H&H inputs should now extend the study process from two to five years. In particular, is this extension primarily due to the need to undertake the bathymetric study? If not, please address what other factors are causing the need for three additional years of studies.	The study program has shifted forward in time due to: (1) the late start in the relicensing process due to the approximately 6-month abeyance ordered by FERC in 2017 (and a total relicensing delay of approximately 10 months); and (2) the new FERC requirement to conduct a bathymetric survey. As depicted in the table in Attachment B, most studies continue to be a 2-year effort, beginning with the availability of the bathymetric survey in late Q1 or early Q2 2021. In general, calendar year 2022 will be the "first season" of study per the ILP regulations, followed by the ISR process in early 2023. Calendar year 2023 will be the "second season" of study per the ILP regulations, followed by the USR process in early 2024. Following the USR, GRDA will prepare the Draft License Application for comment, followed by the preparation and filing of the Final License Application by December 31, 2024. The City is correct that GRDA--to take advantage of the time before the bathymetry survey is complete--proposes to conduct additional work that will improve the study process and generate additional information that FERC, resource agencies, Native American Tribes, and other stakeholders would not otherwise have under the current process. These include: --An additional 2-3 years of cultural resources studies, including completion of the traditional cultural properties element of the Cultural Resources Study Plan. --Collection of additional data to better inform the Sediment Transport Model Study Plan. --Development of data to prepare the Infrastructure Study required by FERC. --Identification and review existing information on aquatic resources, terrestrial resources and wetlands, in preparation of the modeling analysis to occur during the H&H modeling runs in 2022.
37	**City of Miami, OK**	16-Apr-19	Attachment B provides a "Study Schedule Timeline Matrix." Please expand this attachment to provide GRDA's original timeframe for each listed activity and the basis for the extension of same. Please explain what elements of the yellow highlighted studies are "dependent on modeling events" and how (if at all) those dependencies increase the length of the critical path for the study period as compared to what was presented in the RSP (see item 7 below). Also please expand the discussion to explain why the USGS study is shown as extending until the end of 2021 when Table 1 in draft Attachment A shows that the USGS study, other than publishing the results, will be done by the first quarter of 2020. In particular, the City requests that GRDA expand the narrative (beyond n. 23) to explain how a potential for study delay due to "unanticipated events and competing demands" constitutes unique and extenuating circumstances that would justify a Commission extension of the license term. See City of River Falls, Wisconsin, 153 FERC ¶ 62, 175 at P 14 (2015).	As the City has acknowledged (see Comment #36, above), GRDA's RSP already explains how the studies are interrelated with the H&H modeling effort. The FERC-approved Revised Study Plan also explains these interrelationships. Attachment B need not repeat information that is already available to the City for review. With regard to the timing of the USGS's bathymetry study, page 8 of its proposal (included in Attachment A) includes a chart showing a timeline of tasks, which extend through Q4 2020. While the fieldwork portion of the study is expected to conclude by the end of Q2 2020, other elements of the survey (e.g., quality assurance, quality control, and preparation of the study report) are expected to extend through Q4 2020. Based on experience that unforeseen circumstances often delay study schedules, together with an abundance of caution to ensure sufficient time remains to complete the ILP process once the bathymetry survey is complete, GRDA built in a contingency period of approximately 3 months into the study schedule. See Attachment F, Affidavit of Darrell Townsend, GRDA.
38	**City of Miami, OK**	16-Apr-19	In the RSP, GRDA's estimated cost for a Sedimentation Study was $400,000. See RSP at Section 2.9. The contract with USGS set forth in the draft license extension application, Attachment A, states that the bathymetric study would cost an additional $426,000. The revised cost estimate in the Draft Application for the expanded Sediment Transport Model, including the cost of the USGS study, is $2,860,000. Please expand the narrative discussion in this section of the license extension application to explain the basis for this $2 million increase, separately identifying the cost for each additional element.	The additional cost itemization sought by the City is unnecessary for the Commission's decision of whether to grant GRDA's Application. GRDA's Study Plan is consistent with FERC's ILP regulations, which do not require a cost break-down for each element of a study. 18 C.F.R. § 5.9(b)(7).

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39	**City of Miami, OK**	16-Apr-19	The Commission's pre-filing ILP process, originally scheduled to commence by April 1, 2017, was delayed because FERC Staff was then conducting an environmental assessment (EA) of GRDA's May 6, 2016 Article 401 Rule Curve amendment application. Then, after the EA was completed in May 2017, the Commission's lack of a quorum delayed FERC action on the application until August 15, 2017. Thereafter, on August 24, 2017, FERC Staff issued a letter order lifting the abeyance and providing a revised ILP process plan and schedule. a. In light of this delay, did GRDA at any point discuss with FERC Staff the possibility of withdrawing its rule curve license amendment application and deferring consideration of that proposal until the relicensing process? If so, please describe those discussions and explain why this option was thereafter rejected. If no such discussions occurred, please explain why not.	The information sought in this question is not relevant to the Commission's decision of whether to grant GRDA's Application. Regardless, GRDA does not recall having any discussion with FERC staff regarding a possible withdrawal of its rule curve amendment after the Commission issued the notice of abeyance in the relicensing docket on February 15, 2017. This lack of communication with FERC staff is explained as follows: 1. GRDA continued to support the rule curve amendment and did not consider withdrawing it. 2. GRDA had no reason to believe at that time that the Commission's lack of a quorum would extend as long as it did, thereby delaying the commencement of the relicensing process. 3. By the time FERC issued its abeyance notice on February 15, 2017, several parties (including the City) had intervened in opposition to GRDA's amendment to modify the rule curve. *See Grand River Dam Auth.*, 106 FERC ¶ 61,001, at PP 21-15 (2017). The Commission's *ex parte* regulations disallow the types of communications referenced in GRDA's question, unless such conversations could reasonably be considered procedural in nature.
40	**City of Miami, OK**	16-Apr-19	b. As noted, the ILP process initially scheduled to commence April 1, 2017 did not commence until August 24, 2017. Is GRDA maintaining that the absence of a FERC Commissioner quorum in 2017 caused more than a five month delay in the ILP process plan and schedule? If so, please explain.	The information sought in this question is not relevant to the Commission's decision of whether to grant GRDA's Application. Regardless, GRDA would point out that FERC did not commence the relicensing process on August 24, 2017, as stated in the City's comment. While FERC lifted the abeyance in the relicensing docket on that date, the relicensing process did not commence until much later--further reducing the time period for the pre-licensing process. For example, before commencing the relicensing process, FERC held a series of public information sessions on November 14 and 15, 2017, which are not required under the ILP regulations. On December 13, 2017, FERC held a tribal consultation meeting at the Miami Tribe of Oklahoma Council House. FERC did not formally initiate the relicensing process until its Notice issued on January 12, 2018. FERC thereafter held the initial public scoping meetings as required under the ILP regulations on February 7-9, 2018. Because the original relicensing schedule provided for the scoping meetings to occur in April 2017, the relicensing delay extended for approximately 10 month--not the 5-month delay referenced in the City's comment.
41	**City of Miami, OK**	16-Apr-19	c. In its April 27, 2018 PSP, GRDA stated (at Section 6.2) that "GRDA will be seeking a modest extension of the existing license term, such that the license application filing date can be adjusted, as appropriate, to match the ILP process." When did GRDA first communicate to FERC Staff its desire for a license extension? What extension period did GRDA initially propose?	The information sought in this question is not relevant to the Commission's decision of whether to grant GRDA's Application. Regardless, to the best of GRDA's memory, the first time GRDA communicated to FERC staff (and the public) the potential need for a license extension was in the Proposed Study Plan (PSP), which was filed with FERC on April 27, 2018. GRDA also discussed this matter publicly during the PSP study meetings on May 30-31, 2018, as well as in the Cultural Resources Working Group meeting on May 31, 2018. At that time, GRDA did not communicate any plans of how long an extension would be needed, because it was premature to determine the needed length until after the Commission issued its study plan determination. (For example, GRDA did not know at the time of the PSP meeting whether the relicensing would entail more than a single year of study, and it certainly did not know that FERC would require a bathymetry study that will take approximately 2 years to complete.) GRDA did not decide on the length of the needed license term extension until after: (1) thoroughly reviewing FERC's November 8, 2018 study plan determination; (2) identifying a contractor to complete the bathymetry study and understanding the time needed to complete the survey; and (3) applying that needed time period for bathymetry to the overall relicensing process and its effect on other studies. Based on this assessment--made shortly before GRDA distributed the draft Application on February 15, 2019--GRDA decided to seek an extension of approximately 4 years and 9 months.
42	**City of Miami, OK**	16-Apr-19	By the time this license extension request is filed, nearly 25% of the allotted two years for pre-licensing studies as approved in the SPD will have elapsed. In that regard, please: a. Include a status update on, and description of, all study-related work that GRDA has undertaken as of the date of such filing.	Actually, the timing of the prefiling stage of the relicensing process is much more dire than the City's comment suggests. Under FERC's regulations, the pre-filing phase of relicensing is typically between 3 and 3.5 years, as it begins with the filing of the notice of intent (which must be filed between 5 and 5.5 years before license expiration, 18 C.F.R. § 5.5(d)), and ends with the filing of the application, which is statutorily required no later than 2 years prior to license expiration. 16 U.S.C. § 808(c)(1). In this case, because of the early delays in the process due to a lack of a quorum at FERC (see GRDA's Response to Comment #37, above), the prefiling process began 10 months late. In fact, FERC's current relicensing process schedule anticipates that GRDA will be distributing a draft license application by November 2019--before the first season of studies has concluded. And worse, the final application must be filed by March 2020--immediately after FERC resolves any contested issues related to the second year of study. From GRDA's perspective, it makes no sense to circulate a draft application that lacks any new scientific information beyond what was presented in the Pre-Application Document, and to file a final application before the FERC-approved study program is complete. This is why the Application is eminently reasonable. In terms of GRDA's progress in meeting FERC's SPD, GRDA remains on track. For more information, please see Part II.E of the Application. If the Commission does not grant this Application, GRDA will provide a more complete reporting in its November 2019 ISR, as required under the ILP regulations. If the Commission grants this Application, GRDA will provide its Year 1 Progress Report in January 2020, together with an opportunity for relicensing participants to discuss ongoing study work and collaborate on develop refinements, as appropriate, as presented in Part III.B. of the Application.
43	**City of Miami, OK**	16-Apr-19	b. Identify any SPD milestones or deadlines that GRDA has missed as of such filing date.	The H&H Study schedule provided for a model input status report for April 1, 2019, and for a conference call on model inputs and calibration on May 1, 2019. Due to the lack of the bathymetry data required by FERC's SPD, these milestones will occur at a later date. If the Commission does not grant this Application, GRDA will report these variances in its November 2019 ISR, as required by the ILP regulations.

Comment No.	Commenter	Date	Comments	Response
44	**City of Miami, OK**	16-Apr-19	c. Identify any SPD milestones or deadlines that GRDA would not be able to comply with in the event that its license extension request is denied by FERC.	The delays in the process are not attributable to whether or not FERC grants the Application, but rather the additional time that is needed to complete the bathymetry survey. Thus, regardless of the Commission's disposition on the Application, the following studies unavoidably and necessarily will be delayed beyond the dates provided in GRDA's RSP: --H&H Modeling Study --Sediment Transport Modeling Study --Aquatic Species of Concern Study --Terrestrial Species of Concern Study --Wetlands and Riparian Habitat Study --Cultural Resources Study --Infrastructure Study If the Commission does not grant this Application, GRDA will report these variances in its November 2019 ISR, as required by the ILP regulations.
45	**City of Miami, OK**	16-Apr-19	To insure that the impact of the proposed schedule change is clear to both the Commission and all interested stakeholders, the City requests that the newly proposed relicensing schedule (draft Attachment C) be presented as a redline to the currently approved schedule, set forth in the RSP at Section 6.1. In preparing this redline, the City also requests a number of clarifying changes to draft Attachment C, as listed below. a. A number of items shown in green (completed milestones) are incorrect. For example, the deadline for GRDA to file its RSP, as correctly reflected in RSP Section 6.1, was 9/24/18. However, draft Attachment C shows this deadline as 8/25/18. Similarly, RSP Section 6.1 shows the deadline for FERC's issuance for the SPD as 11/8/18 whereas draft Attachment C shows this deadline as 9/24/18.	Attachment C includes both a redline and a clean version of the Proposed Revised Process Plan and Schedule. For comparison purposes, the "base" document for the redline is the schedule presented in Section 6 of GRDA's RSP. The incorrect dates in the draft Attachment C identified by the City have been corrected in the final vision of Attachment C included in the Application.
46	**City of Miami, OK**	16-Apr-19	b. The revised Attachment C should make clear that virtually all activity items shown with blue background are newly proposed and were not part of the existing approved schedule set out at RSP Section 6.1. All such newly proposed activity items should also be specifically explained.	To address this comment, Attachment C now identifies all new activities that were not part of the original Process Plan and Schedule in a new color than the original milestones that simply require an extension. These new activities consist of the process enhancements of additional reporting and meetings associated with Study Years 1, 2 and 3.
47	**City of Miami, OK**	16-Apr-19	c. The presentation of some items in white background is confusing. As each such item has been modified in some respect from the manner presented in RSP Section 6.1, they should be shown with blue background, redlined for changes and all such changes explained.	See GRDA response to Comment #46, above.
48	**City of Miami, OK**	16-Apr-19	The ILP process contemplates two years of study, with an initial study report and possible modification of the study plans at FERC direction after the first year. In GRDA's proposed Attachment D, "Proposed Enhanced Progress Reporting for the ILP Relicensing of the Pensacola Hydroelectric Project," there are only "progress reports" after the first three years of studies. And this Attachment D gives only very rough outlines for each of these reports. The draft license amendment application (at 17) indicates only that GRDA will "prepare and distribute" these reports and "convene a meeting . . . to answer any questions from relicensing participants." There is no indication that stakeholders will have a serious opportunity to influence the direction of studies or seek FERC intervention until four years of studies have elapsed, when GRDA proposes to issue its Initial Study Report (ISR). Ordinarily, that opportunity would arise after year 1 through the ISR process. GRDA should clarify that, if any extension is approved, each annual progress report will be subject to review and potential modification under the same procedures as will apply to the ISR.	GRDA is not proposing to conduct ISR procedures following Study Years 1, 2 and 3. GRDA cannot require FERC to dedicate the significant staff resources that would be required to conduct--a total of 4 times for this project--the intensive ISR process. However, GRDA agrees with the City that the annual progress reporting following Study Years 1, 2 and 3 should include an opportunity to refine study plans and methods, as appropriate. Part III.B of the Application has been expanded to describe these annual procedures, and the expanded annual process also appears in the Attachment C Process Plan and Schedule. See also GRDA's response to Comment #8, above. Any agreed-upon revisions to the FERC-approved study plan following Study Years 1, 2 and 3 will be reported as a variance in the ISR, which will be filed with FERC following Study Year 4.
49	**City of Miami, OK**	16-Apr-19	GRDA's contract with USGS for the bathymetry study requires that USGS deliver quarterly written progress reports to GRDA. GRDA should commit to making each USGS quarterly report promptly available to all stakeholders.	GRDA appreciates this suggestion. GRDA will make USGS's quarterly reports publicly available on its relicensing website, and will file the reports with the Commission. USGS's first quarterly report appears in Attachment J.
50	**City of Miami, OK**	16-Apr-19	The ILP process begins with the prospective license applicant's notification of intent under 18 C.F.R. § 5.5(d), which must be filed no more than five and a half years before expiration of the current license. If FERC approves GRDA's request to extend the license term to December 31, 2026, the license expiration deadline will be more than five and a half years in the future. The City understands that GRDA does not intend to trigger a complete re-initiation of the ILP with the proposed license extension and does not believe the extension as requested would have that effect, but the draft does not explain why nor does GRDA seek waiver of the rules. Please expand the narrative to address this issue.	GRDA has already met the requirement under the Federal Power Act (16 U.S.C. § 808(b)(1)) and FERC's regulations (18 C.F.R. § 5.5(d)) to file its notification of intent to seek a new license for the project. No waiver request is necessary. To alleviate the City's concerns on this matter, the Application has been expanded to include a request that FERC clarify that GRDA need not re-file its notification of intent as part of FERC's approval of the Application.

Comment No.	Commenter	Date	Comments	Response
51	**City of Miami, OK**	16-Apr-19	In its May 6, 2016 application to amend the reservoir elevation rule curve, GRDA acknowledged (at I-6) that "the relicensing process will involve a comprehensive review of all license obligations, including rule curve requirements." Further, in explaining the consultations that preceded the filing of this application, GRDA stated: While participants in the technical conference did not reach consensus on the results and conclusions of [existing hydrological analyses], there was a general acknowledgement that in light of the limited scope of GRDA's amendment proposal, existing information . . . would sufficiently inform the Commission's decision making on an amendment that seeks only to adopt the 2015 variance through the remainder of the existing license term. Other potential hydrological issues--such as changes to channel geomorphology, sedimentation, and the effects of bridges, agriculture, and other anthropological and natural changes in the river basin over time--are best addressed in the upcoming Project relicensing, which GRDA expect to commence no later than March 2017. (emphasis added). FERC's August 15, 2017 order granting GRDA's application relied upon the Staff's findings of minimal incremental adverse environmental impacts, as set forth in the Final Environmental Assessment, Amendment of Article 401 to Modify Reservoir Elevation Rule Curve, dated May 2017. Section 6.1 of the Final EA states that FERC Staff examined environmental impacts through April 2022, the date when the project license expires. In the order, FERC made clear that longer range impacts of this and prior rule curve modifications, as anticipated by the City and other interested stakeholders, would be considered in the relicensing proceeding. Because the 2017 rule curve amendment was based on analysis only through April 2022, continuing under that rule curve amendment for nearly five extra years would cause additional impacts not addressed by any previous FERC environmental review. Please expand the draft license extension application to address how GRDA would propose that the Commission analyze the environmental impacts of the rule curve change for this additional period.	FERC's approval of the Application is categorically excluded from environmental review under the National Environmental Policy Act (NEPA). 18 C.F.R. §§ 380.4(a)(1), 380.4(a)(12). GRDA's application does not propose any change to existing project operations--all of which have previously been analyzed under NEPA and approved by FERC. FERC regularly approves applications to extend the term of hydropower licenses without conducting environmental review. *See* , *e.g.* , *TransCanada Hydro Northeast Inc.* , 152 FERC ¶ 62,048 (2015); *N.E.W. Hydro, LLC* , 166 FERC ¶ 62,097 (2019); *Erie Blvd. Hydropower, L.P.* , 165 FERC ¶ 62,123 (2018); *Sugar River Power, LLC* , 165 FERC ¶ 62,023 (2018); *Sappi Cloquet, LLC* , 162 FERC ¶ 62,087 (2018); *Erie Blvd. Hydropower, L.P.* , 161 FERC ¶ 62,021 (2017); *Lyonsdale, Assoc.* , LLC, 160 FERC ¶ 62,181 (2017); *N. States Power Co.* , 149 FERC ¶ 62,090 (2014); *Wis. Pub. Serv. Corp.* , 127 FERC ¶ 62,219 (2009). Even assuming, *arguendo* , that the Commission's approval of the Application triggers NEPA review, there is no indication that the Commission's prior Environmental Assessment, prepared just two years ago, requires supplemental environmental review. FERC regularly relies on prior NEPA analyses when subsequently approving updating activities that were approved. *See* , *e.g.* , *Idaho Power Co.* , 167 FERC ¶ 62,035, at P 22 (2019). The City points to no changed circumstances that warrant a new or supplemental NEPA review. As the Council on Environmental Quality (CEQ) has long instructed: "[I]f the EIS concerns an ongoing program, EISs that are more than 5 years old should be carefully reexamined to determine if the criteria in Section 1502.9 compel preparation of an EIS supplement. "If an agency has made a substantial change in a proposed action that is relevant to environmental concerns, or if there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts, a supplemental EIS must be prepared for an old EIS so that the agency has the best possible information to make any necessary substantive changes in its decisions regarding the proposal." CEQ, Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations (1981).
52	**City of Miami, OK**	16-Apr-19	Please address how GRDA would propose that the Commission analyze the environmental impacts of its entire license extension proposal.	Please see GRDA's response to Comment #51, above.
53	**City of Miami, OK**	16-Apr-19	The bathymetric and H&H studies to be undertaken under relicensing may lead to a Commission decision to lower Grand Lake reservoir elevation to prevent flooding. If that were to occur, that could make in-lake mitigation feasible again and the need for off-site mitigation via the Coal Creek site would be eliminated. Therefore, in light of its license extension request, would GRDA agree to withdraw its pending Coal Creek license amendment application and then resubmit it if FERC does not lower Grand Lake reservoir? If not, please explain.	The information sought in this question is highly speculative and not relevant to the Commission's decision of whether to grant GRDA's Application. Please see GRDA's responses to Comments #26 and #33, above. GRDA continues to support the Commission's approval of the Coal Creek Wildlife Management Area (CCWMA).
54	**City of Miami, OK**	16-Apr-19	Based on the explanation provided, the City does not believe that GRDA has demonstrated good cause for the FERC to once again defer completing its corrections to its existing Exhibit G drawings. To better understand the basis for GRDA's request, however, the City requests that the narrative be expanded to address the following matters: a. Why doesn't the draft address the need to defer action on GRDA's Coal Creek application since revised Exhibit G boundary drawings would be required if that application were to be granted?	GRDA does not believe that the CCWMA should be deferred simply because it would require a corresponding, minor change to the Exhibit G maps in that area of the project. The requested extension for the other changes to the Exhibit G maps concerns a level of effort that is far more substantial than the simple changes that will be needed to bring CCWMA into the project boundary.
55	**City of Miami, OK**	16-Apr-19	b. How many separate Exhibit G drawings must be revised to remedy the 164 "second-priority" boundary discrepancies?	The second priority boundary concerns related to the Exhibit G maps for the Pensacola Project appear on 36 different sheets.
56	**City of Miami, OK**	16-Apr-19	c. Have all the Exhibit G drawings on file today, including those drawings which need to be further revised to remedy these 164 boundary discrepancies, been converted to a geographic information system (GIS) digital format? If not, please address the status of all Exhibit G drawings that have not yet been converted and when such GIS conversion will be completed.	All of the Exhibit G maps that have been approved by FERC have been converted to GIS format. The second priority boundary discrepancies remain a work-in-progress and are not yet available in GIS format. The City's question underscores the reasonableness of GRDA's request. All of the Exhibit G map sheets will need to be reviewed and updated, as warranted, as part of GRDA's relicensing application. There is no reasonable justification for GRDA's customers to incur the expense of preparing minor changes to 36 map sheets now--as further changes to those same map sheets may be warranted as a result of the relicensing process.
57	**City of Miami, OK**	16-Apr-19	FERC's October 17, 2013 order approving the Shoreline Management Plan relied upon the Staffs findings as set forth in the Environmental Assessment, Shoreline Management Plan, dated august 2009. Section VI(B)(2) thereof states that FERC Staff examines environmental impacts associated with the Shoreline Management Plan through April 2022, the date when the project license expires. Because the 2013 order was based on analysis only through April 2022, continuing under the Shoreline Management Plan without updating for nearly five extra years would cause additional impacts not addressed by any previous FERC environmental review. Please expand the draft license extension application to address how GRDA would propose that the Commission analyze the environmental impacts of the Shoreline Management Plan for the additional period contemplated by the license extension application.	Please see GRDA's response to Comment #51, above.

From: Stubbs, Kevin [mailto:kevin_stubbs@fws.gov]
Sent: Tuesday, February 19, 2019 2:05 PM
To: Jaggars, Jacklyn <jjaggars@grda.com>; Townsend, Darrell <dtownsend@grda.com>; Edwards, Brian <bedwards@grda.com>
Cc: Jonna Polk <jonna_polk@fws.gov>; Daniel Fenner <daniel_fenner@fws.gov>; Wade Free <wade.free@odwc.ok.gov>; barry.bolton <Barry.Bolton@odwc.ok.gov>; Richardson, Josh <josh.richardson@odwc.ok.gov>; josh.johnston <Josh.Johnston@odwc.ok.gov>
Subject: Re: EXTERNAL: Re: [EXTERNAL] GRDA Draft Application for Non-Capacity Amendment of License and Modification of Relicensing Plan and Schedule

Thanks Jacklyn, The USFWS supports the proposed extension to allow a more thorough evaluation of potential impacts and mitigation options for relicensing the Pensacola Project. Let me know if you have any questions.

Kevin
918-382-4516

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
Eastern Oklahoma Region
Eastern Oklahoma Regional Office
P.O. Box 8002
Muskogee, OK 74402-8002

IN REPLY REFER TO:

April 15, 2019

Jacklyn Jaggaras
Director of Hydropower Projects
Grand River Dam Authority
P.O. Box 70
Langley, OK 74350
jjaggars@grda.com

Re: **Grand River Dam Authority's Draft Application for Non-Capacity Related Amendment and Modification of Relicensing Plan and Schedule**

The Bureau of Indian Affairs, Eastern Oklahoma Regional Office ("BIA"), in accordance with 18 C.F.R. § 4.38(a)(7), hereby submits its comments on the Grand River Dam Authority's ("GRDA") Draft Application for Non-Capacity Related Amendment and Modification of Relicensing Plan and Schedule ("Draft Extension Application") for the Pensacola Hydroelectric Project (FERC No. 1494) (hereafter, the "Project").

The BIA is in receipt of the Draft Extension Application, dated February 15, 2019, wherein the GRDA seeks to extend the expiration of the license for the Project from March 31, 2022 to December 31, 2026 – a period of four years and nine months. The BIA does not object the GRDA's extension request. However, the BIA asserts that this extension should not be used as a means to delay the studies within the FERC Study Plan Determination.

Under the Federal Power Act, the Department of the Interior may prescribe mandatory conditions for the protection and use of Indian reservations occupied by a project. *See* 16 U.S.C. § 797(e). Additionally, the Department of Interior may recommend other conditions to protect Indian reservations and trust assets from any adverse effects. *See id.*, § 803. The proper and informed exercise of the Department of Interior's authority to impose any such license conditions

depends on a through and complete review of the results of the required studies. Therefore, the BIA is encouraged that the extended schedule will allow a more adequate time to complete the required studies and result in a better work product to inform Interior's conditioning authority.

Before filing the final version of the Draft Extension Application, the BIA requests that GRDA clarify with more specificity how it will use its extended license time. On pages 17 to 19 of the Draft Extension Application, GRDA provides some details of how the longer timeline will benefit certain studies. The BIA wishes to see particulars provided in this section of the application, including, but not limited to, will the additional time allow more in-depth site evaluations for the Cultural Resource Study, will the additional time will result in a higher quantity of site evaluations in the Cultural Resource Study, and whether the scope of any specific study be altered or expanded under the proposed extension. Finally, GRDA should revise the proposed timeline in "Attachment B" to move Traditional Cultural Properties studies to Year 1, in accordance with the discussions which took place at the March 27, 2019 Cultural Resource Working Group Meeting.

The BIA asserts that nothing in this letter waives our ability to require GRDA to be in full compliance with the FERC Study Plan Determination.

Respectfully submitted,

Jessie Durham
Acting Regional Director

CC: Department of the Interior, Office of the Solicitor, Tulsa Field Office
Grand River Dam Authority

J. KEVIN STITT, GOVERNOR
J. D. STRONG, DIRECTOR
wildlifedepartment.com

DEPARTMENT OF WILDLIFE CONSERVATION
P.O. Box 53465 Oklahoma City, OK 73152 PH. (405) 521-3851

April 9, 2019

Darrell E. Townsend II, Ph.D.
Director, Office of Ecosystems Management
Grand River Dam Authority
P.O. Box 70
Langley, OK 74350

RE: Request for Review and Comments on Draft Application to Extend License Term

Dear Dr. Townsend:

The Oklahoma Department of Wildlife Conservation (ODWC) has reviewed the February 15, 2019, "Request for Review and Comments on Draft Application to Extend License Term and Expand Relicensing Study Program" filed by the Grand River Dam Authority (GRDA) for the Pensacola Hydroelectric Project No. 1494 (Pensacola Project), located on the Grand (Neosho) River in Craig, Delaware, Mayes and Ottawa counties, Oklahoma, and submits the following comments:

We are in agreement with GRDA's statement that "while this period is needed to accommodate circumstances beyond the reasonable control of GRDA, the additional time will be advantageous to all relicensing participants". The Proposed Study Plan (PSP) contains several ambitious projects and this proposed extension would provide not only the time needed to get the updated bathymetric data that is crucial to complete these studies, but also provide additional time to prepare for and fully undertake the projects identified in the PSP. Indeed, under the current timeline, there were significant doubts regarding the ability of the applicant to fully address the questions at the basis of the requested studies. However, as they have duly shown in their request, the extension would provide GRDA the ability to more fully address the identified concerns of stakeholders and greatly improve their ability to provide useful and meaningful results from the undertaken studies. The requested period of extension appears to be reasonable and still maintains an aggressive approach towards completion of the relicense process.

While this extension is reasonable and expedient for the relicense process, approval of this extension will also have additional consequences on activities within the current license. In 2016, the ODWC and GRDA entered an Interagency Agreement which outlined specific partner contributions and responsibilities associated with developing adjacent site mitigation to replace current activities identified under Article 411 and the associated Fish and Waterfowl Habitat Management Plan. One identified contribution by GRDA was the provision of funds from the Technical Committee Mitigation Fund, totaling $2.7 million, the current value of the fund plus the anticipated deposits into the fund through the remainder of the license. With a nearly 5-year extension of the license, we would recommend the estimated value of the fund be recalculated to reflect the new termination date of the current license, which is in accordance with current Article 411 requirements.

ODWC also supports the extension of the Shoreline Management Plan (SMP) and Revised Exhibit G to align with the License extension. Both of these items will be significantly influenced by results of studies from the PSP and allow better data-driven decisions. Additionally, these extensions will reduce redundancy in efforts of the applicant, other stakeholders, and the Federal Energy Regulatory Commission and staff.

Again, ODWC agrees with and reiterates GRDA's statement that the proposed License, SMP and Revised Exhibit G extensions "will result in more informed decision making and offer opportunities for involvement and problem-solving that are absent from the current ILP schedule". Our only request is that a recalculation of the Technical Committee Mitigation Fund is conducted and additional funds are made available for continued use as required within Article 411.

Sincerely,

J.D. Strong
Director

JULIE CUNNINGHAM
EXECUTIVE DIRECTOR

KEVIN STITT
GOVERNOR

STATE OF OKLAHOMA
WATER RESOURCES BOARD
www.owrb.ok.gov

May 8, 2019

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

Re: Pensacola Hydroelectric Project, FERC No. 1494-438; Request to Extend License Term and Expand Relicensing Study Program

Secretary Bose:

The Oklahoma Water Resources Board (OWRB) as both a Relicensing Participant and sister state agency, is pleased to support the Grand River Dam Authority's request to extend its relicensing deadlines in order to create a more robust relicensing study program while fulfilling the request of the City of Miami to perform a bathymetric survey of the Grand Lake. While such a study will be time-consuming, a current study of the lake done with the undisputed expertise of the U.S. Geological Survey will greatly enhance and further validate many of the relicense studies, most notably the Hydraulic and Hydrologic Model as well as the Sediment Transport Model. We agree with GRDA that the proper course of action for all related studies that depend on such data should be delayed in accordance with their respective timelines.

Please contact me at 405-530-8800 if you should require further information.

Sincerely,

Kent Wilkins

Kent Wilkins, Chief
Planning and Management Division
Oklahoma Water Resources Board

3800 N. CLASSEN BOULEVARD • OKLAHOMA CITY, OKLAHOMA 73118
TELEPHONE (405) 530-8800 • FAX (405) 530-8900

Subject: FW: EXTERNAL: GRDA Draft Application for Non-Capacity Amendment of License and Modification of Relicensing Plan and Schedule

From: Lynda Ozan [mailto:lozan@okhistory.org]
Sent: Friday, April 05, 2019 11:39 AM
To: Jaggars, Jacklyn <jjaggars@grda.com>
Cc: Stackelbeck, Kary <kstackelbeck@ou.edu>
Subject: EXTERNAL: GRDA Draft Application for Non-Capacity Amendment of License and Modification of Relicensing Plan and Schedule

Jacklyn:

The OK/SHPO believe the Draft Application for Non-Capacity Amendment of License and Modification of the Relicensing Plan and Schedule is an appropriate action based on the bathymetric survey required by USGS. This timing will allow for other studies to be accomplished before the HPMP is developed.

We noted in Attachment D that you have a proposed schedule for issuing reports on your studies but did not include time frames for review and comment. Including review and comment time frames in your scheduling is important so that participants in the project review have a clear understanding of the expectations.

Finally, should any of the reports indicate that flooding issues are the result of the generation of power or any other influence of GRDA, we would expect to see that study area include those areas of inundation.

Lynda S. Ozan
Deputy State Historic Preservation Officer | Oklahoma Historical Society
State Historic Preservation Office
800 Nazih Zuhdi Drive, Oklahoma City, OK 73105
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The mission of the Oklahoma Historical Society is to collect, preserve, and share the history and culture of the state of Oklahoma and its people.

Osage Nation Historic Preservation Office

Date: **February 19, 2019** **File: 1819-159OK-10**

RE: **FERC GRDA (FERC No. P-1494-438) Pensacola Hydropower Project Relicensing in Craig, Delaware, Mayes, and Ottawa Counties, Oklahoma Draft Application to Extend License Term and Expand Relicensing Study Program**

Federal Energy Regulatory Commission
Kimberly D. Bose, Secretary

The Osage Nation Historic Preservation Office (ONHPO) has received a request for comment on the draft Application for Non-Capacity Related Amendment and Modification of Relicensing Plan and Schedule (Application) for the project referenced as **FERC GRDA (FERC No. 1494-438) Pensacola Hydropower Project Relicensing in Craig, Delaware, Mayes, and Ottawa Counties, Oklahoma**.

The Application, if approved, would provide for an extension of the license term to accommodate a FERC-required bathymetric study that will enable the FERC-required Hydraulic and Hydrologic Model and Sediment Transport Model. Most of the other studies required by the relicensing effort depend on the results of these models. **The Osage Nation supports the FERC-required studies and concurs with the terms of the Application**.

Should you have any questions or need any additional information, please feel free to contact the Osage Nation Historic Preservation Office. Thank you for consulting with the Osage Nation on this matter.

Sincerely,

Andrea A. Hunter, Ph.D.
Director, Tribal Historic Preservation Officer

James Munkres
Archaeologist

627 Grandview Ave. * Pawhuska, OK 74056 Telephone 918-287-5328 * Fax 918-287-5376
HistoricPreservation@osagenation-nsn.gov

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April 16, 2019

Via Email: ***jjaggers@grda.com***

Jacklyn Jaggers
Director of Hydropower Projects
Grand River Dam Authority
P.O. Box 70
Langley, OK 74350

Re: Miami Tribe of Oklahoma Comments on Draft Application for License Extension, Pensacola Hydroelectric Project, FERC NO. 1494-438

Dear Ms. Jaggers:

Please accept these comments from the Miami Tribe of Oklahoma (the "Tribe") regarding GRDA's February 15, 2019 draft Application for Non-Capacity Amendment of License and Modification of Relicensing Plan and Schedule ("Draft Application") with respect to the Pensacola Hydroelectric Project ("Project"). By submitting these comments, the Tribe is not consenting to or objecting to GRDA's request for a license extension at this time.

The Tribe recognizes that a license extension to December 31, 2026, would in theory allow for GRDA to complete all facets of its Cultural Resources Study in consultation and coordination with interested tribes before the license is issued. The Tribe appreciates efforts to ensure that the Cultural Resources Study is completed in a timely manner and the progress that the Cultural Resources Working Group has made working with GRDA. As the Tribe has argued in past filings and correspondence, the first ever study of cultural resources should be comprehensive and thorough, and we understand that this work takes time and will benefit from additional time spent effectively. That said, the Tribe shares in many of the concerns advanced by the City of Miami (the "City") in its comments on the Draft Application that relate to other aspects of the Draft Application, including concerns regarding shortcomings and omissions in revised study plans, failure to address processes for evaluating environmental impacts during the extension period, and inadequate stakeholder consultation, among other concerns.[1] The Tribe requests that GRDA address these concerns in its final application to FERC.

[1] The Tribe's failure to comment on any component of the Draft Application should not be construed as acquiescence to that component. Once the application is filed and noticed by FERC, the Tribe expects to file additional comments.

COMMENTS

A. Changes to the SPD-Approved Sediment Transport Model Study Plan

The Tribe joins the concerns articulated in the City's Comment II.A.2 that the Draft Application does not justify GRDA's proposed extension of the Sediment Transport Model by an additional three years. In particular, GRDA's draft Attachment E is flawed in that it omits important elements from the methodology proposed by the City and adopted by FERC Staff in the Study Plan Determination ("SDP"). GRDA should correct the specific shortcomings and omissions identified by the City in the new draft Attachment E (the Sediment Transport Model Study Plan).

B. Need for Environmental Review Related to FERC's August 15, 2017 Order Granting Rule Curve Amendment.

The Tribe joins the concerns articulated in the City's Comment II.C.1 of continuing under the current rule curve for nearly five extra years without FERC having undertaken a review of the additional environmental impacts caused during that time. The Tribe adamantly opposed GRDA both the variance and amendment to the reservoir elevation rule curve in 2016, in part because neither FERC nor GRDA had ever engaged in a Section 106 review with respect to the Project—neither when the Project was initially constructed nor anytime thereafter. The Tribe also expressed concerns that amending the rule curve would increase the likelihood of backwater flooding events, resulting in significant environmental and other harms to tribes, the City, and proximate flora and fauna.

In approving the rule curve amendment, FERC made clear that longer range impacts of the amendment would be considered in the relicensing proceeding set to commence no later than March 2017. As a result, the Tribe joins the City's position that GRDA must address how FERC will assess environmental impacts of the rule curve amendment during the license extension, if granted.

C. Relationship between H&H Inputs and Other Studies.

The Tribe joins the concerns articulated in the City's Comment II.A.4 that GRDA's Draft Application does not explain why the dependency on H&H inputs should now extend the study process from two to five years. GRDA should articulate with specificity what factors bear on the additional three years requested and how those factors are tied to the precise time requested.

D. Contingent Need for Contaminated Sediment Transport Study.

The Contaminated Sediment Transport Study is important to the Tribe and the trigger for that Study is not clearly described in the Draft Application. The Tribe joins the request articulated in the City's Comment II.A.3 that GRDA amend its draft Attachment B to reflect that a contaminated sediment transport study will be required if study results from the H&H

modeling and sedimentation studies during review of the ISR indicate that project operation affects transport of potentially-contaminated sediment.

E. Status of SPD Implementation.

The Tribe joins the request articulated in the City's Comment II.B.2 that GRDA include in its application for extension a status update and description of all work that GRDA has accomplished during that time.

F. Stakeholder Involvement in Modification of Study Plans.

Throughout the ILP process, the Tribe has pushed for FERC's and GRDA's continued and meaningful consultation with interested tribes as required by federal law. Consistent with that priority, the Tribe shares in the concern articulated in the City's Comment II.B.4 that the Draft Application does not give stakeholders a serious opportunity to influence the direction of studies, or to seek FERC intervention until four years of studies have elapsed. GRDA must consult with tribes and other stakeholders on a timely basis regarding study plan progress and decisions that affect tribal interests. Thus, GRDA should clarify that each annual progress submitted by GRDA will be subject to review and modification by stakeholders, including interested tribes, under the same procedures that will apply to the ISR.

The Tribe appreciates the opportunity to comment on the Draft Application. Please do not hesitate to reach out with any questions on this matter.

Respectfully submitted,

Joseph F. Halloran
Jeffrey K. Holth

Special Counsel for the Miami Tribe of Oklahoma

cc: Service List

City of Grove

104 W. 3rd • Grove, Oklahoma • 74344

(918) 786-6107 • Fax: (918) 786-8939

April 9, 2019

Kimberly Rose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

RE: Pensacola Hydropower Project, FERTC No. 1494-438

Secretary Rose:

Please consider this correspondence from the City of Grove, Oklahoma as our letter of support of a request from the Grand River Dam Authority (GRDA) to the Federal Energy Regulatory Commission (FERC) for an extension of the licensing term to accommodate the relicensing process per FERC's Integrated Licensing Process. This extension request is being driven primarily by the FERC required bathymetric survey and the timeframe that is necessary to complete that survey.

Because most of the other studies as required in the Revised Study Plan cannot be completed without the results of the bathymetric survey, it is important that the survey be given ample time to be completed. As you know, the survey results form the basis for the Hydraulic and Hydrologic Model and the Sediment Transport Model which are prerequisites to complete other studies in the FERC approved study plan (i.e. infrastructure, aquatic species of concern, terrestrial specifies of concern, wetlands and riparian habitat and cultural resources).

Hence, the City of Grove strongly supports the GRDA's request for a license term extension and extended study plan for the relicensing of the project. This will allow sufficient time to complete the various studies and ensure that the information is accurate and correct.

If you have any questions regarding the City of Grove's support of this request, please do not hesitate to contact the City.

Respectfully,

Bill Keefer

Bill Keefer
City Manager
City of Grove

April 1, 2019

Kimberly Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

RE: Pensacola Project – 1494-438

Secretary Bose:

Please be advised that the South Grand Lake Area Chamber of Commerce is 100% supportive of a requested license extension for Management of the Pensacola Project by the Grand River Dam Authority.

The unanticipated requirement of a new bathymetric survey necessitates completion of that survey before the required Hydraulic and Hydrologic Model and Sediment Transport Model can be completed. The major complicating factor is that the United States Geological Survey, GRDA's contractor for the bathymetric survey, indicates the necessity of a two-year time frame to complete the survey, further delaying proper completion of the subsequent studies. Output from the The Hydraulic, Hydrologic, and Sediment Transport Models must be utilized to properly complete other required studies, including Infrastructure, Aquatic Species of Concern, Terrestrial Species of Concern, Wetlands and Riparian Habitat, and Cultural Resources.

With the addition of unanticipated required studies, GRDA should be given adequate time to complete the additional requirements thoroughly and accurately. As stakeholders, Grand Lake property owners will all have to live with the results of these studies, as well as the subsequent orders from FERC. The additional extension of time to have additional work done in a proper and detailed manner is far more important than the initial time frame.

The South Grand Lake Area Chamber of Commerce is totally supportive of the Grand River Dam Authority's requested licensing extension in order to allow adequate time for professional completion of the FERC-required studies.

Respectfully,

Amanda Silvers

Amanda Silvers, Executive Director
South Grand Lake Area Chamber of Commerce

SHANGRI-LA

GOLF CLUB RESORT & MARINA

March 1, 2019

Kimberly Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

RE: Pensacola Project – 1494-438

Secretary Bose:

Please accept this correspondence in support of a requested license extension for Management of the Pensacola Project by the Grand River Dam Authority. Due to the unexpected requirement by the Federal Energy Regulatory Commission of significant time-consuming studies to be submitted as a part of the relicensing application, additional time is required to properly complete those studies which were requested by third parties and subsequently required by FERC.

The requirement of a new bathymetric survey necessitates completion of that survey before the required Hydraulic and Hydrologic Model and Sediment Transport Model can be completed. Output from those Models must be utilized to properly complete other required studies, including Infrastructure, Aquatic Species of Concern, Terrestrial Species of Concern, Wetlands and Riparian Habitat, and Cultural Resources. The initial complicating factor is that the United States Geological Survey, GRDA's contractor for the bathymetric survey, indicates the necessity of a two-year time frame to complete the survey, further delaying proper completion of the subsequent studies.

While it is my personal belief that many of these requested studies were suggested by third parties primarily for the purpose of adding cost and time to GRDA's relicensing efforts, they are, nonetheless, a reality. GRDA should be given adequate time to complete the additional requirements in order to ensure thorough and accurate results. As stakeholders, we will all have to live with the results of these intricate studies, as well as the subsequent orders from FERC. It is far more critical to have the work done in a proper and detailed manner than to hit an arbitrary timeline.

We offer our strong support for the Grand River Dam Authority's requested licensing extension in order to allow adequate time for professional completion of the FERC-required studies.

Respectfully,

Jason Sheffield, President and CEO
Shangri-La Golf Club, Resort & Marina

31000 South Highway 125 Monkey Island, OK 74331 918-257-4204 www.shangrilaok.com

ARROWHEAD
YACHT CLUB

April 11, 2019

Kimberly Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D. C. 20426

RE: License Extension Request for the Pensacola Project (1494)

Dear Secretary Bose:

Please accept this correspondence supporting the requested license extension for management of the Pensacola Project by the Grand River Dam Authority (GRDA). The GRDA is an outstanding organization and operator of the project and has spent an exhaustive amount of time and resources on this process. Time and resources are money. It comes from the rate payers and stakeholders. Please be aware there will always be those requesting further time and studies be conducted.

There is little doubt in my mind that many of these additional studies being asked for are simply to increase the cost to GRDA. Many studies and tasks have been completed by GRDA multiple times. Please use your position and influence to bring this process to an end and grant the license extension. The benefits of granting the license extension will allow for better and more informed management decisions during the next license term and provide an opportunity for meaningful collaboration and consultation.

From my perspective of being a recreational user of Grand Lake for 66 years, and in business on Grand Lake for the past 50 years, it has never been operated better! This is the universal opinion of all the other vendors on Grand Lake.

Thank you for your time and accepting this correspondence.

Sincerely,

Joe Harwood

Arrowhead Yacht Club and Marina, Owner
Arrowhead South Marina, Owner
Arrowhead Boat Sales Grove, Oklahoma, Owner
Cedar Port Marina, Owner
Cherokee Yacht Club and Marina,
Co-Owner Hammerhead Marina, Co-Owner

From: Kent Carson
To: Jaggars, Jacklyn
Subject: EXTERNAL: FERC Re-Licensing
Date: Monday, March 04, 2019 9:39:49 AM

Ms. Jacklyn Jaggers;

This e-mail is in support of allowing GRDA an extension to complete the proper bathymetric survey required by FERC. It only makes senses that if this procedure is required for the re-licensing that the GRDA be given time to perform the survey. In my opinion, the GRDA is a good guardian and manager of the lake. So, give them time to do the job FERC has ask them to do.

Regards,

Kent Carson
Grand Lake property owner and resident

Davis Wright Tremaine LLP

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CraigGannett@dwt.com

April 16, 2019

Via Email: ***jjaggers@grda.com***

Jacklyn Jaggers
Director of Hydropower Projects
Grand River Dam Authority
P.O. Box 70
Langley, OK 74350

Re: Pensacola Hydroelectric Project, FERC NO. 1494-438; Comments on Draft Application for License Extension

Dear Ms. Jaggers:

On behalf of the City of Miami, I am writing to provide comments and submit questions regarding GRDA's February 15, 2019 draft Application for Non-Capacity Amendment of License and Modification of Relicensing Plan and Schedule ("Draft Application") with respect to the Pensacola Hydroelectric Project ("Project").

I. INTRODUCTION

The City is very concerned by the potential for a license extension of four years and nine months, to December 31, 2026, nearly eight years from now. As the City has detailed in its prior comments, flooding caused by the Project has harmed the City, its residents, and the surrounding communities for decades. The City regards the relicensing process as the best opportunity to mitigate that ongoing harm, if not bring it to an end. The proposed extension would substantially expand the window within which flooding would continue to occur before a remedy or remedies can be adopted by FERC in a new license and implemented by GRDA.

In that light, the City intends that GRDA's responses to the following comments and questions help the City and other stakeholders understand and evaluate the forthcoming license extension application. Just to be clear, the City's failure to comment on any component of the Draft Application should not be construed as acquiescence to that component by the City. Once the application is filed and noticed by FERC, the City expects to file additional comments.

II. SPECIFIC COMMENTS AND QUESTIONS

A. Substance of ILP studies

1. Selection of USGS to perform bathymetric survey. On March 5, 2019, I sent you a letter on behalf of the City requesting additional information regarding the selection of USGS to conduct the bathymetric study. That letter (copy appended as Attachment A) advised that this information was needed to assist the City in its analysis of the Draft Application and the preparation of our comments. I therefore requested that information and those documents by April 1, 2019.

GRDA did not respond by April 1, and I was subsequently advised by GRDA's outside counsel, Chuck Sensiba, that GRDA will only address our letter in the final version of the license extension application. The City is disappointed that GRDA declined to provide the requested information earlier, so that the City could provide more informed comments on the Draft Application. Nevertheless, we look forward to GRDA's responses in the license extension application to each of the questions and document requests contained in the March 5 letter.

In addition to the questions and document requests in the March 5 letter, please expand the narrative in the license extension application to address the following:

a. The issue of the need for a new bathymetric study for Grand Lake was raised from the outset of the study process. Prior to FERC staff issuing the Study Plan Determination (SPD) on November 8, 2018, what contingency planning did GRDA undertake with respect to the length of time it would take to conduct the new bathymetric study?

b. When did GRDA first initiate discussions with USGS regarding conducting a bathymetric study?

c. When did GRDA learn that the USGS bathymetric study would require about two years to complete?

d. Attachment A states that the USGS study "is scheduled to start in January 2019." When did it actually start?

e. The minutes of the GRDA Board Meeting where the USGS contract was approved have not yet been posted. Please include them along with the final license extension application.

To the extent GRDA believes that any information regarding the USGS selection process is privileged and should be exempt from mandatory public disclosure for purposes of evaluating its

license extension application, please designate all such documents consistent with the Commission's requirements as set forth at 18 C.F.R. § 388.112.

2. <u>Changes to the SPD-Approved Sediment Transport Model Study Plan.</u> The SPD, at B-9, determined that GRDA should use the Sedimentation Study Plan presented by the City of Miami's consultants, Tetra Tech, as included in the City's July 26, 2018 comments on the Proposed Study Plan (PSP). At the same time, FERC Staff rejected the April 2018 Sedimentation Study prepared by GRDA's consultants' Mead & Hunt, and included in the PSP.

Attached to the draft license extension application is a new draft Attachment E, a Sediment Transport Model study plan, which GRDA states "follows the sediment transport model study plan prepared and advocated by the City of Miami—but with additional fieldwork and monitoring enhancements originally proposed by GRDA." *See* Draft License Extension Application at 19. At page 25 of the draft, under Section IV, number 3, GRDA asks that the Commission, in granting its extension request, also amend the SPD to accept its Attachment E.

GRDA cannot modify the SPD as part of its effort to extend the license term. GRDA did not seek rehearing of the SPD, and is therefore bound by it. See Order No. 2002-A at PP 16-17; *FirstLight Hydro Generating Co.*, 162 FERC ¶ 61,235 at P 24 (2018).

The Tetra Tech study, as approved by the FERC Staff, can be completed in a period of 8-12 months after receiving the bathymetric data. (As addressed elsewhere in these comments, the City also questions GRDA's estimate of the time required for a new bathymetric study.) GRDA's Sediment Transport Model as set forth in the study schedule included in draft Attachment B, would take an additional three-plus years to complete. The City believes GRDA modifications to the previously approved Tetra Tech Study Plan would unnecessarily add substantially to the cost and time needed for the pre-licensing study process and thereby unnecessarily delay completion of the relicensing process.

Without prejudice to the prior comments, the City offers the following substantive comments on draft Attachment E. This is not a comprehensive list of the shortcomings of GRDA's proposal, but merely examples explaining why GRDA should return to the City's study plan.

Elements of GRDA's proposed study that are unnecessary:

- At page 4 of draft Attachment E, Mead & Hunt plans to conduct a Sediment Transport Evaluation to determine critical shear stress. Because the bed material is mostly sand-sized material (which is likely mobile over a full range of flows), such an evaluation is unnecessary, as previously indicated in the City's comments on the RSP.

- Similarly, there is no need for Mead & Hunt to estimate sediment transport rates for cohesive sediment, as suggested on page 4 of Attachment E, since there is no evidence of cohesive sediments, as also indicated in the City's comments on the RSP.

- The Acoustic Doppler Current Profile (ADCP) measurements proposed by GRDA at Attachment E, pages 4 and 15-16, are not necessary, and were not included in the City's study plan.

Important elements of the City's study plan, which FERC directed GRDA to adopt, but which are omitted include:

- Attachment E proposes to calibrate the model to the 1, 2, and 5 year flood events. The City views this as an incomplete calibration of the model, and inconsistent with the Tetra Tech model as adopted in the SPD. The majority of sediment-transport and bed-forming changes occur during large floods. Therefore, the model should be calibrated over longer periods, as detailed in the following excerpt from the City's Sedimentation Study Plan (Attachment 5 to the City's Comments on the PSP at page 17):

  > To calibrate the sediment-transport components, the first model will be run over the continuous series of intervening flows between the two surveys (e.g. 1995 to 2017). The predicted channel bathymetry at the end of the run will be compared to the corresponding measured data. The STM will also be calibrated by comparing the suspended component of the predicted sediment-transport rates with the measured SSC data.

- Attachment E does not evaluate potential operational alternatives designed to mitigate dam-related sedimentation effects associated with the operation of the Project. Attachment E section 2.6.5, Model Simulations (pages 19-20), under the heading "Operational Analyses," describes a first and second simulation with language based on paragraphs (1) and (2) of section 3.6.8 of the City's sedimentation study plan. However, GRDA then goes on to describe the "third and possibly subsequent simulations" to evaluate only those "operating scenarios proposed by GRDA as part of this relicensing process."

  This is a crucial departure from the Tetra Tech study, apparently intended to limit the range of operational alternatives to those proposed by GRDA. In contrast, Section 3.6.8 of the Tetra Tech study specifies that the contractor "will identify and evaluate potential mitigation alternatives to eliminate or

mitigate the dam-related sedimentation effects over the license period. Potential mitigation alternatives may include dredging and modifications to the Rule Curve."

- Attachment E fails to clarify the specific locations and methodology for collecting water-surface elevations, bedload, and suspended load sediment measurements during flood events.

3. Contaminated sediment transport study. Please amend draft Attachment B to reflect that a contaminated sediment transport study will be required if study results from the H&H modeling and sedimentation studies during review of the ISR indicate that project operation affects transport of potentially-contaminated sediment. See SPD at B-39.

4. Relationship between H&H inputs and other studies. Page 16 of the Draft Application states that most studies are dependent on inputs from the H&H study. This dependency on the H&H inputs was also identified in the RSP, and yet the RSP proposed to maintain a two-year study schedule. See e.g., RSP at pages 15 (re Sediment Transport); 17 (re: Terrestrial Species of Concern, Wetlands and Riparian Habitat); and 31 (re: Aquatic Species of Concern). Please explain why the dependency on H&H inputs should now extend the study process from two to five years. In particular, is this extension primarily due to the need to undertake the bathymetric study? If not, please address what other factors are causing the need for three additional years of studies.

5. Study Schedule Timeline Matrix. Attachment B provides a "Study Schedule Timeline Matrix." Please expand this attachment to provide GRDA's original timeframe for each listed activity and the basis for the extension of same. Please explain what elements of the yellow highlighted studies are "dependent on modeling events" and how (if at all) those dependencies increase the length of the critical path for the study period as compared to what was presented in the RSP (see item 7 below). Also please expand the discussion to explain why the USGS study is shown as extending until the end of 2021 when Table 1 in draft Attachment A shows that the USGS study, other than publishing the results, will be done by the first quarter of 2020. In particular, the City requests that GRDA expand the narrative (beyond n. 23) to explain how a potential for study delay due to "unanticipated events and competing demands" constitutes unique and extenuating circumstances that would justify a Commission extension of the license term. *See City of River Falls, Wisconsin*, 153 FERC ¶ 62, 175 at P 14 (2015).

6. Increased Cost of Sedimentation Study. In the RSP, GRDA's estimated cost for a Sedimentation Study was $400,000. See RSP at Section 2.9. The contract with USGS set forth in the draft license extension application, Attachment A, states that the bathymetric study would cost an additional $426,000. The revised cost estimate in the Draft Application for the expanded Sediment Transport Model, including the cost of the USGS study, is $2,860,000.

Please expand the narrative discussion in this section of the license extension application to explain the basis for this $2 million increase, separately identifying the cost for each additional element.

B. Impacts on ILP process and schedule

1. FERC's Lack of Quorum. The Commission's pre-filing ILP process, originally scheduled to commence by April 1, 2017, was delayed because FERC Staff was then conducting an environmental assessment (EA) of GRDA's May 6, 2016 Article 401 Rule Curve amendment application. Then, after the EA was completed in May 2017, the Commission's lack of a quorum delayed FERC action on the application until August 15, 2017. Thereafter, on August 24, 2017, FERC Staff issued a letter order lifting the abeyance and providing a revised ILP process plan and schedule.

a. In light of this delay, did GRDA at any point discuss with FERC Staff the possibility of withdrawing its rule curve license amendment application and deferring consideration of that proposal until the relicensing process? If so, please describe those discussions and explain why this option was thereafter rejected. If no such discussions occurred, please explain why not.

b. As noted, the ILP process initially scheduled to commence April 1, 2017 did not commence until August 24, 2017. Is GRDA maintaining that the absence of a FERC Commissioner quorum in 2017 caused more than a five month delay in the ILP process plan and schedule? If so, please explain.

c. In its April 27, 2018 PSP, GRDA stated (at Section 6.2) that "GRDA will be seeking a modest extension of the existing license term, such that the license application filing date can be adjusted, as appropriate, to match the ILP process." When did GRDA first communicate to FERC Staff its desire for a license extension? What extension period did GRDA initially propose?

2. Status of SPD implementation. By the time this license extension request is filed, nearly 25% of the allotted two years for pre-licensing studies as approved in the SPD will have elapsed. In that regard, please:

a. Include a status update on, and description of, all study-related work that GRDA has undertaken as of the date of such filing.

b. Identify any SPD milestones or deadlines that GRDA has missed as of such filing date.

c. Identify any SPD milestones or deadlines that GRDA would not be able to comply with in the event that its license extension request is denied by FERC.

3. **Relicensing Schedule.** To insure that the impact of the proposed schedule change is clear to both the Commission and all interested stakeholders, the City requests that the newly proposed relicensing schedule (draft Attachment C) be presented as a redline to the currently approved schedule, set forth in the RSP at Section 6.1. In preparing this redline, the City also requests a number of clarifying changes to draft Attachment C, as listed below.

a. A number of items shown in green (completed milestones) are incorrect. For example, the deadline for GRDA to file its RSP, as correctly reflected in RSP Section 6.1, was 9/24/18. However, draft Attachment C shows this deadline as 8/25/18. Similarly, RSP Section 6.1 shows the deadline for FERC's issuance for the SPD as 11/8/18 whereas draft Attachment C shows this deadline as 9/24/18.

b. The revised Attachment C should make clear that virtually all activity items shown with blue background are newly proposed and were not part of the existing approved schedule set out at RSP Section 6.1. All such newly proposed activity items should also be specifically explained.

c. The presentation of some items in white background is confusing. As each such item has been modified in some respect from the manner presented in RSP Section 6.1, they should be shown with blue background, redlined for changes and all such changes explained.

4. **Stakeholder involvement in modification of study plans.** The ILP process contemplates two years of study, with an initial study report and possible modification of the study plans at FERC direction after the first year. In GRDA's proposed Attachment D, "Proposed Enhanced Progress Reporting for the ILP Relicensing of the Pensacola Hydroelectric Project," there are only "progress reports" after the first three years of studies. And this Attachment D gives only very rough outlines for each of these reports. The draft license amendment application (at 17) indicates only that GRDA will "prepare and distribute" these reports and "convene a meeting . . . to answer any questions from relicensing participants."

There is no indication that stakeholders will have a serious opportunity to influence the direction of studies or seek FERC intervention until four years of studies have elapsed, when GRDA proposes to issue its Initial Study Report (ISR). Ordinarily, that opportunity would arise after year 1 through the ISR process.

- GRDA should clarify that, if any extension is approved, ***each*** annual progress report will be subject to review and potential modification under the same procedures as will apply to the ISR.

- GRDA's contract with USGS for the bathymetry study requires that USGS deliver quarterly written progress reports to GRDA. GRDA should commit to making each USGS quarterly report promptly available to all stakeholders.

5. Potential for license extension to trigger re-initiation of ILP process. The ILP process begins with the prospective license applicant's notification of intent under 18 C.F.R. § 5.5(d), which must be filed no more than five and a half years before expiration of the current license. If FERC approves GRDA's request to extend the license term to December 31, 2026, the license expiration deadline will be more than five and a half years in the future. The City understands that GRDA does not intend to trigger a complete re-initiation of the ILP with the proposed license extension and does not believe the extension as requested would have that effect, but the draft does not explain why nor does GRDA seek waiver of the rules. Please expand the narrative to address this issue.

C. Impacts on and relationship to other proceedings

1. Need for Environmental Review Related to FERC's August 15, 2017 Order Granting Rule Curve Amendment. In its May 6, 2016 application to amend the reservoir elevation rule curve, GRDA acknowledged (at I-6) that "the relicensing process will involve a comprehensive review of all license obligations, including rule curve requirements." Further, in explaining the consultations that preceded the filing of this application, GRDA stated:

> While participants in the technical conference did not reach consensus on the results and conclusions of [existing hydrological analyses], there was a general acknowledgement that in light of the limited scope of GRDA's amendment proposal, existing information . . . would sufficiently inform the Commission's decision making on an amendment that seeks only to adopt the 2015 variance through the remainder of the existing license term. Other potential hydrological issues--such as changes to channel geomorphology, sedimentation, and the effects of bridges, agriculture, and other anthropological and natural changes in the river basin over time--are best addressed in the upcoming Project relicensing, which GRDA expect to commence no later than March 2017.

(emphasis added). FERC's August 15, 2017 order granting GRDA's application relied upon the Staff's findings of minimal incremental adverse environmental impacts, as set forth in the Final Environmental Assessment, Amendment of Article 401 to Modify Reservoir Elevation Rule Curve, dated May 2017. Section 6.1 of the Final EA states that FERC Staff examined

environmental impacts through April 2022, the date when the project license expires. In the order, FERC made clear that longer range impacts of this and prior rule curve modifications, as anticipated by the City and other interested stakeholders, would be considered in the relicensing proceeding.

Because the 2017 rule curve amendment was based on analysis only through April 2022, continuing under that rule curve amendment for nearly five extra years would cause additional impacts not addressed by any previous FERC environmental review. Please expand the draft license extension application to address how GRDA would propose that the Commission analyze the environmental impacts of the rule curve change for this additional period.

2. **Environmental review of license extension.** Please address how GRDA would propose that the Commission analyze the environmental impacts of its entire license extension proposal.

3. **Coal Creek license amendment application.** The bathymetric and H&H studies to be undertaken under relicensing may lead to a Commission decision to lower Grand Lake reservoir elevation to prevent flooding. If that were to occur, that could make in-lake mitigation feasible again and the need for off-site mitigation via the Coal Creek site would be eliminated. Therefore, in light of its license extension request, would GRDA agree to withdraw its pending Coal Creek license amendment application and then resubmit it if FERC does not lower Grand Lake reservoir? If not, please explain.

4. **Exhibit G drawings.** Based on the explanation provided, the City does not believe that GRDA has demonstrated good cause for the FERC to once again defer completing its corrections to its existing Exhibit G drawings. To better understand the basis for GRDA's request, however, the City requests that the narrative be expanded to address the following matters:

a. Why doesn't the draft address the need to defer action on GRDA's Coal Creek application since revised Exhibit G boundary drawings would be required if that application were to be granted?

b. How many separate Exhibit G drawings must be revised to remedy the 164 "second-priority" boundary discrepancies?

c. Have all the Exhibit G drawings on file today, including those drawings which need to be further revised to remedy these 164 boundary discrepancies, been converted to a geographic information system (GIS) digital format? If not, please address the status of all Exhibit G drawings that have not yet been converted and when such GIS conversion will be completed.

5. **Environmental analysis of Shoreline Management Plan.** FERC's October 17, 2013 order approving the Shoreline Management Plan relied upon the Staff's findings as set forth in the Environmental Assessment, Shoreline Management Plan, dated August 2009. Section VI(B)(2) thereof states that FERC Staff examines environmental impacts associated with the Shoreline Management Plan through April 2022, the date when the project license expires. Because the 2013 order was based on analysis only through April 2022, continuing under the Shoreline Management Plan without updating for nearly five extra years would cause additional impacts not addressed by any previous FERC environmental review. Please expand the draft license extension application to address how GRDA would propose that the Commission analyze the environmental impacts of the Shoreline Management Plan for the additional period contemplated by the license extension application.

Thank you for considering these comments and document requests. Please let me know if you have any questions or concerns regarding any of the City's comments or requests.

Best regards

Davis Wright Tremaine LLP

Craig Gannett

cc: Service List

Attachment

Attachment A

Davis Wright Tremaine LLP

Suite 3300
920 Fifth Avenue
Seattle, WA 98104-1610

Craig Gannett
206-757-8048 tel
206-757-7048 fax

CraigGannett@dwt.com

March 5, 2019

Jacklyn Jaggars
Director of Hydropower Projects
Grand River Dam Authority
P.O. Box 70
Langley, OK 74350
jjaggers@grda.com

Re: Pensacola Hydroelectric Project, FERC No. 1494-438; Request for Additional Information regarding Draft Application to Extend License Term

Dear Ms. Jaggars:

On behalf of the City of Miami, I am writing in response to GRDA's February 15, 2019 draft Application for Non-Capacity Amendment of License and Modification of Relicensing Plan and Schedule ("Draft Application"). I also received your February 28 email indicating that GRDA will wait until the end of the full 60-day regulatory comment period before filing a Final Application. The City appreciates the reassurance that the relicensing participants will have the time necessary to carefully analyze the draft.

The City is very concerned about the proposed license extension of four years and nine months to December 31, 2026, nearly eight years from now, and is in the process of analyzing the basis for that request. In order to do so, the City requests more information regarding the primary reason GRDA cites for the long delay – the selection of the U.S. Geological Survey ("USGS") to conduct the bathymetric study. In particular:

1. On page 1 of his cover memo, Dr. Townsend states that: "Our need to further extend the relicensing process became more pronounced very recently, when GRDA learned that the U.S. Geological Survey – GRDA's contractor for the FERC-required bathymetric survey – will require about two years to complete this survey." In that regard, please provide a copy of all correspondence (including but not limited to emails) between GRDA and the USGS regarding the bathymetric study. The City is particularly interested in correspondence relating to the length of time it would take the USGS to complete the bathymetric study.

2. On page 7 of the Draft Application, it states that: "GRDA solicited proposals from several candidates and ultimately selected the United States Geological Survey (USGS) to perform the bathymetric survey." In that regard, please provide:

(a) The written solicitation(s) issued by GRDA, a list of entities to which the solicitation was sent, and a copy of each solicitation response.

(b) A copy of any written criteria used by GRDA in selecting the USGS over the other entities that responded to the solicitation, including details and results of any scoring or ranking used as part of the selection process. If no written criteria exist, please list the unwritten criteria applied by GRDA, in the order of importance.

(c) A copy of all correspondence (including but not limited to emails) between GRDA and the entities other than the USGS that submitted responses to the solicitation. The City is particularly interested in correspondence relating to the length of time it would have taken each entity other than the USGS to complete the bathymetric study.

In order to complete its analysis and submit its comments on the Draft Application by April 16, 2019, the City respectfully requests that GRDA provide the above-requested information as quickly as practicable, but not later than April 1. If GRDA has concerns regarding any of these requests, please contact me at your earliest convenience.

Best regards,

Davis Wright Tremaine LLP

Craig Gannett

cc: Service List

Attachment J

USGS, Project Report, February 1st – April 30th, 2019

Project Report, February 1st – April 30th, 2019

Project Name: Grand Lake Bathymetry

Begin Date: February 1st, 2019 **End Date:** June 30th, 2020

Project Number: SH00MEZ

Project Chief: Jason Lewis, Shelby Hunter, Kevin Smith

Cooperator: Grand River Dam Authority

Principal Cooperator Contact: Darrell Townsend, Grand River Dam Authority, Vinita, OK

Objectives:
Bathymetric survey and area capacity table of Grand Lake O' the Cherokees:

1) Conduct a bathymetric survey,
2) Construct a detailed bathymetry map of the lake,
3) Using the gathered data, develop Elevation-Area-Volume tables for Grand Lake, and
4) Compare differences between this study and any previous studies done on the lake,
5) Publish a USGS scientific investigations Map report.

Scope: The proposed project area includes all of Grand Lake O' the Cherokees (Grand Lake). Grand Lake covers approximately 41,779 acres with approxamatly 1,300 miles of shoreline and has beneficial uses of public and private water supply, hydropower, and recreation. Multibeam bathymetric data will be collected througout the lake area and include an overlap at both the Twin Bridges area as well as the Elk River area bathymetric studies completed by the USGS in 2017.

Progress:

- February and March were spend planning and making sure bathymetric equipment were installed on the boat and calibrated property.
- Bathymetric survey began on Sunday March 30th, 2019.
- As of April 30th, the bathymetric survey progress is shown on Figure 1.

Plans for Next Quarter:

- Continue to survey up the lake in a northeast direction.

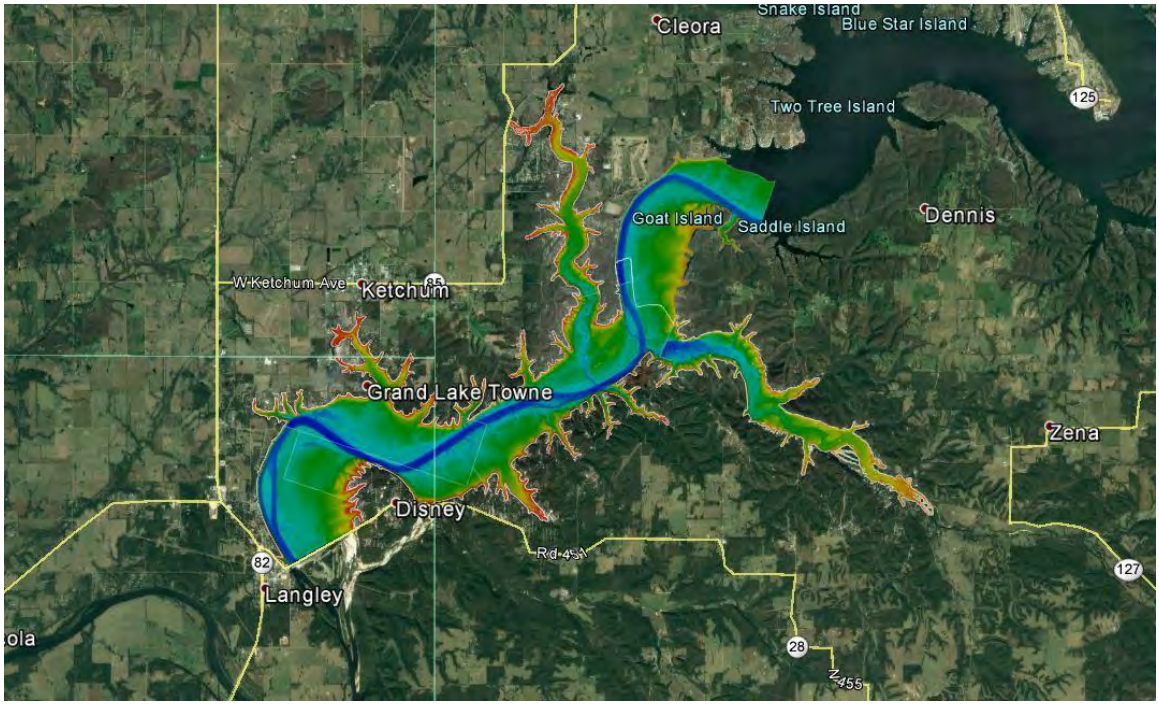

Figure 1. Bathymetric survey progress as of May 1st, 2019.

Attachment K

Subscription and Verification

Subscription and Verification
This Application for Non-Capacity Related Amendment of License is executed in the

STATE OF: Oklahoma
COUNTY OF: Mayes

By: Darrell E. Townsend, II
Vice President, Ecosystems & Watershed Management
Grand River Dam Authority
PO Box 70
Langley OK 74350

I, Darrell Townsend, being duly sworn, deposes and says that the contents of this application are true to the best of his/her knowledge or belief. The undersigned applicant has signed this application this 17th day of May, 2019.

Grand River Dam Authority

By: _____
Darrell E. Townsend, II

Subscribed and sworn to before me, a Notary Public of the State of Oklahoma this 20th day of May, 2019.

JACKLYN JAGGARS NOTARY PUBLIC # 10005885 EXP. 07/22/22 STATE OF OKLAHOMA SEAL

_____
Notary Public No. 10005885

My Commission expires: 7/22/2022