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July 29, 2024

**VIA ELECTRONIC FILING**

Debbie-Anne A. Reese  
Acting Secretary  
Federal Energy Regulatory Commission  
888 First Street, NW  
Washington, DC 20426

**Re: Pensacola Hydroelectric Project (FERC No. 1494-461)  
Response to Additional Information Request**

Dear Acting Secretary Reese:

With this letter, Grand River Dam Authority (GRDA), licensee for the Pensacola Hydroelectric Project No. 1494 (Project) responds to the request for additional information requested by the Federal Energy Regulatory Commission Staff (Commission or FERC) on May 29, 2024 pursuant to section 4.32(g)<sup>1</sup> of the Commission's regulations (AIR 1).

**Background**

In accordance with section 15(c)(1) of the Federal Power Act (FPA),<sup>2</sup> and section 5.17(a) of the Commission's regulations,<sup>3</sup> GRDA filed a *Final Application for License for Major Project - Existing Dam* (FLA or application) for the Project on May 30, 2023.<sup>4</sup>

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Pursuant to section 5.19(a) of its regulations,<sup>5</sup> the Commission on June 5, 2023, issued a notice<sup>6</sup> establishing the procedures for relicensing and the deadline for submission of final amendments, if any, to the application (Notice) as no later than 30 days from the issuance date of the notice of ready for environmental analysis.

Subsequent to the Notice, Commission staff issued the AIR 1 on May 29, 2024,<sup>7</sup> requesting responses within 60 days of the request.

<sup>1</sup> 18 C.F.R. § 4.32(g).

<sup>2</sup> 16 U.S.C. § 808(c)(1).

<sup>3</sup> 18 C.F.R. § 5.17(a).

<sup>4</sup> Final Application for License for Major Project - Existing Dam, Project No. 1494-461, Accession No. [20230530-5192](#) (filed May 30, 2023).

<sup>5</sup> 18 C.F.R. § 5.19(a).

<sup>6</sup> Notice of Application Tendered for Filing with the Commission and Establishing Procedural Schedule for Licensing and Deadline for Submission of Final Amendments, Project No. 1494-461, Accession No. [20230605-3031](#) (issued June 5, 2023).

<sup>7</sup> Additional Information Request for the Pensacola Hydroelectric Project, Project No. 1494-461, [Accession No. 20240529-3015](#) (issued May 29, 2024).

### **Additional Information Requests and Responses**

For ease of understanding, GRDA has reiterated the information requests followed by GRDA's responses in the following sections.

#### **Exhibit A**

##### Information Request 1

Section 3, *Description of Generating Units*, of Exhibit A of the FLA states that each of the six main generators is rated at 21.64 (MW). However, the text also states that each generator is rated at 24,000 kilovolt-amperes (kVA) with a 90% power factor, which equates to a rated capacity of 21.60 MW. Please clarify the reason for the discrepancy between the 21.64 MW and 21.60 MW generator ratings.

##### Response 1

For Section 3, of Exhibit A of the FLA, the rating of 21.640 was taken from the 2004 Exhibit A revision ([Accession #20040624-0091](#)). However, according to the nameplate calculations, the 2004 Exhibit A revision of 21.640 was incorrect. A corrected Exhibit A has been included with this filing.

It also needs to be noted, the incorrect information was carried through in the development of Exhibit E and appears in Sections 2.1.1.6 and 3.4.1.1.1 of Exhibit E. A revised Exhibit E has been included with this filing.

##### Information Request 2

Appendix A-3, *Nameplate Pictures*, of Exhibit A of the FLA provides photographs of the turbine and generator nameplates for each unit. While the turbine nameplates in Appendix A-3, which also provide information on the respective generators, match the information provided in Section 3 of Exhibit A (24,000 kVA, 90% power factor), the generator nameplates indicate a rating of 16,000 kVA and 90% power factor, which equates to a rated capacity of 14.40 MW for each unit. Please clarify the reason for the discrepancy between the 24,000 kVA (21.60 MW) and 16,000 kVA (14.40 MW) generator ratings.

##### Response 2

The updated nameplates that include ratings for both the turbines and the generators are shown in the top picture. The top pictures document the resulting generator capacities after the re-wind projects. The lower pictures document the nameplates of the generators prior to the re-wind projects. The re-wind projects were part of the capacity increase approved by the Commission on September 10, 1996 and documented in GRDA's filing to the Commission on May 19, 2010<sup>8</sup> (enclosed in the FLA as Appendix A-3 in its entirety for the six main units).<sup>9</sup> The generator ratings after the re-wind project give each of the six main generators a rating of 24,000 kVA at a 90% power factor.

##### Information Request 3

Section 5, *Switching Station and Transmission Equipment*, in Exhibit A of the FLA indicates that the project's primary transmission lines terminate at a non-project switching station. However, Appendix A-2 of Exhibit A and Exhibit G-2 include maps of project facilities that show the switching station within the project boundary. Please clarify whether or not the switching station is a project feature and indicate who owns the station.

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<sup>8</sup> Installed Turbine and Generator Nameplates. Project No. 1494-274, [Accession No. 20100519-009](#) (filed May 19, 2010).

<sup>9</sup> Although the May 19, 2010 filing was included in Appendix A-3 in its entirety for the six main units to reference and maintain consistency with the previous record, a final page was added to Appendix A-3 of the FLA to include color pictures of the nameplates for the 500 kW house unit generator.

Response 3

The switching station portion of the substation containing the generator leads up to the 13.8 kV disconnects is a project feature. The switching station is within the entire fenced-in substation, which is owned by GRDA, but occupies the first 120 feet of the aggregate base section located in the northeast portion of the substation. The substation has other non-project purposes and contains other non-project equipment outside of the switching station portion of the substation. Therefore, although the substation is within the project boundary due to its proximity to the project, the substation in its entirety is a non-project feature and should be considered as non-project use of project land.

Information Request 4

Section 5.5, *Costs for Proposed Environmental Measures*, table 5.5-1 of Exhibit D of the FLA presents the capital cost and operation and maintenance cost for the development and implementation of a Historic Properties Management Plan (HPMP) as \$5,100,000 and \$250,000, respectively. However, in Exhibit D of the draft license application (DLA), the proposed capital cost and operation and maintenance cost to implement the HPMP were presented as \$100,000 and \$200,000, respectively. Footnote 5 in table 5.5-1 of the FLA states that the capital cost of developing the HPMP has been included in the Section 8, Costs to Develop the License Application of Exhibit D and that the cost listed includes known management measures outlined in the HPMP, such as two additional traditional cultural property investigations, developing and implementing a management strategy for six additional sites, and additional testing for National Register of Historic Places-eligible sites (71 areas), and other monitoring. Given the large difference in costs of developing the HPMP between the DLA and FLA, please clarify whether or not the presented costs in the FLA are accurate estimates of anticipated efforts to develop and implement the HPMP as proposed. If the costs are not accurate, please provide accurate costs.

Response 4

In the creation of the FLA version of Exhibit D, Table 5.5-1, from the DLA version, GRDA added the term “additional cost” after both the capital cost estimate of \$5,100,000 and the annual operation and maintenance cost of \$250,000 to further instruct the reader that two cost figures listed in the table are not part of the costs already inclusive in the costs to develop the license application. Therefore, the costs of \$5,100,000 and \$250,000 in Table 5.5-1 are accurate estimates to “implement” the HPMP as proposed. GRDA was concerned if the proposed measure listed in line 5 did not include the term “development,” with a clarifying footnote, the Commission would ask if any of the costs for development of the HPMP were already counted as part of the Section 8 costs to develop the license application and the costs for “development.”

Information Request 5

Appendix A-5 of Exhibit A of the FLA includes a Land Analysis of Tribal Trust Lands located in the project boundary. Section 2.0, Methods, of the Land Analysis, indicates that on September 18, 2018, the Bureau of Indian Affairs (BIA) filed information regarding Trust Land maps of previously unmappable tracts that had been successfully mapped. Upon review of the September 18, 2018 filing, the maps filed by BIA include Cherokee Nation land parcels. However, it does not appear that any GIS data associated with the Cherokee Nation land parcels were ever filed. Therefore, so that Commission staff has a full understanding of the locations of all Tribal land parcels near the project boundary, please file GIS layers of the Cherokee Nation land parcels filed by BIA on September 18, 2018. Also please file any other Tribal land parcels not included in the Land Analysis.

Response 5

The BIA provided maps to GRDA on March 6, 2018 (received by GRDA on March 7, 2018), concerning ownership of tribal interests. The BIA explained they were still working on the CNM (could not map) tracts requiring further manual research. The BIA stated they would provide updated maps to GRDA within the next month and the updated map information was received by GRDA on June 26, 2018. On August 16,

2018, GRDA met with the BIA regarding information contained on the maps provided previously. At that meeting, GRDA was advised to contact Cherokee Nation as they maintain their own records. Letters were sent August 21, 2017, and October 24, 2018, to the Cherokee Nation requesting information on identifying Tribal Lands for all four counties. On October 30, 2018, the Cherokee Nation responded they had sent all their Tribal Land information to the BIA on April 30, 2018.

The shape files received from the BIA on March 7, 2018, and June 26, 2018, have been included with this filing.

#### **Exhibit E-Aquatic Resources**

##### Information Request 6

Figure 2.2.2.1.1-1 of Exhibit E of the FLA presents a bar graph of the monthly minimum, mean, and maximum range of water levels in Grand Lake during current and proposed operation. So that Commission staff can compare the differences in water levels between current and proposed operation, please file the data used to produce figure 2.2.2.1.1-1 in a Microsoft Excel file, or another similar format.

##### Response 6

The data used to produce Figure 2.2.2.1.1-1 of Exhibit E has been included with this filing as a spreadsheet in Microsoft Excel format.

##### Information Request 7

Table 3.4.1.2.3-2 of Exhibit E of the FLA provides the geometric mean, minimum, and maximum values for several surface water quality parameters monitored in the “Lower,” “Middle,” and “Upper” regions of Grand Lake during the winter, spring, summer, and autumn from 2017-2021. In the “Middle” region during the summer, table 3.4.1.2.3-2 indicates that the geometric mean dissolved oxygen (DO) concentration is  $27.87 \pm 160.02$  milligrams per liter (mg/L) and the maximum DO is 16.97 mg/L. Because the geometric mean DO cannot exceed the maximum DO, and because the standard deviation is excessive compared to the geometric mean, a correction to table 3.4.1.2.3-2 is needed. Therefore, please revise table 3.4.1.2.3-2 with the correct DO parameters for the “Middle” region during the summer.

##### Response 7

One value in the working database was missing a decimal and read 1314 instead of 13.14. This resulted in a very high average. The value has been corrected, the revision to Table 3.4.1.2.3-2 has been made and has been inserted into the revised Exhibit E included with this filing.

##### Information Request 8

Section 3.4.1.2.3, *Current Water Monitoring Data*, of Exhibit E of the FLA states that the Grand Lake water column thermally stratifies during the late spring, summer, and early fall. To characterize the thermal stratification in Grand Lake, table 3.4.1.2.3-3 provides data points for mean surface temperature, thermocline<sup>1</sup> depth, and anoxic<sup>2</sup> depth from June to October 2011. Although table 3.4.1.2.3-3 provides useful information, it does not indicate how DO changes along a depth profile and does not show how temperature or DO change with depth during an entire year in Grand Lake. Further, there are no other figures, tables, or text in the FLA that discuss or illustrate how temperature or DO change with depth during an entire year in Grand Lake. However, in reviewing the Pre-Application Document (PAD) filed on February 1, 2017, Commission staff have determined that figures 6.2-33 and 6.2- 44 of the PAD do illustrate how temperature and DO changes with depth during an entire year in Grand Lake. Because the information provided in figures 6.2-3 and 6.2-4 provides a full understanding of the stratification that occurs in Grand Lake, which is needed for Commission staff to analyze current environmental conditions at the project, please add the content of figures 6.2-3 and 6.2-4 to Exhibit E of the FLA.

Response 8

The information contained in Figures 6.2-3 and 6.2-4 of the PAD has been added to Exhibit E of the FLA. A revised Exhibit E is included with this filing.

Information Request 9

In section 3.4.2.4.1, *Upstream Water Quality*, of Exhibit E of the FLA, GRDA states that “[T]he reservoir level fluctuations that are expected to occur as part of the anticipated operation (without a rule curve) of the Project will be far lower than the extreme fluctuations necessary to influence water quality, as documented in the literature.” However, the statement made by GRDA does not include any literature citations. Please provide the literature citations that support the statement above. In addition, if the cited literature is not publicly available, please file the literature.

Response 9

The citation has been added to the revised Exhibit E. A revised Exhibit E is included with this filing.

Information Request 10

Figure 3.4.2.4.1-1 of Exhibit E of the FLA presents the simulated average daily range of water levels in Grand Lake during current and proposed operation. So that Commission staff can more easily compare the differences in the daily range of water levels between current and proposed operation, please file the data used to produce figure 3.4.2.4.1-1 in a Microsoft Excel file, or another similar format.

Response 10

The data used to produce Figure 3.4.2.4-1 of Exhibit E has been included with this filing as a spreadsheet in Microsoft Excel format.

Information Request 11

Section 3.5.1.5, *Macroinvertebrates*, of Exhibit E of the FLA indicates that macroinvertebrates were collected during September 2022 in three locations within the project boundary. However, section 3.5.1.5 does not indicate who conducted the macroinvertebrate survey, nor does it describe the sampling method. Please provide an appropriate citation that indicates who conducted the macroinvertebrate survey and file any associated report.

Section 3.5.1.5 also discusses macroinvertebrate sampling data collected between 2001 and 2018 in Grand Lake tributaries located outside of the project boundary, but there are no citations referencing the source(s) of the data collected. Please provide citations to all relevant report(s) associated with the macroinvertebrate data collected between 2001 and 2018, and if the report(s) are not publicly available, please file the report(s) with responses to this additional information request.

Response 11

The September 2022 macroinvertebrate samples were collected by Sam Miess and Nicholas Miller. As part of a dissertation, samples were processed by Nicholas Miller and Sam Miess, and invertebrates were identified by Sam Miess. Sample collection and processing was under the advisement of Dr. Andrew Dzialowski at Oklahoma State University.

Samples were collected by kick netting over a 1 m<sup>2</sup> area for 30 seconds (at a depth of < 1m) and preserved in 95% ethanol. A report for the sampling does not exist but results collected are enclosed in Appendix E-20 of the FLA. The citation has been added to Exhibit E.

Citations to all relevant report(s) associated with the macroinvertebrate data collected between 2001 and 2018 have been added to the revised Exhibit E. The publications are available here: <https://conservation.ok.gov/wq-statewide-rotating-basin-monitoring-program/>

A revised Exhibit E is included with this filing.

Information Request 12

The caption of table 3.5.2.1.3-2 of Exhibit E of the FLA indicates that the table contains information regarding impoundment fluctuations by month for current operations versus proposed operations. However, the titles for some of the columns in the table are not clearly defined and make the contents of the table difficult to interpret. For example, the second and third columns of the table are titled, Current Operations Under the Current Rule Curve (approximate feet) and Anticipated Operations Without a Rule Curve (approximate feet), respectively. Commission staff assumes that the second column includes data on the overall fluctuations during current operations under the current rule curve in approximate feet and the third column includes data on the overall fluctuations during proposed operations without a rule curve in approximate feet. Please clarify whether or not Commission staff's interpretation of the second and third columns is correct. If Commission staff's interpretation is correct, please revise the second and third column titles to reflect staff's interpretation. If Commission staff's interpretation is incorrect, please provide clarification regarding the correct interpretation and make any needed revisions to the second and third column titles.

The fourth column of table 3.5.2.1.3-2 is titled, Difference approximate feet. Commission staff assumes that the data in the fourth column represent the differences in overall fluctuations between current and proposed operations. Please clarify whether or not Commission staff's interpretation of the fourth column is correct. If Commission staff's interpretation is correct, please revise the fourth column title to reflect staff's interpretation. If Commission staff's interpretation is incorrect, please provide clarification regarding the correct interpretation and make any needed revisions to the fourth column title.

The fourth column of table 3.5.2.1.3-2 includes the following information in four consecutive cells from top to bottom of the column: 0.4, (0.2), (0.5), and (0.7). The last three numbers in the column are bracketed, but there is no explanation of the meaning of the brackets in the table. Therefore, in table 3.5.2.1.3-2, please clarify the intent of the brackets around the last three numbers in the fourth column.

The fifth column of table 3.5.2.1.3-2 is titled, Differences (inundated acres at median elevations plus difference). However, it is not clear from the title or the data, what the data in the fifth column represent or how the data were calculated. Therefore, please provide clarification regarding what the data represent and include a calculation to show how the data in the first row of that column were produced. In addition, based on the clarification provided, please revise the title of the fifth column to clearly describe the content of that column.

The sixth column of table 3.5.2.1.3-2 is titled, Percent of Available Lost to Fluctuation. However, it is not clear from the title or the data, what the data in the sixth column represent or how the data were calculated. The sixth column does include a footnote that attempts to explain how the data in that column were calculated, but based on the information provided in the footnote, Commission staff is unable to reproduce the percentages included in that column. Therefore, please explain what the data in the sixth column represent and include a calculation to show how the data in the first row of that column were produced. In addition, based on the clarification provided, please revise the title of the sixth column to clearly describe the content of that column.

Response 12

The Commission staff's second and third column interpretations are incorrect. The values in the second and third columns (as originally displayed in the FLA) are derived from Figure 3.5.2.1.3-1, Monthly Range of Reservoir Elevation. The second column includes data on the mean of monthly ranges during current operations under the current rule curve in approximate feet (rounded up to the nearest 0.1-foot) and the third column includes data on the mean of monthly ranges during proposed operations without a rule curve

in approximate feet (rounded up to the nearest 0.1-foot). The second and third columns have been renamed. A revised Exhibit E is included with this filing.

The Commission's interpretation of the fourth column is correct. The fourth column is the difference in feet when subtracting the mean of monthly ranges during the current operations under the current rule curve from the mean of monthly ranges during anticipated operations without a rule curve. In the fourth column, numbers in brackets are negative numbers. Negative numbers indicate the anticipated operation has less fluctuation than the current operation. Therefore, the smaller the number in column four, a lesser fluctuation under the anticipated operation is expected compared to the current operation.

The two values in each cell in the fifth column are an attempt to quantify the acreages impacted by the mean monthly ranges of fluctuation for both the current and the anticipated operations. The acreages in the fluctuation depend upon what elevation the mean fluctuation is based around. A higher elevation base results in a greater effect upon surface acreage per foot of fluctuation. For the base elevations in each cell of column five, the monthly median elevation for the current operation and the anticipated operation contained in Table 3.5.2.1.3-1 is used. Since the values in columns two and three of Table 3.5.2.1.3-2 are mean values, it can be interpreted the normal range of fluctuation could reasonably reach as high as the mean value on a regular basis. For example, in April of under the current operation the median elevation is 742.08 feet Pensacola Datum (PD) and the mean fluctuation is 3.2 feet. Therefore, it can be expected the upper elevation under the current operation can reasonably reach 745.28 feet PD ( $742.08+3.2$ ). To determine how many acres are affected by fluctuation under the current operation in April, the area capacity curve contained in Appendix B-8 of the FLA was consulted and the elevation of 745.28 feet PD has an estimated reservoir surface area of 45,405 acres. Since the 45,405 acre value is total surface area at the maximum elevation expected to be reached during April under the current operation, the acreage at the base value elevation of 742.08 feet PD, which according to the area capacity curve is 41,717 acres needs to be subtracted from the total surface area of 45,405 acres at 745.28 feet PD to provide an estimated surface area acreage within the fluctuation zone of 3,687 acres for the current operation. The fifth column has been renamed and calculation examples have been added to the revised Exhibit E. A revised Exhibit E is included with this filing.

The two values in the sixth column of Table 3.5.2.1.3-2 are an attempt to determine how sensitive the total area available as lake spawning habitat for fish. The acreage contained in column 5 of Table 3.5.2.1.3-2 may not be available as viable lake spawning habitat for fish due to the expected fluctuation in each month under the current and anticipated operations. To complete this sensitivity analysis, the entire surface area must be considered viable lake spawning habitat for fish because there is no data available to quantify the actual viable spawning habitat and there is no reasonable way to obtain that information. Regardless, since this is a sensitivity analysis with no known difference threshold that is acceptable and is based upon levels of magnitude to determine if the differences are significant, the total habitat is likely unnecessary. For example, in April, under the current operation the median elevation is 742.08 feet PD and the anticipated operation median elevation is 743.72 feet PD. Therefore, the April median elevation available lake spawning habitat using the area capacity curve contained in Appendix B-8 of the FLA is 41,717 acres for the current and 45,405 acres for the anticipated operation. The expected acreage in the fluctuation at those median elevations are 3,687 and 4,222 acres respectively. To give the fluctuation acreage figures context in percentages, they are each divided by their total viable lake spawning habitat acreages of 41,717 and 43,595 acres respectively and multiplied by 100 to create a percentage for comparison ( $3,687/41,717*100=8.8\%$  and  $(4,222/43,595*100=9.7\%$ ). The difference between 8.8% rounded to 9% and 9.7% rounded to 10% is 1% and most-likely within any error associated with the acreage estimates and therefore, negligible. The sixth column has been renamed and calculation examples have been added to the revised Exhibit E. A revised Exhibit E is included with this filing.

### **Exhibit E-Terrestrial Resources**

#### Information Request 13

Appendix E-27, *Terrestrial Species of Concern Study Report*, of Exhibit E of the FLA includes a placeholder for three figures that states, "Figures 3 - 5 are filed as privileged due to sensitive location information." However, the three figures were not filed with the FLA. To facilitate Commission staff's review of all terrestrial resource information, please file the three missing figures.

#### Response 13

Figures 3-5 are included as privileged documents with this filing.

#### Information Request 14

Section 3.6.1.1, *Botanical Resources*, of Exhibit E of the FLA lists common plant species occurring in the project boundary and Appendix E-22 of Exhibit E provides maps of vegetation communities. However, there is no information quantifying the vegetation community structure in the project boundary. To facilitate Commission staff's review of all terrestrial resource information, please provide a table quantifying the total size (acres) and relative size (percent) of each vegetation community included on the maps in Appendix E-22 of the FLA.

#### Response 14

The following table quantifies the total size (acres) and relative size (percent) of each vegetation community for the current project boundary according to the maps provided in Appendix E-22 of the FLA.

<b>Vegetation Type</b>	<b>Acres</b>	<b>Percentage</b>
Barren	6.58	0.01%
Crosstimbers: Post Oak - Blackjack Oak Forest and Woodland	0.59	0.00%
Disturbed Soil Pasture	15.73	0.03%
Eastern Great Plains: Herbaceous Wetland	381.51	0.71%
Open Water <sup>10</sup>	42952.09	79.59%
Osage Plains: Tallgrass Prairie/Pasture	121.54	0.23%
Ozark-Ouachita: Dry-Mesic Oak Forest	809.09	1.50%
Ozark-Ouachita: Dry-Mesic Oak Woodland Young Regrowth	25.72	0.05%
Ozark-Ouachita: Dry-Mesic Mixed Oak-Evergreen Forest	0.00	0.00%
Ozark-Ouachita: Dry Oak Woodland	1042.83	1.93%
Ozark-Ouachita: Dry Oak Woodland Young Regrowth	16.00	0.03%
Ozark-Ouachita: Pasture/Prairie	989.30	1.83%
Ozark-Ouachita: Riparian Barrens	0.47	0.00%
Ozark-Ouachita: Riparian Deciduous Shrubland and Young Woodland	1.45	0.00%
Ozark-Ouachita: Riparian Hardwood Woodland	228.12	0.42%
Ozark-Ouachita: Riparian Herbaceous Wetland	13.92	0.03%
Ozark-Ouachita: Shortleaf Pine-Oak Forest	6.34	0.01%
Ozark-Ouachita: Riparian Mixed Evergreen-Hardwood Forest	0.00	0.00%
Pine Plantation	0.03	0.00%
Row Crops	16.75	0.03%
Ruderal Deciduous Shrubland and Young Woodland	46.39	0.09%
Ruderal Deciduous Woodland	912.20	1.69%
Ruderal Eastern Redcedar Woodland and Shrubland	0.46	0.00%
Ruderal Mixed Deciduous-Eastern Redcedar Woodland	0.00	0.00%
South Central Interior: Bottomland Barrens	104.44	0.19%
South Central Interior: Bottomland Eastern Redcedar Woodland and Shrubland	5.07	0.01%
South Central Interior: Bottomland Hardwood Forest	5110.18	9.47%
South Central Interior: Bottomland Herbaceous Wetland	503.39	0.93%
South Central Interior: Bottomland Mixed Evergreen - Hardwood Forest	2.66	0.00%
South Central Interior: Bottomland Shrubland and Young Woodland	53.21	0.10%
South Central Interior: Riparian Hardwood Woodland	28.42	0.05%
South Central Interior: Riparian Herbaceous Wetland	6.41	0.01%
South Central Interior: Riparian Mixed Evergreen - Hardwood Woodland	0.95	0.00%
South Central Interior: Riparian Shrubland and Young Woodland	0.72	0.00%
Urban High Intensity	42.60	0.08%
Urban Low Intensity	519.20	0.96%
<b>Total</b>	<b>53964.40</b>	<b>100.00%</b>

<sup>10</sup> This acreage figure is at an approximate elevation of 743 feet PD.

### **Exhibit E-Recreation Resources and Land Use**

#### Information Request 15

Table 3.8.1.3.5-1 of Exhibit E of the FLA lists the upper and lower limits of boat ramp usability in Grand Lake based on factors such as submersion of an associated parking lot or lack of adequate slope at the ramp. This information provides a range of elevations at which each boat ramp in Grand Lake becomes unusable. However, it is unclear when each ramp becomes usable (i.e., is it at the point of total ramp submersion or a certain depth along the ramp), because the length of the ramps and how far they extend into the water has not been provided. Therefore, please provide the length of the ramp and the actual elevation at the end of the ramp for each recreation access site.

#### Response 15

The boat ramps generally become unusable when the paved surface of the ramp is no longer visible above the water (total paved surface of ramp is submerged). However, not all ramps have a paved surface and GRDA does not close the ramps during high water except for the two ramps at the dam which are closed for safety reasons when the Corps of Engineers directs gates are opened. GRDA collected field data on the lower elevation of the paved surfaces at each ramp that includes a paved surface. The upper elevation of the paved surface was determined by the maps of each ramp included in Appendix E-31 of the FLA. Since GRDA uses the beginning and end elevations of the paved surfaces to determine at what elevations the paved boat ramps become unusable, and the beginning and ending elevations, along with the approximate lengths of the paved surfaces have been added to Table 3.8.1.3.5-1 of the updated Exhibit E. A revised Exhibit E is included with this filing.

#### Information Request 16

The proposed Recreation Management Plan (RMP) presented in Appendix E-31 of Exhibit E, states that GRDA would implement a system such that maintenance activities at the five FERC-approved recreation sites would be scheduled on a regular basis during the recreation season based upon site type, maintenance needs, and use. The RMP also indicates that GRDA proposes to implement a recreation facilities inventory and use study at the recreation sites in year 25 of any new license issued for the project. It is unclear, however, if GRDA plans to provide more routine monitoring or intermediate evaluation of project recreation use, needs, and capacity issues during this 25-year period that would allow for potential adjustments in project recreation management. Therefore, please provide a more specific description and schedule of what routine monitoring would be implemented between the issuance date of any new license issued and year 25 of any new license issued.

#### Response 16

Additional routine monitoring has been outlined in a revised RMP. The revised RMP (Revised Appendix E-32) has been included with this filing.

#### Information Request 17

Section 1.3.1.2, *Section 4(e) Conditions*, of Exhibit E states that there are about 65.75 acres of federal lands within the project boundary and about 8.12 acres that are held in trust for the benefit of Native American Tribes. Exhibit G identifies federally owned land, privately owned land, land with fee title GRDA ownership and lands with a flowage easement or flowage rights. However, there is no information in the FLA that indicates the size of land parcels by owner. In addition, it also appears that there may be state owned lands within the project boundary that are not listed in Exhibit G. Specifically, based on section 3.8.1, Recreation Resources, of Exhibit E of the FLA, there are a variety of non-project recreation sites including several parks and public access areas that are owned and managed by the Oklahoma Tourism and Recreation Department and other municipal entities that have boat launches or other amenities that fall within the project boundary. Therefore, to facilitate Commission staff's review of all land use resource information, please provide a table quantifying the total size (acres) of land parcels by owner (e.g., federal, state, private, flow easement, flowage rights). In addition, please also provide a similar summary table

listing the acreages and ownership of lands proposed to be removed or added to the project boundary along with reasons for the adjustments to the project boundary.<sup>11</sup>

#### Response 17

The requested table quantifying the total size (acres) of land parcels by owner (e.g., federal, state, private, flow easement, flowage rights) is shown below.

#### Ownership within the Anticipated Project Boundary

Ownership Type	Fee Simple Acreage	GRDA-Held Flowage Easements/Flowage Rights Acreage
GRDA Fee <sup>12</sup>	40,013	0
Federal	8	8
State <sup>13</sup>	247	247
Other Public (City, County, Municipal)	23	23
Private	1,477	1,477
Reservoir Bottom (Ottawa County) <sup>14</sup>	10,937	10,937
Total	52,705	12,692

The requested table listing the acreages and ownership of lands proposed to be removed or added to the project boundary along with reasons for the adjustments to the project boundary is shown below.

#### Ownership of Lands to Be Added or Removed from the Project Boundary

Modification Reason	Ownership and Acreage <sup>15</sup>
Added When Contour was Mapped Correctly	GRDA Fee – 130 acres
	State – 1 acre
	Other Public (City, County, Municipal) – 5 acres
	Private – 239 acres
Added When Parcel Boundary was Mapped Correctly	GRDA Fee – 456 acres
	Private – 2 acres

<sup>11</sup> In Section 2.2.4, Project Boundary, of Exhibit E of the FLA, GRDA states that the project boundary set forth in Exhibit G of the FLA contains some minor adjustments to the existing project boundary to ensure that the boundary encompasses all lands and waters that are needed for project purposes.

<sup>12</sup> For the purposes of this calculation, the original stream channel that is submerged in the reservoir, has been classified as GRDA Fee ownership because parcel ownership data for the reservoir bottom that is available from the corresponding counties is incomplete.

<sup>13</sup> For the purposes of this calculation, the original stream channel that is downstream of the dam, has been classified as State ownership because parcel ownership data available from the county is complete to where the original stream channel can be differentiated from GRDA and private ownership.

<sup>14</sup> The reservoir bottom ownership in Ottawa County is a combination of GRDA Fee ownership and other non-GRDA ownerships where GRDA holds flowage rights. Parcel ownership data for the reservoir bottom that is available from Ottawa County is incomplete.

<sup>15</sup> Acreage is rounded to the nearest acre.

Modification Reason	Ownership and Acreage <sup>15</sup>
Added When Metes and Bounds or Rights of Way Locations were Mapped Correctly	GRDA Fee – 1 acre
Added for Project Purposes	GRDA Fee – 57
Total Added – 891 acres	
Removed When Contour was Mapped Correctly	GRDA Fee – 808 acres
	Federal – 2 acres
	State – 9 acres
	Other Public (City, County, Municipal) – 31 acres
	Private – 1,261 acres
Removed When Parcel Boundary was Mapped Correctly	Other Public (City, County, Municipal) – 2 acres
	Private – 13 acres
Areas Removed Due to a Lack of Project Purpose	GRDA Fee – 24 acres
Total Removed – 2,150 acres	

**Exhibit E-Cultural Resources****Information Request 18**

Appendix X-2, Attachment E of Exhibit E of the FLA includes a Traditional Cultural Properties (TCP) Inventory Report. However, GIS data (shapefiles) of the TCPs were not submitted as part of the TCP Inventory Report. So that Commission staff can better understand the location of the TCPs in relation to the project boundary, please provide (as Privileged, if necessary) Geographic Information System (GIS) layers of the TCPs, including digital elevation models if available, depicting the location of the properties.

**Response 18**

With the exception of the GIS data for the Cherokee Nation, the GIS data of the TCP's are included as privileged documents with this filing. The GIS data for the Cherokee Nation has been withheld from this filing at the request of the Tribal Historic Preservation Officer for the Cherokee Nation. The email with the Cherokee Nation request is included with this filing.

**Exhibit E-Environmental Justice****Information Request 19**

In Section 3.13.1, *Environmental Justice*, of Exhibit E of the FLA, GRDA summarizes the environmental justice populations present within the geographic scope of the project based on the 2020 American Community Survey (ACS) 5-year Estimates. However, the U.S. Census has recently released the latest ACS 5-year Estimates (2018-2022), and therefore the current census tract boundaries of the respective populations are outdated. Also, figures 3.13.1.2-1 through 3.13.1.2-5, only show the outlined census tract boundaries of the respective populations. To ensure that Commission staff has sufficient and the most current information to address project effects on environmental justice communities, please: (1) update the existing tables with the newly released ACS 5-year Estimates (2018 – 2022); (2) amend the maps in figures 3.13.1.2-1 through 3.13.1.2-5 to include the block group boundaries (including associated GIS files) within a 1-mile and 5-mile radius of the project boundary; (3) outline both the 1-mile radius and 5-mile radius clearly on the map with a label; (4) identify on the map and in the map legend (with a different color or pattern) which block groups are environmental justice communities based on the low-income threshold, the minority threshold, or both thresholds; and (5) if the map size permits, please label each block group with the appropriate census tract number and block group number.

Response 19

Section 3.13.1, Environmental Justice (EJ), of Exhibit E has been revised to include data from the newly released ACS 5-year Estimates (2018-2022) and updated EJ community maps. These updates include data and information on environmental justice communities within the Project boundaries and a five-mile radius outside those boundaries. GRDA's original analysis assessed impacts within the Project boundaries and a one-mile radius around those boundaries, in accordance with FERC's guidance in other licensing processes. By way of explanation, GRDA initially chose the one-mile radius because federal guidelines recommend for EJ analyses to use a one-mile buffer for projects in which no construction is planned or associated with the proposed action; and as the Commission is aware, GRDA's proposed action for this relicensing does not include any new construction. In contrast, federal guidelines recommend that a five-mile radius around the project be used when new construction is anticipated. Nonetheless, GRDA has included data and information on EJ communities within a five-mile radius of the project boundaries, as requested by FERC in the May 29, 2024 AIR. A revised Exhibit E is included with this filing.

Information Request 20

In Section 3.13.1.4, Public Outreach, of Exhibit E of the FLA, GRDA presents data on languages spoken in counties surrounding the project boundary and cites the U.S. Census Bureau's 2020 American Community Survey Table S1601 Language Spoken At Home data. However, Table S1601 provides statistics for language data at a finer geographic scale than the county level. To confirm whether or not there are areas of micro-segregated non-English speaking communities within the counties surrounding the project boundary, please provide data from Table S1601 at the census block group level for all block groups within 1-mile and 5-miles of the project boundary. Please also update any tables with the newly released ACS 5-year Estimates (2018 – 2022), as appropriate.

Response 20

Section 3.13.1.4, Public Outreach, of Exhibit E has been updated to include data from the American Community Survey Table S106 Language Spoken at Home data using the ACS 5-year Estimates (2018-2022). While the Commission requested this data be included down to the Block Group Level, it is only available down to the Census Tract level. Therefore, Table 3.13.1.4-1 has been updated to include data for each Census Tract within 5 miles of the Project boundary. A revised Exhibit E is included with this filing.

Information Request 21

In section 3.13.2, *Environmental Effects*, of Exhibit E of the FLA, GRDA summarized adverse and beneficial effects of the project on environmental justice communities. However, it is not clear whether these adverse or beneficial effects would be equally distributed across the environmental justice communities, or if some adverse/beneficial effects would occur in some communities but not others. So that Commission staff can better understand the adverse/beneficial effects of the project on environmental justice communities, please provide additional detail describing which adversities and benefits would be experienced in each environmental justice block groups. For example, additional detail is needed to understand whether benefits such as recreation opportunities and GRDA police activity are present in all environmental justice block groups in proximity to the project.

Response 21

An environmental justice analysis must assess whether there are disproportionately high and adverse impacts on environmental justice communities. Section 3.13.2, Environmental Effects, of Exhibit E has been revised to make clear that there are no disproportionately high and adverse impacts on environmental justice communities as a result of the issuance of a license for the Project, and to distinguish that analysis from the adverse and beneficial effects that are equally distributed among all communities, including EJ communities. A revised Exhibit E is included in this filing.

Information Request 22

In section 3.13.2, *Environmental Effects*, of Exhibit E of the FLA, GRDA lists beneficial effects of the project on environmental justice communities, but there is no discussion of potential adverse effects nor proposed mitigation. So that Commission staff can better understand potential adverse effects and proposed mitigation, please amend the environmental justice effects section to include: (1) an analysis of the presence (or absence) of anticipated adverse and beneficial effects from the project and applicable mitigation for each anticipated resource impact (e.g., water resources, fisheries resources, recreation resources, land use, aesthetic resources, cultural resources) and cumulative effects on environmental justice communities; and (2) mitigation measures to avoid or minimize adverse effects on these communities.

Response 22

Modifications to subsections of 3.13, Environmental Justice, of Exhibit E have been made to include an analysis of the presence of anticipated beneficial and adverse impacts by resource type along with proposed environmental measures for mitigation and minimization. In addition, a subsection on cumulative effects has been added to Section 3.13 for cumulative effects. A revised Exhibit E has been included in this filing.

GRDA appreciates the Commission's consideration of the application. Should you have any questions regarding this request, please contact me at 918-981-8473 or by email at [brian.edwards@grda.com](mailto:brian.edwards@grda.com).

Respectfully submitted,



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