

June 15, 2022

***VIA ELECTRONIC FILING***

Project No. 2628-066  
R.L. Harris Hydroelectric Project  
Response to License Application Additional Information Requests

Ms. Kimberly D. Bose  
Secretary  
Federal Energy Regulatory Commission  
888 First Street N.  
Washington, DC 20426

Dear Secretary Bose,

Alabama Power Company (Alabama Power) is the Federal Energy Regulatory Commission (FERC or Commission) licensee for the R.L. Harris Hydroelectric Project (Harris Project) (FERC No. 2628-066). Alabama Power filed the Final License Application (FLA) for the Harris Project on November 23, 2021. On December 23, 2021, FERC issued a License Application Deficiencies and Additional Information Request (AIR #1) letter to Alabama Power requesting that Alabama Power correct the deficiencies in the application and provide responses to the additional information request within 90 days (i.e., March 23, 2022)<sup>1</sup>.

On February 15, 2022<sup>2</sup>, FERC issued a second AIR (AIR #2) with a response due within 60 days. On March 1, 2022<sup>3</sup>, Alabama Power requested an extension of time to June 15, 2022, to respond to AIR #1 and AIR #2 concurrently. On March 3, 2022<sup>4</sup>, FERC granted Alabama Power's request for an extension of time on the AIRs. Alabama Power filed the response to the deficiencies identified in the December 23, 2021 letter on March 23, 2022<sup>5</sup>. FERC noted in their December 23, 2021 letter that if the correction of any deficiency or requested information caused another part of the application to be inaccurate, that part of the application must be revised and refiled. Therefore, Alabama Power also filed a revised Exhibit D and a revised Exhibit G on March 23, 2022.

Pursuant to Section 4.32 (g), Alabama Power is filing the responses to AIR #1 and AIR #2 (Attachment 1), correspondence with Auburn University associated with Question #4 from AIR #2 (Attachment 2), and

---

<sup>1</sup> Accession No. 20211223-3032

<sup>2</sup> Accession No. 20220215-3039

<sup>3</sup> Accession No. 20220301-5206

<sup>4</sup> Accession No. 20220303-3044

<sup>5</sup> Accession No. 20220323-5045

Alabama Power's Avian Protection Plan associated with Question 13 of AIR #2 (Attachment 3). In addition, several responses in AIR #1 and #2 resulted in revisions to some license exhibits and reports; therefore, Alabama Power is filing the following revised license exhibits and revised reports with this filing:

- Exhibit A
- Exhibit D
- Exhibit E
- Exhibit H
- Operating Curve Change Feasibility Analysis Phase 2 Report
- Downstream Release Alternatives Phase 2 Report
- Shoreline Management Plan
- Water Quality Monitoring Conceptual Plan
- Draft Recreation Plan
- Shapefiles in response to AIR#1 Question 10, AIR #2 Questions 17 and 18

Also, Alabama Power is filing the maps, site table and documentation of consultation associated with AIR#2 Question 19, as privileged, due to the sensitive nature of the material and in accordance with Section 304 of the National Historic Preservation Act. Attachment 4 provides a list of the contents of the Response to Harris Project License Application Additional Information Requests.

The revised versions of the aforementioned Exhibits and revised study reports are available on the Harris Relicensing website at [www.harrisrelicensing.com](http://www.harrisrelicensing.com).

If there are any questions concerning this filing, please contact me at [arsegars@southernco.com](mailto:arsegars@southernco.com) or 205-257-2251.

Sincerely,



Angie Anderegg  
Harris Relicensing Project Manager

cc: Harris Action Teams Stakeholder List

Attachment 1 – Response to Harris Project License Application Additional Information Requests

Attachment 2 – Correspondence with Auburn University

Attachment 3 – Avian Protection Plan

Attachment 4 – Contents of Response to Harris Project License Application Additional Information Requests

## Attachment 1

### Response to Harris Project License Application Additional Information Requests

## **12-23-2021 FERC ADDITIONAL INFORMATION REQUEST #1**

### **General Information**

- 1. It appears that there may be duplicate copies of most of the final license application files on the Commission's e-library system under the Harris Project docket. For example, there are two Public versions of the cover letter, Initial Statement, Exhibits A, B, C, D, E, G, H, associated appendices, final study reports, proposed plans, and documentation of consultation. There also appear to be two versions of all the license application files classified as CEI and Privileged on the Commission's e-library system. So that Commission staff and other stakeholders are aware of all of the information filed, please confirm whether duplicate copies of the license application files were submitted or provide a list of the differences between the copies/versions of these files.*

### **Alabama Power Response:**

Alabama Power did not file duplicates of the Harris Project license application. On November 22, 2021 and November 23, 2021, Alabama Power made four filings associated with the license application. On November 22, 2021, Alabama Power filed the geographic information systems data associated with the maps and figures in the final license application and draft and final study reports (Accession No. 20211122-5099). On November 23, 2021, Alabama Power filed the Final License Application, including Public files (Accession No. 20211123-5079), Privileged files (Accession No. 20211123-5077), and Critical Energy Infrastructure Information files (Accession No. 20211123-5078). Further, Alabama Power filed the final Historic Properties Management Plan (HPMP), including a Public cover letter (Accession No. 20211123-5033) and Privileged files associated with the HPMP (Accession No. 20211123-5034).

On December 16, 2021, FERC staff assigned all filings associated with the Final License Application and HPMP a new sub-docket number (-066). It appears that it was at this point that the Final License Application (but not the HPMP) was assigned additional Accession Numbers for each component of the filing.

## **Exhibit E**

### **Aquatic Resources**

2. *Page B-14 in Exhibit B, section 3.1.4 of the license application states that the minimum hydraulic capacity of each of the two existing units is approximately 6,500 cubic feet per second (cfs). According to Exhibit E, section 4.1.1.1, the current 45 cfs minimum flow is met by releases from the dam and intervening inflow between the dam and the Wadley gage such that a total continuous minimum flow of 45 cfs is maintained as measured at the Wadley gage. So Commission staff can fully understand how the existing minimum flow release from the dam is provided, please identify: (1) the specific structure that provides the flow release (e.g., spillway gate, sluice gate, etc.); (2) the elevation from which the minimum flow is discharged from the lake; and (3) the average flow (in cfs) released at the dam such that the Wadley gage flow is at least 45 cfs.*

### **Alabama Power Response:**

As noted in Exhibit B, there is not a continuous 45-cfs release from Harris Dam. Alabama Power meets a minimum flow of 45 cfs, as measured at the downstream Wadley gage, through releases from the generating units (for peak generation, as well as Green Plan pulses) combined with intervening flows between Harris Dam and the Wadley gage. As described in Exhibit B, the units release approximately 6,500 cfs, the best gate flow, and the intake elevation of the existing units is at 764 ft msl (with the skimmer weir fully raised). The Wadley gage is approximately 13 miles below Harris Dam (USGS Site No. 02414500). Therefore, it takes several hours for the flows to recede at the Wadley gage depending on the number of units and the duration of releases from Harris Dam. In addition, by the time the Wadley gage has receded to lower flows, the next release from Harris Dam reaches the gage, with travel time for the release from Harris Dam to reach the Wadley gage varying according to the number of units generating and antecedent conditions (i.e., the number of hours since the last release from Harris Dam and intervening flows). Therefore, releases from the generating units, combined with intervening flows, ensure the flow at the Wadley gage does not go below 45 cfs.

3. *Exhibit E, section 9.2.2.3 states “However, the same volume of water with the same intake velocity would continue to be passed under the proposed continuous minimum flow operations as compared to Green Plan (baseline) operations; some of the water that would have otherwise been passed through the existing turbines during peak generation or during Green Plan (baseline) pulses would now be passed through the minimum flow turbine. Therefore, Alabama Power’s proposed continuous minimum flow would have no effect on fish entrainment at Lake Harris compared to baseline.” If the continuous minimum flow of 300 cfs is proposed to be provided through the Unit 1 penstock and the proposed minimum flow unit, but Unit 1 is not operating such that the total penstock flow is 300 cfs, the potential for entrainment would be different than for a discharge of 6,500 cfs through Unit 1 (or a combination of Unit 1 and the minimum flow turbine). Also, section 9.2.2.3 states “Turbine-induced mortality is largely dependent on turbine characteristics such as turbine speed, and number of blades. Therefore, any assessment of potential changes in turbine-induced mortality would have to be performed after design specifications of any minimum flow unit are finalized. Alabama Power provided minimum flow unit dimensions in Exhibit A, as available, based on preliminary design.” Therefore, based on the preliminary design assumptions provided in Exhibit A, please provide an evaluation of the potential for turbine mortality through the minimum flow unit, particularly when Unit 1 is not operating.*

**Alabama Power Response:**

A similar question was asked in FERC’s February 15, 2022 AIR (AIR #2). Therefore, Alabama Power combined the response to this question, AIR #1 Question 3, with AIR #2 Question 11. Please refer to AIR #2 Question 11 of this document for the complete response.

4. *Commission staff's Comment No. 16 on the Preliminary Licensing Proposal (PLP) requested elaboration on how the 150-cfs continuous minimum flow scenario was created by amending the "Pre-Green Plan" scenario such that no hourly interval had less than a 150 cfs discharge from Harris Dam. The response on page 21 of the license application indicates that the HEC-RAS upstream hydrograph was revised to increase the inflows less than 150 cfs to 150 cfs. This is acceptable if there are relatively few "Pre-Green Plan" hydrograph ordinates less than 150 cfs. So that Commission staff can evaluate this scenario, please compare the total acre-feet in the upstream HEC-RAS inflow hydrographs for the Green Plan (baseline), "150 Continuous Minimum Flow" and "300 Continuous Minimum Flow" alternatives. If the difference in acre-feet is significant (i.e., more than 4 percent), please revise the HEC-ResSim release rules accordingly, and re-run the "150 Continuous Minimum Flow" and "300 Continuous Minimum Flow" HEC-RAS models, as this difference in the total volume of inflow could affect the results for the recreation (i.e., boatable days), drought operations, and downstream temperature fluctuation simulations.*

**Alabama Power Response:**

As discussed in the technical meeting with FERC on January 20, 2022<sup>1</sup>, the 2001 discharge hydrograph for Harris Dam represents the upstream boundary for the HEC-RAS model simulations. Therefore, the input boundary condition for HEC-RAS is not from the HEC-ResSim model output. The 2001 historical discharge hydrograph was used as a basis for all downstream evaluations for the Downstream Release Alternatives. The 2001 discharge hydrograph consists of actual project operations prior to implementation of the Green Plan in 2005, not HEC-ResSim model results. For the 150 cfs and 300 cfs continuous minimum flow alternatives, every hourly ordinate of the 2001 discharge hydrograph was adjusted such that the flow did not decrease below the minimum being evaluated.

Both the 150 cfs and 300 cfs alternatives release a greater volume of water from Harris Dam than the Green Plan alternative. However, this was a known assumption when the plans were selected and run, with Alabama Power understanding that these plans would require greater discharges of volume from the Harris Dam. In other words, releases were not adjusted in the hydrograph other than for the minimum flow and Alabama Power did not adjust the volume for a nearby hour to make the adjustments to the hydrograph.

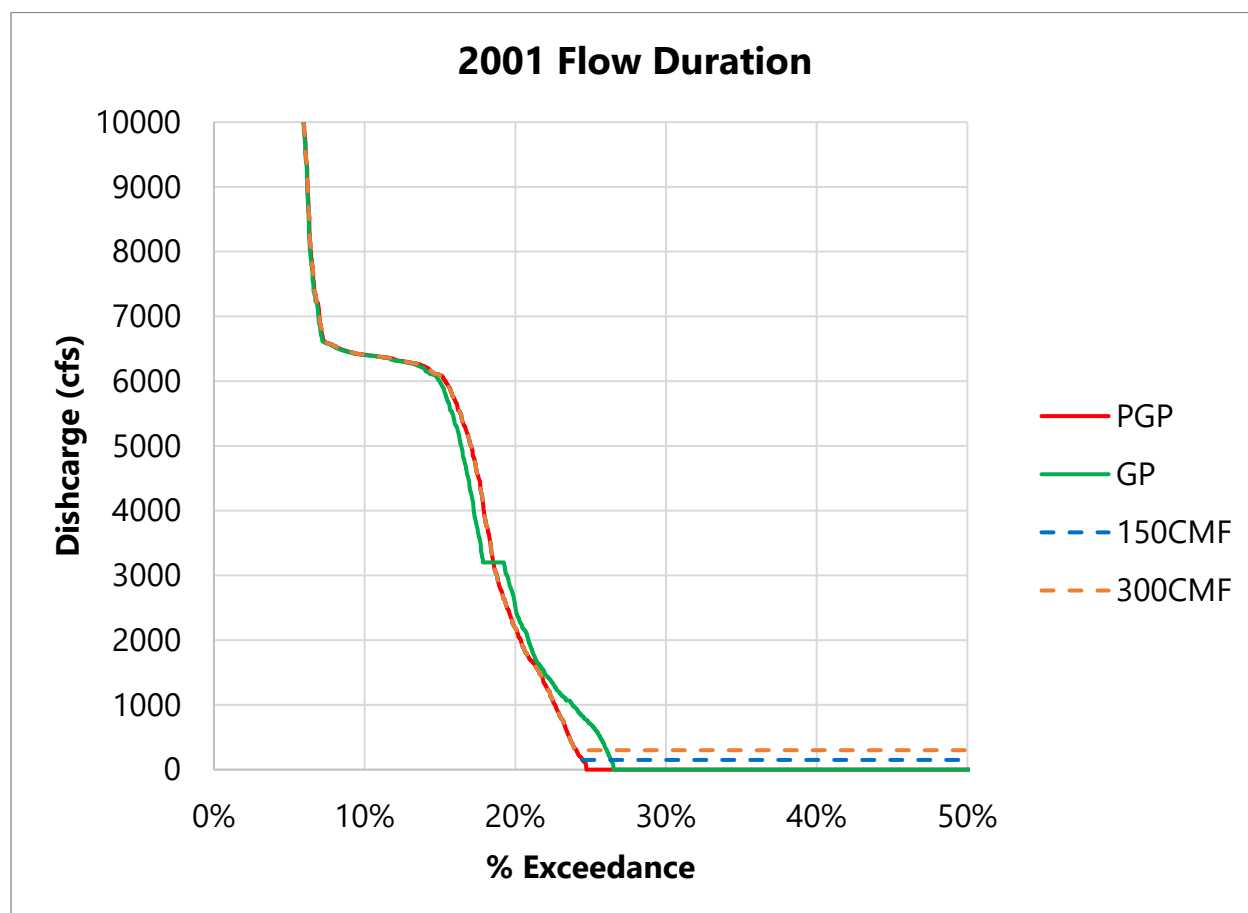
---

<sup>1</sup> Accession No. 20220204-3048

5. In response to staff's PLP Comment No. 18, page 23 of the license application includes a flow duration curve comparing discharges from Harris Dam for the "Pre-Green Plan," "Green Plan," and "Continuous 150 cfs Plan." It appears that the Continuous 150 cfs Plan was abandoned in favor of the Continuous 300 cfs Plan. If this is the case, please update the chart to include the Continuous 300 cfs Plan. Also, please update the Continuous 150 cfs Plan.

**Alabama Power Response:**

The 300 continuous minimum flow (CMF) alternative has been added to the following 2001 flow duration curve. Per discussion during the January 20, 2021 Technical Conference, FERC is not requesting further updating of the 150 CMF plan.



6. *Page A-7 in Exhibit A, section 4.2.1 of the license application describes the minimum flow turbine proposed to be installed at the project and provides all of the requested information except the blade spacing and the peripheral runner velocity. According to the information provided, and Commission staff's initial calculations, the blade spacing around the periphery would be approximately 9.6 inches, and the peripheral runner velocity is approximately 72 feet per second. Please confirm that these values are correct or provide the correct values.*

**Alabama Power Response:**

These values, as described by FERC, are correct.

7. *The values for the effects of potential changes to the operating curve and alternative downstream releases on generation across the entire Alabama Power fleet, and generation and revenue specific to Harris Dam were clarified and revised at two places in the license application, (i.e., Page 56, table 4-1 in the Draft Operating Curve Change (Phase 2) Study Report and pages 20 and 21, figures 3-11 through 3-14 in the Draft Downstream Release Alternatives (Phase 2) Study Report). In addition to the revisions in the license application, please make similar revisions to provide the effect on generation and revenue of the potential changes/alternatives presented in:*
  - a. *Table 4-1 in the Final Operating Curve Change (Phase 2) Study Report [i.e., In the left "Resource" column, revise the top 4 cells to read "Change in Hydro Generation (Revenue)", "Change in Hydro Generation (Megawatt Hours)", etc. Also, add a brief explanation of how more generation results in less revenue (e.g., more generation, but less peak), etc.]*
  - b. *Figures 3-11 through 3-14 in the Final Downstream Release Alternatives (Phase 2) Study Report [i.e., Revise the titles to read "Change in Average Annual Generation (Revenue) for Harris Dam (Alabama Power's Hydro System) Based on HydroBudget Model of Downstream Release Alternatives."]*

**Alabama Power Response:**

These changes have been made in the Final Operating Curve Change Phase 2 Study Report (revised June 2022) and Final Downstream Release Alternatives Phase 2 Study Report (revised June 2022) filed with this AIR response.

8. *In the HEC-RAS model files provided with the PLP and license application filings, there is a "MartinHarris.p01.hdf" file, but no corresponding ".p01" file or ".O01" file. For staff to perform accurate model runs, please provide clarification as to whether these files are missing, or if there was a .p01 model run that was created and subsequently deleted. Also, several of the HEC-RAS model runs between .p61 and .p69 appear to run to completion, but in fact generate an error message. Please investigate these occurrences and provide the missing and/or updated HEC-RAS files as appropriate.*

**Alabama Power Response:**

The .p01 was a test plan created while uploading test bathymetry files in the model and was erroneously included in the PLP and FLA filings. FERC is not missing any model files. The error messages that occur between .p91 and .p69 model runs are due to running the unsteady flow analysis coupled with the water quality analysis. The water quality model calculates every time step and the computational messages are not being saved due to the size of those specific runs, subsequently causing the error messages.

9. On August 16, 2021, Alabama Power filed Excel files with “corrected” data (under filename: 20210816-5246\_Corrected Tallapoosa River Temp Data 2000-2018), which include extremely high temperatures (e.g., a maximum of the corrected 2015 Wadley data was 42.27°C [108°F] on August 25, 2015 at 12:00). At the Wadley location in 2015, there were 1,807 corrected data points over 25°C (77 °F). These temperatures seem unrealistic.

*Historic temperature data from 2000 through 2018 are discussed in the January 2021 Final Report: Using Bioenergetics to Address the Effects of Temperature and Flow on Fishes in the Harris Dam and Tailrace (included as Appendix D of the Aquatic Resources Study Report, revised November 2021). It is unclear if correct or incorrect data were used in the model. To assist Commission staff's evaluation of historic water temperatures and simulated temperatures, please provide an explanation for these apparently unrealistic temperatures and explain whether any revisions to previous filings are needed. Please provide any corrected data sets for historic and simulated temperatures as appropriate.*

**Alabama Power Response:**

The referenced historical temperature dataset was supplemental data collected for fisheries research between 2000 and 2018 and not related to a license requirement or relicensing study. The referenced anomalies are likely cases where the temperature logger was being affected by solar radiation either when the water became very shallow or the probe potentially became exposed to the air. While these measurements are likely erroneous, they were left in the data set because they could not be field validated post data collection and omitting those values would be inappropriate. These data were not used in the modeling portion of the referenced bioenergetics study. Auburn used the 2000 – 2018 data to describe the magnitude and duration of water temperature fluctuations and to determine if there were any differences in these fluctuations as a result of Green Plan implementation (i.e., data from 2000-2004 were compared to data from 2005 – 2018). These data were not used in any model or in any other relicensing study.

## **Exhibit G**

*10. It is not clear if the project boundary shown on the Exhibit G maps represents the existing or proposed project boundary. Please clarify whether the Exhibit G maps filed with the license application show the existing or the proposed project boundary.*

### **Alabama Power Response:**

The project boundary shown on the Exhibit G maps shows the proposed project boundary. Alabama Power refiled the Exhibit G maps illustrating the proposed project boundary as part of its Response to License Application Deficiencies<sup>2</sup>. In preparing the revised Exhibit G maps, Alabama Power discovered that the proposed project boundary as illustrated within its November 23, 2021 Final License Application filing incorrectly included +/- 3 acres of land within the Project Boundary. Therefore, Alabama Power corrected this error when it submitted its revised Exhibit G maps in March 2022. Because the proposed project boundary as correctly shown on the March 2022 Exhibit G maps does not match the previously filed GIS shapefile that was included as part of the FLA, Alabama Power is herein filing for the record a revised GIS shapefile named Harris\_Proposed\_Project\_Boundary\_June2022, which supersedes the previously filed data<sup>3</sup>.

Additionally, Alabama Power is filing with this AIR response a revised Shoreline Management Plan (SMP) to incorporate the corrected acreage total as well as corrected maps within the SMP Appendix.

Alabama Power has also corrected the acreage total as stated within the Exhibit A that is being refiled with this AIR response.

Further, in preparing the table to be added to Exhibit G Map 1 as part of its Response to License Application Deficiencies, Alabama Power discovered errors in the acreages for the Project Lands Proposal (as described in Exhibit E, Sections 13.2.2.1 and 13.2.2.2, summarized in Tables 13-5 and 13-6, and depicted on the maps in Appendix G to Exhibit E; also, as illustrated in the GIS shapefile named Proposed\_Changes\_June2022.shp). The errors do not affect the tracts as a whole that are proposed to be added, removed, or reclassified. Rather, the errors are in the acreage totals and are the result of not properly accounting for existing project lands that will remain project lands.

As discussed with HAT 4 during stakeholder consultation<sup>4</sup>, Alabama Power is proposing to reclassify, add, or remove certain tracts of land. The proposal of tracts to be added and removed would result in the reclassification of existing project lands located below the 800-foot mean sea level (msl) contour. However, within the Exhibit E, Alabama Power inadvertently included the acreage below the 800-foot msl contour as part of the total acreage to be added or removed.

- For tracts to be added: the baseline project boundary is up to 800' msl. 793-795' msl is flood storage. 795-800' msl is scenic easement. For areas to be added to the project, Alabama Power is proposing to add acreage that is directly behind and adjacent to these existing project lands (a.k.a.: back acreage). Rather than having the existing project lands strips (currently classified as flood storage and scenic easement) with different SMP classifications than the newly added back acreage, Alabama Power's intention is to reclassify these strips to match the classification of the newly added back acreage. For example, the added back acreage would be classified Natural Undeveloped, and the existing project lands located below the 800-foot msl contour would be reclassified from flood storage and scenic easement to Natural Undeveloped. However, the acreage totals provided in Exhibit E did not account for the reclassification of these strips and,

---

<sup>2</sup> Accession No. 20220323-5045

<sup>3</sup> This file is over 50 MB; therefore, this file will be available at <http://harrisrelicensing.com>.

<sup>4</sup> See meeting notes from the September 11, 2019 HAT 4 meeting; see also Section 6.1 of the Final Phase 1 Project Lands Evaluation Report (Accession 20201002-5139).

instead, inaccurately included the acreage of these strips as added lands when they are in fact already project lands.

- For tracts to be removed: Alabama Power's intent is to remove only those portions of these tracts that lie above 800' msl. As discussed throughout Exhibit E, the project boundary at Harris generally follows the 800' msl contour and is divided into two strips: 793-795' msl as flood storage and 795-800' msl as scenic easement. For the tracts proposed for removal, Alabama Power intends to leave these strips within the project boundary and only remove the back acreage. Because the back acreage would no longer be in the project, Alabama Power intends to manage these strips consistent with the flood storage and scenic easement land classifications. Therefore, for each tract proposed to be removed, the strips below the 800-foot msl contour that would remain within the project would be reclassified. However, the acreage totals provided in Exhibit E did not account for the reclassification of these strips and, instead, inaccurately included the acreage of these strips as lands to be removed.

Therefore, to reflect the corrected information, Alabama Power is filing a revised Exhibit E, which reflects the corrected information as described in Section 13.2.2.2, as summarized in Tables 13-5 and 13-6, and as depicted on the maps in Appendix G to Exhibit E. Additionally, Alabama Power is filing a revised GIS shapefile titled Proposed\_Changes\_June2022 to reflect the corrected information and which supersedes the previously filed data that was included within the FLA.

Also, Alabama Power is filing a revised Exhibit H with this AIR response to reflect the corrected information as stated in Section 11.0.

## **2-15-2022 FERC ADDITIONAL INFORMATION REQUEST #2**

### **Exhibit A**

#### *Project Facilities*

1. *Section 2.2, Powerhouse, of Exhibit A indicates that the normal tailwater elevation with one unit operating is 664.9 feet mean sea level (msl), and with two units operating is 667.7 feet msl. However, Exhibit F, Sheet F-8 shows that the normal tailwater elevation for one-unit operation is 666.0 feet and for two-unit operation is 669.0 feet, with the datum for the elevations in Exhibit F being unclear. Please correct the discrepancy in tailwater elevations between Exhibits A and F. Also, please provide (a) the datum used in the Exhibit F drawings, and (b) the tailwater elevation with no units operating.*

#### **Alabama Power Response:**

The information provided in Exhibit F is correct. Alabama Power has revised Exhibit A to reflect the correct normal tailwater elevations for one unit and two unit operations. The tailwater elevation with no units operating is 660-feet msl and has been added to the revised Exhibit A.

The datum used in the Exhibit F is the National Geodetic Vertical Datum (NGVD) 29.

Also, when reviewing the information for the revised Exhibit A, Alabama Power discovered the gross operating head at full pool was incorrectly stated. This information has been revised to correctly state a gross operating head at full pool of 133 feet. Note that the gross head measurements included in Exhibit B in Figure 3-3 reflect conditions present during a Harris unit performance test that occurred on June 30, 1999.

## **Exhibit E**

### *Proposed Action*

2. *As part of the study plan, Commission staff requested that Alabama Power model, and evaluate the effects of 150-cubic feet per second (cfs), 300-cfs, 600-cfs, and 800-cfs continuous minimum flows (with and without Green Plan pulsing) on downstream resources in the Tallapoosa River. Based on the outcome of that work, on October 1, 2021, Commission staff requested that Alabama Power determine what continuous minimum flow between 300 cfs and 600 cfs (with or without Green Plan pulsing) would result in a more than negligible effect on Harris Lakes levels. Table 5-1 in section 5.2, Alternatives Considered but Eliminated from Further Analysis, of Exhibit E (page E-44) provides Alabama Power's preliminary analysis of the effects of continuous minimum flows of 350 cfs, 400 cfs, and 450 cfs on the average and minimum reservoir levels in Harris Lake. During the January 20, 2022, Harris Modeling Technical Meeting, Alabama Power representatives confirmed that the evaluation was done using the HEC-ResSim model, and that they had not had time to model the potential effects of the three minimum flows on downstream resources (e.g., erosion and sedimentation, water use, water quality, aquatic habitat, terrestrial and botanical resources, recreation, and cultural) using the HEC-RAS model.*

*In addition to the potential effects on the lake levels, considering the potential effects of these flows on downstream resources is important. Having the results of the additional analysis for the 350 cfs, 400 cfs, and 450 cfs continuous minimum flows will facilitate staff's review of the proposed project and inform the Commission's licensing decision. Therefore, please complete the evaluation of the 350 cfs, 400 cfs, and 450 cfs continuous minimum flows using the HEC-RAS model, as well as Alabama Power's Hydrobudget model (for generation and cost information), and apply the results of those model runs in evaluating the effects on downstream resources in the same manner as was performed under the study plan for the 150-cfs, 300-cfs, 600-cfs, and 800-cfs continuous minimum flows. In addition, please describe any options, including mechanisms and costs, to release flows greater than 300 cfs from Harris Dam.*

### **Alabama Power Response:**

Alabama Power has completed an evaluation of the effects of 350 cfs, 400 cfs and 450 cfs continuous minimum flows (CMF) on all resources and incorporated the analysis into a Final Downstream Release Alternatives Phase 2 Report (revised June 2022) that is being filed with this AIR response. Alabama Power also evaluated various mechanisms for releasing flows greater than 300 cfs from Harris Dam; however, cost estimates are only provided for those mechanisms that are physically possible at the Harris Project. Costs in this analysis only include estimated capital and operation and maintenance (O&M) for the mechanism itself, not impacts to generation and revenue (both at Harris Dam and for Alabama Power's hydro system) from all or part of the flow being passed by a non-generation mechanism. As noted in the Final Downstream Release Alternatives Phase 2 report (revised June 2022), in order to be able to compare impacts consistently, the assumption in the HydroBudget analysis is that all of the flow for each alternative was passed through a theoretical hydroelectric unit.

The primary factor in evaluating potential options for releasing a continuous minimum flow is gross head. The gross (i.e., static) head determines how much energy is available at a given flow rate. The available energy may either be dissipated or used to generate electricity. The amount of head available dictates what equipment may be used to pass the flow. The relatively high gross head at the Harris Project eliminates hydro turbine technology options that are designed for low head applications, such as Archimedes type and Linear Pelton type turbines. Therefore, the only suitable generating option at the Harris Project is the Francis-type minimum flow turbine included in Alabama Power's licensing proposal. As described in the Final License Application, the physical size of the minimum flow unit is limited by the space available in the powerhouse addition. Based on preliminary design, the new minimum flow unit will provide a continuous minimum flow of approximately 300 cfs.

Alabama Power determined that there are four options for evaluating mechanisms to pass a continuous minimum flow above 300 cfs:

- Supplement 300 cfs within the existing powerhouse;
- Provide flows greater than 300 cfs within the new powerhouse;
- Supplement 300 cfs outside the powerhouse; or
- Provide flows greater than 300 cfs outside the powerhouse.

Each option is discussed below.

1) Supplement 300 cfs within the existing powerhouse

Because Units 1 and 2 were not designed to operate at flows lower than best gate (approximately 6,500 cfs), the only option within the existing powerhouse to provide a continuous release would be through use of an existing system. The use of existing systems includes the penstock/spiral case drain and unwatering system. Both of these systems were designed and installed for temporary service during unit outages. The embedded piping is made from ductile iron with mechanical joints that is not suitable for continuous service and, due to its embedded location, cannot be replaced. Also, upon inspection, there is insufficient space to install the additional piping and valves that would be needed. If use of either of these existing systems was physically possible, the amount of flow that would result would be very small (less than 25 cfs). Therefore, Alabama Power eliminated the use of existing systems within the existing powerhouse from further consideration because of unsuitable piping materials, size limitations, and space requirements.

2) Provide flows greater than 300 cfs within the new powerhouse

The first option within the new powerhouse would be similar to the proposed minimum flow unit, except the continuous flow would be released through an energy dissipating valve, such as a fixed cone valve, rather than a new minimum flow unit. This option may be possible for lower flows, such as 100 cfs or less, but for the continuous minimum flows under consideration (350, 400, 450 cfs), there is not enough space to construct and operate an energy dissipating valve. Further, many of the same costs would be incurred for this option as the minimum flow unit, but no electricity would be generated. For these reasons, Alabama Power has eliminated this option from further consideration.

Alabama Power also investigated adding an energy dissipating valve to the proposed minimum flow unit. As described in the FLA, the minimum flow unit is being designed to maximize the available space between the east end of the existing powerhouse and the spillway. There is not enough room to add another mechanism for releasing additional flow within the space available. Therefore, Alabama Power eliminated this option from further consideration.

3) Supplement 300 cfs outside the powerhouse

Alabama Power evaluated the construction of a siphon over the dam as an option to provide continuous flows outside of the powerhouse. The size of a siphon or siphons needed to provide continuous minimum flows in the 300 to 450 cfs range is extremely large; therefore, Alabama Power only considered use of a siphon as a supplement to the 300 cfs continuous minimum flow provided by the proposed minimum flow unit.

An important siphon design consideration is that water cannot be siphoned over a point more than approximately 30 feet above the water surface at the withdrawal point. At this limit, water may turn to vapor due to low local pressure at the peak point in the siphon, resulting in loss of the siphon action. Therefore, to place the siphon at a lower elevation where it would maintain suction during the winter drawdown, and to ensure the road across Harris Dam continues to be usable, a notch would have to be

cut into the east non-overflow section of the Harris Dam. A robust structural analysis and design for siphon installation would be required to ensure all dam safety concerns were considered and fully evaluated.

Another consideration in the use of a siphon is reliability. A small hole in the pipe, a small opening at the gasket of a flanged joint, or formation of a vortex could allow small amounts of air to enter the pipe and collect at the crest, resulting in siphon loss. Valves would be required on the suction end and the discharge end so that the pipe could be filled with water when it loses suction and a pump would then be used to fill the pipe. Once filled, the opening of the suction and discharge valves would need to be synchronized to restart siphoning. Although the addition of this equipment would ensure the system could regain suction, there would inevitably be periods of time when the minimum flow would be interrupted. Also, because of the high gross head, any siphon option would require a control valve on the discharge end of the pipe to reduce flow in the pipe to an acceptable velocity.

In addition, the intake elevation for the siphon would be different than that of the existing turbines. Therefore, if a siphon was to be used to pass a continuous minimum flow, impacts to temperature and dissolved oxygen downstream would need to be evaluated, which would require a modeling analysis.

Alabama Power estimates that the cost to install a siphon would be approximately \$10 million and annual O&M would be approximately \$75K. While the installation of a siphon to provide a relatively small flow may be possible, Alabama Power does not consider the siphon a reasonable alternative due to high capital costs, potential dam safety concerns, maintenance and reliability issues that would result in interrupted minimum flow, and impacts to generation and revenue from flow being passed by a non-generation mechanism. Furthermore, of great significance in these analyses, there would be little incremental benefit to downstream environmental and recreational resources from providing an additional 50-150 cfs and unknown impacts to dissolved oxygen and temperature from passing water from a different intake elevation.

#### 4) Provide flows greater than 300 cfs outside the powerhouse

Alabama Power also evaluated the use of a spillway gate to provide continuous minimum flows greater than 300 cfs from Harris Dam. When the Green Plan was being developed in the early 2000s, the use of a spillway gate was eliminated because the gates were not capable of passing flows less than 500 cfs and were not designed to withstand extended periods of discharge. Since that time, the spillway gate operating system has been retrofitted and can theoretically be operated at flows less than 500 cfs. However, it is highly unlikely that a 40 foot wide gate could be reliably adjusted to maintain a flow release of 50-150 cfs. Therefore, if a spillway gate was used to pass a continuous minimum flow, it would pass the entire minimum flow rather than supplement the proposed minimum flow unit. Also, the gates were designed to pass flow during flood conditions, and not continuously; therefore, additional retrofits would be required, and Alabama Power would need to evaluate potential scour to the toe of the spillway to address dam safety concerns.

In addition, when a spillway gate is raised, the water passed originates from approximately 753 feet mean sea level (msl) in Harris reservoir, which is lower than the intake elevation of Units 1 and 2 with the skimmer weir in the raised position. If a spillway gate was to be used to pass the continuous minimum flow, impacts to temperature and dissolved oxygen downstream would need to be evaluated, which would require a modeling analysis.

Alabama Power estimates the cost to retrofit a spillway gate could be approximately \$2M. Although difficult to quantify given the unknowns associated with potential gate deterioration and/or spillway toe scour that could result from a continuous spill operation, it is possible that an additional annual maintenance expense on the order of \$100K could occur because the gates are not designed to pass a continuous minimum flow.

The use of a spillway gate to provide a continuous minimum flow in lieu of a minimum flow unit may be possible, but Alabama Power does not consider this option reasonable due to the unknown impacts to the stability of the dam and gate itself, as well as potential impacts to generation and revenue from the minimum flow being passed by a non-generation mechanism. Furthermore, with this option there would be little incremental benefit to downstream environmental and recreational resources from providing an additional 50-150 cfs and unknown impacts to dissolved oxygen and temperature from passing water from a different intake elevation.

## Geology and Soils

3. *Section 7.1.1.1, Existing Erosion and Sedimentation, indicates that Little Coon Creek, which runs through the project area within the Skyline Wildlife Management Area (WMA), is currently included in Alabama's 303(d) Impaired Waters List due to siltation. Non-irrigated crop production and pasture grazing are identified as sources of soil erosion contributing to sedimentation/siltation in the creek. However, the discussion indicates that only 8.8 percent of the land within the watershed is currently used for agriculture, which is an increase of just 0.8 percent from 2001 to 2016. The discussion does not provide any information about other land uses, including timber harvesting, in the watershed and in the project boundary that could contribute to erosion and sedimentation in Little Coon Creek. The final Erosion and Sedimentation Study Report provides land cover changes in the Little Coon Creek watershed from 2001 to 2016, and it states the majority (i.e., about 87.4 percent) of this creek's watershed is forested, but it does not provide information about changes in timber harvesting within these forests, including within the project boundary. To facilitate Commission staff's review of project operation and maintenance on geology and soils within the Skyline WMA, please provide the percentage of land where silviculture occurs (a) in the watershed, if known, and (b) within the project boundary; as well as describe any changes to the amount of timber harvesting on the land within the project boundary at Skyline WMA during the current license term. In addition, please describe how long Alabama Power has been implementing the Alabama Forestry Commission's Best Management Practices for Forestry to minimize soil disturbance and erosion during timber management activities within the project boundary at Skyline WMA.*

### **Alabama Power Response:**

ADEM has identified non-irrigated crop production and pasture grazing as sources of siltation in Little Coon Creek. ADEM does not list silviculture activities as a source of impairment for Little Coon Creek, as done for other impaired water bodies in the state of Alabama.

Information regarding the percentage of land where silviculture occurs within the Coon Creek watershed is not available.

Within the Harris Project Boundary, 100% of the acreage at Skyline (15,063 acres) is subject to timber management, including periodic timber harvest.

As previously stated, 87.4% of the Little Coon Creek watershed is forested. Of this 87.4% that is forested, 34% is within the Harris Project Boundary and is managed by Alabama Power.

The total number of acres within the Project Boundary at Skyline that is harvested varies from year to year. Below is a table that summarizes the total acreage harvested at Skyline since the inclusion of these lands with the Project Boundary in 1988.

HARVEST YEAR	ACRES	PERCENTAGE OF TOTAL PROJECT LANDS AT SKYLINE
1997	134	0.89%
2001	240	1.59%
2004	192	1.27%
2005	219	1.45%
2006	54	0.36%
2007	169	1.12%
2009	72	0.48%
2010	71	0.47%
2011	598	3.97%
2013	282	1.87%
2014	818	5.43%
2015	314	2.08%
2019	336	2.23%
2020	153	1.02%

Alabama Power has utilized the appropriate Alabama Forestry Commission's BMPs for its timber operations at Skyline since the beginning of its timber management practices at Skyline in 1988.

## Water Resources

4. *During the January 20, 2022, Harris Modeling Technical Meeting, Alabama Power indicated that the corrected temperature data filed on August 16, 2021 were provided to Auburn University prior to the November 23, 2021 filing of the final Aquatic Resources Study Report, and that the bioenergetics model that used the data was rerun. These data were also used in other studies (e.g., water quality); however, it is not clear if, and how, the corrected data were incorporated in the other studies. To confirm what was stated at the Technical Meeting, please file any correspondence between Alabama Power and Auburn University that documents the corrected temperature data were provided to Auburn University and incorporated into results of the bioenergetics report. In addition, please identify all the other studies in which the uncorrected data were used and provide an explanation of how the data corrections were incorporated into the studies.*

### **Alabama Power Response:**

Alabama Power is filing the correspondence between Alabama Power and Auburn University that documents the corrected temperature data were provided to Auburn University and incorporated into a revised final report. Auburn's analysis of the corrected data resulted in negligible changes to the results of its analysis. As noted in the response to AIR#1, Question 9 above, these data were not used in the bioenergetics model. Auburn used the 2000 – 2018 data to describe the magnitude and duration of water temperature fluctuations and to determine if there were any differences in these fluctuations as a result of Green Plan implementation (i.e., data from 2000-2004 were compared to data from 2005 – 2018). These data were not used in any model or in any other relicensing study.

5. *Table 5-2 in section 5.3.2, Proposed Environmental Measures, of Exhibit E (pages E-49 and E-51) indicates that Alabama Power proposes to (a) install a new minimum flow unit that incorporates an aeration system, and (b) continue using the existing passive-tube aeration system and skimmer weir with the existing generating units. The existing skimmer weir is set to draft water from the highest possible elevation in the water column (764 feet msl), which according to Exhibit A (page A-3), would be 29 feet below the summer pool elevation of 793 feet msl. However, even though the intake skimmer weir draws water from the upper water column where dissolved oxygen (DO) concentrations tend to be the highest, as shown in figure 3-10 (page 19) of the final Water Quality Study Report, hypolimnetic water with DO as low as 0 milligrams per liter (mg/L) would also be drawn through the project's intakes.*

*The existing passive-tube aeration system was designed to increase DO by 2.0 mg/L; however, it currently only increases DO by about 1.0 mg/L. The available data indicates that, while the existing aeration system improves DO, there are periods when water drawn through the project's intakes has a DO concentration that is below 5.0 mg/L. The proposed minimum flow unit's aeration system would potentially further improve downstream DO in the Tallapoosa River. However, the license application does not include any information on the type of aeration system for the proposed minimum flow unit or its expected efficiency. In order for Commission staff to evaluate the minimum flow unit's design and its capability to improve DO in the Tallapoosa River, please provide:*

*(a) the type of aeration system to be incorporated in the design of minimum flow unit (e.g., passive turbine aeration design, or active aeration system such as an oxygen injection system), and its capabilities and efficiency to improve DO in Tallapoosa River to 5.0 mg/L or above (i.e., how much DO the system would add to the turbine's discharge); and*

*(b) the basis for the conclusion on page E-161 of Exhibit E that the new aeration system, along with continuing to operate and maintain the existing units' aeration system(s) would ensure that DO in the Tallapoosa River is at, or above, 5.0 mg/L; including any documentation to support the conclusion.*

#### **Alabama Power Response:**

The preliminary design of the minimum flow unit includes a conventional draft tube aeration system that will passively add air to the flow as it is passed through the draft tube. A proprietary discrete bubble analysis model (DBM) was run for the proposed draft tube of the minimum flow unit to determine the predicted discharge DO in the tailrace at various air and turbine discharge rates. The DBM assumed a conservative 1.0 mg/L inlet DO and limited air admission to 10 percent of turbine discharge water volume. Predicted tailrace dissolved oxygen ranged from 7.0 mg/L to 5.0 mg/L as water flow varied from 100 cfs to 300 cfs, respectively.

Since the new unit would provide a discharge of at least 5 mg/L DO, it would result in a significant increase in the percent of time releases from Harris are at or above the state standard. Assuming the monitoring periods in 2017 – 2021 included the proposed minimum flow unit discharging water with DO levels at or above 5 mg/L, the percent of time discharges were at or above 5 mg/l would increase from 76% to 93% (see table below). Further, it is likely that higher DO levels in the minimum flow unit discharge may mitigate lower DO levels in discharge from the existing units, serving to further increase the amount of time the standard is met. Until the new minimum flow unit is installed it is unknown how much additional DO may be added to the current unit discharge.

**Effects of Proposed Minimum Flow Unit on Meeting the Dissolved Oxygen Standard**

YEAR	TOTAL MEAS.	TOTAL MEAS. ≥5 MG/L	% TOTAL MEAS. ≥5 MG/L	TOTAL MEAS. W/ MIN. FLOW UNIT	TOTAL MEAS. ≥5 MG/L W/ MIN. FLOW UNIT	% TOTAL MEAS. ≥5 MG/L W/ MIN. FLOW UNIT
2017	4341	2420	56%	14688	12767	87%
2018	3224	2923	91%	14688	14387	98%
2019	2201	2193	100%	14688	14680	100%
2020	2890	2751	95%	14688	14549	99%
2021	4281	1688	39%	14688	12095	82%
Average			76%	Average		93%

6. *Section 3, Anticipated Water Quality Parameters to be Monitored and Monitoring Methods, of the proposed Water Quality Monitoring Plan indicates that Alabama Power anticipates that the Alabama Department of Environmental Management will require water quality monitoring in the tailrace during periods of discharge from June through October for a period of 2-3 years. Section 7, Estimated Capital and Annual Costs Associated with the Water Quality Monitoring Plan, of that same plan indicates that monitoring would occur "from June through October each year for the life of the license." Please clarify how long Alabama Power proposes to monitor water quality in the tailrace at the Harris Project (i.e., 2 to 3 years, or for the entire license term). Should changes to the plan be necessary, please make those requisite changes and refile the plan as part of the response to this additional information request (AIR).*

**Alabama Power Response:**

Cost assumptions included in Section 7 of the Water Quality Monitoring Conceptual Plan included potential water quality monitoring requirements based on prior compliance monitoring experience with an ADEM issued water quality certification. The potential cost of monitoring from June through October for the term of the new FERC license was included as a conservative cost estimate. At the time of filing the conceptual plan, Alabama Power and ADEM had not had a pre-water quality certification application meeting to discuss details of the application or what might be included in the certification. That meeting was held on February 28, 2022, and during the discussion ADEM indicated they will likely require year-round dissolved oxygen and temperature monitoring at the tailrace discharge location for demonstrating compliance with the state standard, as well as monitoring at Malone and Wadley for the term of the new FERC license. The estimated capital and annual costs have been revised accordingly in the Exhibit E, Exhibit D, and Water Quality Monitoring Conceptual Plan that are being filed with this AIR response.

7. *Section 3.3.2, Results – Tallapoosa River Downstream of Harris Dam, of the final Operating Curve Change Feasibility Analysis Phase 2 Report indicates that the results of the EFDC (or Environmental Fluid Dynamics Code) model show only “small differences” in simulated water temperature and DO in the withdrawal zone of the forebay between the baseline condition and the four winter pool alternatives. In order for Commission staff to understand how the four winter pool curve alternatives affect water temperature and DO in the withdrawal zone, please describe (i.e., quantify) what is characterized as “small differences.”*

**Alabama Power Response:**

In the final Operating Curve Change Feasibility Analysis Phase 2 Report, Tables 8-2 and 8-3 of Appendix C 3-Dimensional Hydrodynamic and Water Quality Model of Lake Harris, Alabama show mean differences in water temperature of less than 0.05 degrees Celsius and less than 0.02 mg/L dissolved oxygen between scenarios.

8. *Table 4-1 in section 4, Summary, of the final Operating Curve Change Feasibility Analysis Phase 2 Report provides a summary of effects associated with the winter pool alternatives. The table shows that for the Harris Project, the loss in hydro generation and revenue diminishes with each incremental increase in the winter pool elevation from +1 foot to +3 feet. However, instead of having the smallest loss consistent with the aforementioned trend, the +4 feet alternative shown in table 4-1 results in the greatest loss of hydro generation and revenue. Therefore, please review the figures in table 4-1 for all of the alternatives for accuracy and correct if necessary. If the figures are accurate, please explain why the +4 feet alternative does not fit the observed trend.*

**Alabama Power Response:**

An explanation has been added to Table 4-1 of the Final Operating Curve Change Phase 2 Study Report (revised June 2022) being filed with this AIR response.

9. *Section 3.2.2, Results – Harris Reservoir, of the final Downstream Release Alternatives Phase 2 Report indicates that “Reductions in retention time [associated with higher minimum flows than currently occur] could theoretically result in lower surface water temperatures and less pronounced thermal stratification.” However, the report provides no support for this conclusion. To facilitate Commission staff’s review of the effects of Tallapoosa River continuous minimum flows on retention times, water levels, and water quality in Harris Lake, please describe the information relied upon to support the report’s conclusion regarding reduced retention time of water in the lake, changes in water levels, and cooler water temperatures drawn through the intakes. As part of the response to this AIR, please include any relevant peer-reviewed articles and other literature cited.*

*Also, section 3.2.2, Results – Tallapoosa River Downstream of Harris Dam, of the downstream release report states that “As the depth from the lake surface to the intake becomes shallower, water withdrawn by Harris Dam for generation would likely be warmer and have higher dissolved oxygen concentrations.” This statement about lower Harris Lake levels and warmer water in the intakes’ withdrawal zone seems inconsistent with the conclusion, above, regarding reduced retention times, lower lake levels, and cooler water temperatures in the withdrawal zone associated with higher continuous minimum flow releases. Please reconcile these two conclusions.*

**Alabama Power Response:**

Alabama Power has updated Section 3.2.2 of the final Downstream Release Alternatives Phase 2 report that is being filed with this AIR response and provided the following reference:

Soares, M. C. S., Marinho, M. M., Huszar, V. L. M., Branco, C. W. C., & Azevedo, S. M. F. O. (2008). The effects of water retention time and watershed features on the limnology of two tropical reservoirs in Brazil. *Lakes & Reservoirs: Research & Management*, 13(4), 257–269. Available at: <http://dx.doi.org/10.1111/j.1440-1770.2008.00379.x> [dx.doi.org].

Based on these revisions, there is no longer an inconsistency between the two conclusions.

## *Fishery Resources*

10. *Table 9-3 in section 9.1.2.2., Entrainment, of Exhibit E presents an estimated number of fish entrained by season and family/genus group. Total entrainment is estimated to be 294,427 fish, with shad representing about 95 percent of the total fish entrained. Table 9-4 provides an estimated number of entrained fish lost due to turbine mortality, by season and family/genus group. Mortality was estimated at 18,808 fish, with shad representing about 80 percent of the total fish lost. With these entrainment and mortality numbers, the estimated mortality associated with turbine passage is about 6 percent. However, neither the report, nor the license application include any discussion of the project-specific factors that affect fish entrainment and turbine mortality at the Harris Project. In order for Commission staff to evaluate the effects of Harris Project operation on fish entrainment and mortality, please describe the biological and project configuration factors that (a) affect fish entrainment and turbine mortality at the project, and (b) support the estimates in Kleinschmidt (2018) and the license application.*

### **Alabama Power Response:**

Biological and project configuration factors that can affect fish entrainment and turbine mortality at the project are included in the Desktop Fish Entrainment & Turbine Mortality Assessment for Proposed Minimum Flow Unit, which extrapolated results from the Desktop Fish Entrainment and Turbine Mortality Report (Appendix M of the Pre-Application Document). Factors that contributed to entrainment and turbine mortality estimation were species composition, location, fishery type, the volume of water passing through the intake (million cubic feet (mcf)), and turbine characteristics such as type, head (feet (ft)), power (megawatts (MW)) mode of operation, flow (cfs), speed (revolutions per minute (rpm)), diameter (inches), capacity (cfs) and number of runner blades. These factors and entrainment rates of projects similar to the Harris Project were used to estimate entrainment and turbine mortality and included the Richard B. Russell Project in the Desktop Fish Entrainment and Turbine Mortality Report and the Colton, High Falls, and Higley Projects in the Desktop Fish Entrainment & Turbine Mortality Assessment for Proposed Minimum Flow Unit. Because there were no available studies that included shad/herring from sites with turbines similar to the proposed minimum flow unit, conservative mortality rates of 25 and 75 percent were used to estimate the mortality of small and large shad/herring through the proposed minimum flow unit, respectively. Shad/herring mortality rates were estimated at 5 percent for the existing units.

11. *Section 9.2.2.3, Fish Entrainment and Mortality, of Exhibit E indicates that the proposed minimum flow of 300 cfs would not affect fish entrainment and mortality at the Harris Project, when compared to the baseline. However, no analysis for this conclusion was provided in this section because “the design of the turbine has not been finalized.” Section 4.2, Proposed Minimum Flow Unit, of Exhibit A, though, provides conceptual design information for the proposed minimum flow unit (e.g., Francis-type turbine, 2.5-megawatt capacity at a net head of 115 feet, runner speed of 360 revolutions per minute, runner diameter of about 46 inches, 15 blades, and a vent opening of 9 inches). The unit also would include an aeration system and its penstock would tie into the Unit 1 intake. This information is sufficient to complete a desktop analysis of fish entrainment and turbine mortality associated with the proposed minimum flow unit. Therefore, in order for Commission staff to adequately assess the effects of the proposed project on fish entrainment and mortality, please complete a desktop fish entrainment and turbine mortality analysis for the proposed minimum flow unit using similar methodology used in Kleinschmidt (2018), and that takes into account project-specific factors affecting fish entrainment and turbine mortality at the Harris Project.*

**Alabama Power Response:**

A desktop fish entrainment and turbine mortality assessment for the proposed minimum flow unit (Desktop Fish Entrainment and Turbine Mortality Assessment for Proposed Minimum Flow Unit, Kleinschmidt 2022) has been completed and is included as Appendix H of the revised Exhibit E being filed with this AIR response.

## *Terrestrial Resources and Threatened and Endangered Species*

12. *Table 4-1 in section 4.1.5 of Exhibit E, which summarizes the existing environmental protection, mitigation, and enhancement (PM&E) measures being implemented at the Harris Project, includes a measure that states "Manage 180 acres of right-of-way on project lands<sup>11</sup>..." Footnote number 11 states that "Alabama Power does not currently manage any rights-of-way on project lands for the benefit of wildlife; rather, rights-of-way are managed for safety and reliability of the electric system." However, section 10.1.5.1, Rights of Way Maintenance, indicates that Alabama Power uses mechanical, chemical, and biological treatments in order to maintain low-growing vegetation that also enhances wildlife habitat in the transmission line corridor. Please clarify whether Alabama Power does or does not currently manage any rights-of-way on project lands for the benefit of wildlife. In order for Commission staff to evaluate the effects of project maintenance on terrestrial resources, if the statement referenced above from section 10.1.5.1 is accurate, please provide examples of the target wildlife species and the low-growing species of vegetation that occur in, and are maintained by, Alabama Power in the transmission line corridor for the benefit of wildlife.*

### **Alabama Power Response:**

Alabama Power does not currently manage any rights-of-way on project lands for the benefit of wildlife; rather, rights-of-way are managed for safety and reliability of the electric system. Alabama Power does not manage the transmission line corridor for any target species and any enhancement to wildlife habitat would be secondary.

13. *The license application does not include information about the design/configuration and maintenance of the project transmission lines as it relates to avian protection. Please indicate whether the project transmission line poles and conductors are consistent with the Avian Power Line Interaction Committee (APLIC) and the U.S. Fish and Wildlife Service (FWS) guidelines to minimize adverse interactions (i.e., potential avian electrocutions and collisions) (APLIC, 2006 and 2012; and APLIC and FWS, 2005). Please provide detailed descriptions, figures, and/or diagrams of the design of the project transmission lines and any existing avian protection devices installed on them. Also, please provide the specifications and locations of any proposed avian protection measures that would be consistent with APLIC guidelines, if applicable. If Alabama Power has an Avian Protection Plan for the Harris Project, or for all of its hydropower projects that include transmission lines, please file a copy of the plan. In addition, the license application does not include information about any avian interactions that may have been observed with the project transmission line (e.g., nest building, perching, electrocutions, collisions, and any outages related to such interactions). Please provide any available data regarding observed/documented avian interactions with the project transmission line(s).*

**Alabama Power Response:**

Alabama Power seeks to manage and minimize potentially harmful or fatal avian interactions with power lines, transmission towers, or other Alabama Power structures. The development and implementation of an Avian Protection Plan, following guidelines set forth in peer-recognized industry and/or resource agency publications, supports this goal. Alabama Power's Avian Protection Plan is designed to ensure regulatory compliance with bird protection laws at all levels, provide for enhanced avian protection by revising best management practices where appropriate, allow and encourage cooperative protection efforts involving resource agencies and other stakeholders, provide adequate training and other resources for Alabama Power employees, and provide avian-friendly alternatives for construction standards and procedures as applicable. Alabama Power is filing its Avian Protection Plan which will be implemented within the Harris Project boundary to minimize negative avian/utility structure interactions. Ospreys occasionally nest on structures at or near the Harris powerhouse; however, there are no documented electrocutions, collisions, or outages related to bird interactions at the Harris Project.

14. Section 10.1.4, Lake Harris Wildlife Resources, states that “Alabama Power maintains Pollinator Plots at Little Fox Creek that strengthens natural habitat for the Monarch Butterfly and other pollinators such as bees, moths, and beetles. Little Fox Creek was developed with plants chosen for that specific habitat in order to benefit pollinator species.” Please provide a list of representative plant species occurring in the pollinator plots, including specific milkweed species and any nectar-rich species known to benefit monarchs. Also, please provide a map showing the location of the pollinator plots at Little Fox Creek in relation to the project boundary, primary project features, and locations where Alabama Power manages herbaceous vegetation. In addition, please provide a detailed description of any vegetation management (i.e., manual, mechanical, chemical, and/or biological) that occurs within, and adjacent to the pollinator plots. If herbicides are used to control vegetation near the pollinator plots, please include the method of application (e.g., foliar, stump, stem, and/or vine). Finally, please describe whether monarch butterflies have been observed at the pollinator plots or other locations in the project boundary.

**Alabama Power Response:**

The tables below provide a list of the plant species within the seed mix planted at Little Fox Creek, including two specific milkweed species (common milkweed and butterfly milkweed) as well as many nectar-rich species known to benefit Monarch Butterflies.

Common Name	Botanical Name
<b>Grasses</b>	
Little Bluestem	Schizachyrium scoparium
Broomsedge	Andropogon virginicus
Tall Dropseed	Sporobolus compositum
Purple Top	Tridens flavus
Side Oats Grama	Bouteloua curtipendula
Virginia Wild Rye	Elymus virginicus
<b>Nurse Crop</b>	
Oats	Avena sativa
<b>Forbs</b>	
Blue False Indigo	Baptisia australis
Blackeyed Susan	Rudbeckia hirta
Lance Leaved Coreopsis	Coreopsis lanceolata
Partridge Pea	Cassia fasciculata
Smooth Beardtongue	Penstemon digitalis
Rattlesnake Master	Eryngium yuccifolium
False Sunflower	Heliopsis helianthoides
Spiked Blazing Star	Liatris spicata
Bergamot	Monarda fistulosa
Mexican hat	Ratibida columnaris
Indian Blanket	Gaillardia pulchella
Plains Coreopsis	Coreopsis tinctoria
Common milkweed	Asclepias syriaca
Butterfly Milkweed	Asclepias tuberosa
Iron weed	Vernonia altissima
Purple coneflower	Echinacea purpurea

Common Name	Botanical Name
Lemon mint	<i>Monarda citriodora</i>
Hoary Mountain Mint	<i>Pycnanthemum incanum</i>
Smooth aster	<i>Aster laevis</i>
Rigid Goldenrod	<i>Solidago rigida</i>
Showy Goldenrod	<i>Solidago speciosa</i>
Greyheaded Coneflower	<i>Ratibida pinnata</i>
Downy Sunflower	<i>Helianthus mollis</i>
Sweet Blackeyed Susan	<i>Rudbeckia subtomentosa</i>
Browneyed susan	<i>Rudbeckia triloba</i>
Ohio Spiderwort	<i>Tradescantia ohiensis</i>

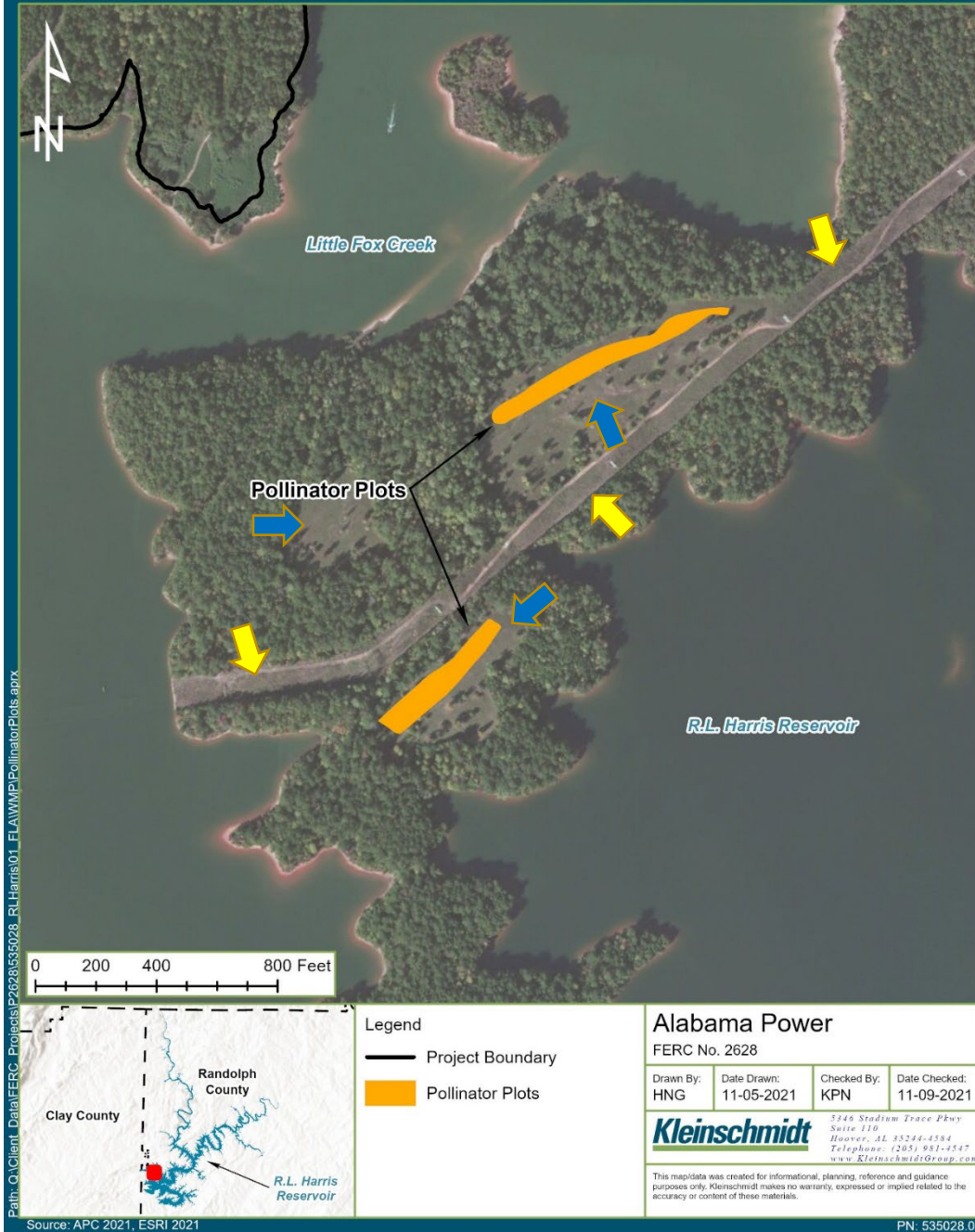
Figure 8-1 of the proposed Wildlife Management Plan (provided below) illustrates the location of the pollinator plots at Little Fox Creek in relation to the project boundary, which is shown in top left corner of the map. No primary project features are located nearby.

Prior to planting the current seed mix in the plots, and over the course of 365 days, Alabama Power performed three rounds of herbicidal foliar applications to minimize nutrient competition for the native seed mix. Once established, the native seed mix is expected to maintain itself up to 5 years with no management. When it appears the native seed mix is overwhelmed by undesirable vegetation species, Alabama Power will replicate the 365 day/3 treatment approach and replant the current seed mix.

Adjacent to the plots, Alabama Power manages three permanent openings (identified below in Figure 8-1 using blue arrows), by mechanical means (i.e., annual mowing) in accordance with Section 6.1.1 of the Wildlife Management Plan, which was submitted as part of the FLA. Additionally, Alabama Power uses integrated vegetation management (IVM) at the adjacent transmission line right-of-way (identified in Figure 8-1 below with yellow arrows) as discussed in Section 10.1.5.1 of Exhibit E of the FLA.

Alabama Power staff has observed adult Monarch Butterflies at the plots but no eggs, larvae, or pupa. However, no specific efforts for observation or survey have been conducted. Additionally, Alabama Power staff have observed adult Monarch Butterflies at the nearby Flat Rock Park.

# Pollinator Plots at Little Fox Creek



15. *Section 10.2.3.3, Nuisance Aquatic Vegetation and Vector Control Program, indicates that this program is intended to control non-native aquatic vegetation to benefit native vegetation and wildlife, as well as to control nuisance organisms, primarily mosquitoes, to minimize the potential transmission of mosquito-borne pathogens at the project. Please describe whether the aquatic herbicide treatments proposed for this program would affect any known stands of milkweeds, referenced in footnote #4 of AIR #14. In addition, please provide a list of other types of insects the proposed mosquito insecticides could affect. Please also provide a list of the areas within the project boundary where the insecticides have been and typically are applied, as well as a description of any existing and/or proposed site-specific pesticide application protocols to prevent spraying non-target plants and insects.*

**Alabama Power Response:**

All known stands of milkweeds are, at minimum, 300 linear feet from the full pool elevation. When needed, aquatic herbicide applications are carried out by sub-surface injection into the water column or via handgun directed spray applied to marginal emergent or floating vegetation. Applicators using handgun directed spray techniques are continuously aware of conditions and add drift control agents to spray solutions as necessary to ensure herbicides are being applied only to target species. Therefore, it is highly unlikely that Alabama Power's aquatic herbicide applications would affect known milkweeds stands.

Alabama Power's vector management program utilizes mosquito larvacides that are highly selective and specifically target only mosquitos while in the larval and pupal stages of their growth cycle. These larvacides are applied directly to aquatic environments, sink to the bottom, and dissolve slowly to gain extended control of mosquito species. There are no precautionary statements on the selected larvacides regarding other insect species. There should be no affects to non-target insects.

There is only one "routine" mosquito larvicide treatment site within the Harris project boundary (located at 33 19'03.11" N, 85 28'32.83" W). This site is treated, at most, once annually, but treatment is not necessary every year. This site is adjacent to one of the mosquito diurnal monitoring stations and if a significant increase in mosquito counts is noted at this location during monthly monitoring visits, it is treated to minimize mosquito production.

Alabama Power does not have any site-specific protocols. All sites are unique and there are always variables that need to be considered so that only the target species is affected and there are no negative effects to non-target species adjacent to or within a mixed stand. Applicators are thoroughly trained and pesticide applicators obtain and maintain a state permit in the Aquatic Herbicide and Public Health categories which are administered by the State of Alabama's Department of Agriculture and Industries, Pesticide Division.

16. *Section 10.1.5.2, Botanical Inventories, states that based on stakeholder comments in 2020, Alabama Power installed signage and a barrier to prevent unauthorized all-terrain-vehicle (ATV) traffic through two parcels adjacent to Flat Rock Park that provide habitat for a diverse assemblage of native plants, including some rare species. It is not clear whether Alabama Power intends to periodically inspect the signage and barrier to determine if they are intact/in place and are effective at preventing ATV traffic in this sensitive plant community. Please describe any monitoring, maintenance, and/or operation activities (if applicable) for the signage and barrier and any associated costs.*

**Alabama Power Response:**

Alabama Power conducts periodic inspection of the signage and barrier at the two parcels while performing inspections at the adjacent Project recreation facility, Flat Rock Park. As noted in Alabama Power's Draft Recreation Plan, inspections at Flat Rock Park include but are not limited to the following: FERC required signage, maintenance issues, site vandalism, litter, and grass cutting. If a maintenance issue is discovered, it is documented, the appropriate personnel are immediately notified, and the issue is resolved in a timely manner. Similarly, Alabama Power will address maintenance issues on these adjacent parcels on an as needed basis.

17. Sections 10 and 12, Terrestrial Resources and Recreation Resources respectively, and the proposed Recreation Plan do not describe the existing terrestrial resources at the proposed project recreation sites on Lake Harris and downstream from Harris Dam, the effects of constructing, operating, and maintaining the sites, or the effects of proposed project-related recreation activities at these sites on terrestrial resources. In addition, some statements in the license application bring into question whether a specific location for the new recreation site at Lake Harris has been proposed. For example, in section 10, page E-187, it states that “Depending on siting, the addition of a new recreation site would cause a disruption of the Lake Harris shoreline and associated terrestrial resources.” Also, in section 12, page E-291, it states “Alabama Power is proposing to build an additional day use park in the vicinity of Wedowee Marine South<sup>6</sup> that would be a Project recreation site and include amenities for swimming, picnicking, and a boat ramp.”

Additionally, figure 12-13 in the license application shows aerial imagery of a segment of shoreline at Harris Lake superimposed with the concept design of the proposed Harris Lake recreation site. However, the precise location of this site within the project boundary and in relation to other project features is unclear because it is not included in the figure title and a smaller scale reference map was not included. Also, the opaque polygons used in figure 12-13 to delineate the proposed recreation amenities (e.g., picnic area, parking lots) block the view of the underlying terrestrial habitat in the aerial image. Figure 5-3 in the Recreation Plan appears to be the same as figure 12-13, but has a different title (i.e., “Highway 48 Day Use Park Concept Design”), and the location of the site is unclear because it does not include a smaller scale reference map. In order to facilitate Commission staff’s analysis of project related effects on terrestrial resources, please file the following information about the proposed recreation sites at Harris Lake and downstream from Harris Dam:

- (a) a revised map or set of maps clearly showing the name and location of the proposed recreation site at Harris Lake in relation to the project boundary and other project features, including other existing project recreation sites (i.e., please identify existing versus proposed recreation sites with map labels);
- (b) a geographic information system (GIS) shapefile (e.g., polygons and lines), if available, of the proposed amenities at the Lake Harris and Tallrace Fishing Pier Kayak/Canoe Access recreation sites, as shown in figures 12-13 and 12-14;
- (c) the estimated dimensions (length and width) and composition of the proposed amenities at each site (i.e., the picnic area, beach, parking lots, bank fishing pier, boat ramp, launching pier, the new access roads, tailrace fishing pier and kayak/canoe access);
- (d) a detailed description of the existing terrestrial resources, including existing vegetation (native and non-native), and the acreage of each terrestrial habitat type that occurs at each site;
- (e) the composition and acreage of terrestrial habitat that would be permanently removed (i.e., replaced with the proposed project amenities) during construction at each site;
- (f) the composition and acreage of terrestrial habitat that would be temporarily disturbed by construction activities at each site;
- (g) the estimated acreage, diameters, and number of trees that would be removed, including the number of suitable<sup>7</sup> summer roost trees for federally listed bats;
- (h) a description of any activities that would be needed to maintain the amenities at these recreation sites after construction; and
- (j) a description of any specific best management practices that would be implemented to minimize the effects of construction, operation, and maintenance, and project-related recreation activities on terrestrial resources at the proposed recreation sites.

### **Alabama Power Response:**

- (a) Figure 5-1 of the Draft Recreation Plan identifies the general location of all Project recreation sites, including the proposed Highway 48 Day Use Park and the proposed Harris Tailrace Fishing Pier and Canoe/Kayak Put-In (note that the Harris Tailrace Fishing Pier is an existing recreation site and only the canoe/kayak put-in portion is proposed). However, a revised map has been created that denotes existing Project recreation sites versus proposed Project recreation sites. The revised map is included in the Draft Recreation Plan (revised June 2022) filed with this AIR response.
- (b) Final locations of proposed amenities at the proposed Project recreation sites mentioned in (a) above will not be determined until after the license is issued, Alabama Power has consulted with appropriate agencies, and proposed Project recreation sites are constructed. At that time, Alabama Power will file as-builts of the new recreation sites, which will include the location of associated amenities. However, to facilitate FERC's analysis of project related affects, Alabama Power is filing the GIS shapefiles for the general polygons and lines shown in figures 12-3 and 12-4 of the Exhibit E. In addition, Appendix B – As-Built Drawings of the Draft Recreation Plan (revised June 2022) includes additional conceptual drawings for the proposed recreation sites.
- (c) Proposed amenities at the Highway 48 Day Use Park include picnic tables, swim area, boat ramp and launching pier, bank/pier fishing area, parking areas, and access roads (all amenities will be barrier-free). Proposed amenities at the Harris Tailrace Fishing Pier and Canoe/Kayak Put-In include a barrier-free canoe/kayak access path and a barrier-free canoe/kayak launch area. Currently, dimensions and composition of the proposed amenities at the proposed Project recreation sites are not available. Following license issuance, Alabama Power will consult with appropriate agencies to determine the final location and size of amenities at each proposed Project recreation site. Following consultation, Alabama Power will revise the Recreation Plan to include specifics on the proposed amenities and will file the revised Recreation Plan with FERC for approval. As noted, as-builts will also be filed with FERC following construction.
- (d) The Highway 48 Day Use Park will be an approximately 41-acre site on the central portion of Lake Harris, on Highway 48 in Lineville, AL. This land is currently managed for timber and is primarily composed of natural pine and pine hardwood.

The Harris Tailrace Fishing Pier and Canoe/Kayak Put-In is an approximately 5-acre existing site that provides fishing access to the tailrace of Harris Dam. Alabama Power is proposing to include a barrier-free canoe/kayak put-in and a barrier-free path from the existing parking area to the new put-in. The site is composed of pavement, gravel, and maintained lawn. The proposed amenities will be installed in areas that are already disturbed. No new terrestrial habitat will be disturbed except for a small strip of maintained lawn where a portion of the proposed barrier-free path will be installed.

- (e) The exact acreage of terrestrial habitat that would be permanently removed during construction of the Highway 48 Day Use Park is unknown. Terrestrial habitat will be permanently removed to allow for the two proposed parking areas (including a parking area to accommodate ~100 vehicles with trailers [approximately 135,000 sq. feet] and another parking area to accommodate ~50 single vehicles [approximately 35,000 sq. feet]), new access roads, picnic areas, a restroom, a boat ramp and a launching pier. Terrestrial habitat will be permanently removed from approximately half of the 41-acre site (or ~20 acres). However, the final amenities and layout of the proposed recreation site will be determined following consultation with appropriate agencies, which will occur following license issuance. Final site design will determine how many acres of terrestrial habitat will be permanently removed.

The Harris Tailrace Fishing Pier and Canoe/Kayak Put-In is an existing Project recreation area that Alabama Power is proposing to improve via a barrier-free canoe/kayak put-in and access path. Only a very small portion of maintained lawn will be permanently removed following construction.

- (f) Similar to item (e) above, final site design of the Highway 48 Day Use Park will determine how many acres of terrestrial habitat will be temporarily and permanently disturbed during construction.

Similar to item (e) above, only a very small portion of maintained lawn will be temporarily disturbed during construction at the existing Harris Tailrace Fishing Pier and Canoe/Kayak Put-In.

- (g) Acreage, diameters, and number of trees that would be removed during construction of the proposed Highway 48 Day Use Park will depend on final site design and are unavailable at this time. However, Alabama Power will not remove any trees during the USFWS specified summer roosting season for federally listed bats.

No trees are expected to be removed during construction at the existing Harris Tailrace Fishing Pier and Canoe/Kayak Put-In.

- (h) Any new amenities that are constructed at the Project will be maintained as described in the draft Recreation Plan, Section 4.0 Recreation Management at the Harris Project.
- (i) Best management practices implemented to minimize the effects of construction, operation, and maintenance, and project-related recreation activities on terrestrial resources at the proposed recreation sites are described in the draft Recreation Plan, Section 4.4 Soil Erosion and Sedimentation Control.

18. To facilitate Commission staff's review and assessment of the effects of the proposed project on federally listed species, please file the GIS shapefiles, if available, of the following species survey locations and/or habitat features from section 11, Threatened and Endangered Species, of Exhibit E: (a) palezone shiner survey sites (figure 11-2); (b) forested lands/area (i.e., shapefile(s) associated with Indiana bat and northern long-eared bat in figures 11-12, 11-14, 11-30, and 11-31); (c) karst landscape (i.e., a shapefile associated with federally listed bat habitat in figures 11-13, 11-14, and 11-16); (d) white fringeless orchid and Price's potato-bean survey sites at Skyline Wildlife Management Area (figure 11-18); (e) the 100-foot stream buffer within limestone landscape (i.e., a shapefile associated with Price's potato-bean habitat in figure 11-19); (f) south-southwest slopes in limestone wooded areas (i.e., a shapefile associated with Morefield's leather flower habitat in figure 11-20); (g) coniferous lands (i.e., a shapefile associated with red-cockaded woodpecker habitat in figure 11-22); (h) red-cockaded woodpecker survey sites (figure 11-23); (i) fine-lined pocketbook survey sites (figures 11-25, 11-26, 11-27, and 11-28); (j) granite area (i.e., a shapefile associated with little amphianthus habitat in figure 11-32); and (k) white fringeless orchid survey sites at Harris Lake (figure 11-34).

#### **Alabama Power Response:**

The GIS shapefiles below are being filed with this AIR response. All shapefiles, including those previously filed with the Final Threatened and Endangered Species Study Report on 01/29/2021 (Accession No. 20210129-5393), are projected with the NAD 1983 UTM Zone 16N projected coordinate system.

- a) Palezone Shiner survey sites (figure 11-2);
- PalezoneShiner\_SurveySites.zip
  - Same data as GIS file on record 01/29/2021 (Accession No. 20210129-5393) but with a different projection
- b) forested lands/area (i.e., shapefile(s) associated with Indiana Bat and Northern Long-eared Bat in figures 11-12, 11-14, 11-30, and 11-31);
- ForestedLands.zip<sup>5</sup>
- c) karst landscape (i.e., a shapefile associated with federally listed bat habitat in figures 11-13, 11-15, and 11-16);
- AL\_KarstGeology.zip
- d) Price's Potato-bean survey sites at Skyline Wildlife Management Area (figure 11-18);
- PricesPotato\_beat\_SurveySites.zip
  - Same data as GIS file on record 01/29/2021 (Accession No. 20210129-5393)
- e) the 100-foot stream buffer within limestone landscape (i.e., a shapefile associated with Price's Potato-bean habitat in figure 11-19);
- HundredFoot\_Buffer.zip
- f) south-southwest slopes in limestone wooded areas (i.e., a shapefile associated with Morefield's leather flower habitat in figure 11-20);
- S\_SW\_Slopes\_LimestoneWoods.zip

---

<sup>5</sup> This file is over 50 MB; therefore, this file will be available at <http://harrisrelicensing.com>.

- Same data as GIS file on record 01/29/2021 (Accession No. 20210129-5393) but with a different projection
- g) coniferous lands (i.e., a shapefile associated with red-cockaded woodpecker habitat in figure 11-22);
- ConiferousLands.zip
- h) Red-cockaded Woodpecker survey sites (figure 11-23);
- RCWSurveySites.zip
  - Same data as GIS file on record 01/29/2021 (Accession No. 20210129-5393) but with a different projection
- i) Finelined pocketbook survey sites (figures 11-25, 11-26, 11-27, and 11-28);
- Finelined\_SurveySites.zip
  - Same data as GIS file on record 01/29/2021 (Accession No. 20210129-5393)
- j) granite area (i.e., a shapefile associated with little amphianthus habitat in figure 11-32);
- Granite.zip
- k) White Fringeless Orchid survey sites at Harris Lake (figure 11-34);
- WFO\_SurveySites\_LakeHarris.zip
  - Same data as GIS file on record 01/29/2021 (Accession No. 20210129-5393)
- l) White Fringeless Orchid survey sites at Skyline Wildlife Management Area (figure 11-18);
- WFO\_SurveySites\_Skyline.zip
  - Same data as GIS file on record 01/29/2021 (Accession No. 20210129-5393)

19. Section 15.1 of Exhibit E indicates that certain archeological sites were not selected for preliminary assessment because they were either mis-plotted, disturbed beyond the potential to retain intact cultural deposits, located below the winter drawdown level of Harris Lake and are inaccessible, or have been subjected to alteration that has “negated their potential to contain intact deposits.” However, the site table filed in response to staff’s preliminary licensing proposal (PLP) Comment No. 46 and presented in the November 23, 2021 Historic Properties Management Plan (HPMP, Attachment 2 – Comments and Responses on the Draft HPMP) filed with the license application lacks detail. The missing details include indications of why sites were removed from consideration and complete records of consultation and concurrence with the State Historic Preservation Officer (SHPO) for the removal.

To adequately analyze the cultural resource issues at the Harris Project, it is important that staff understands the current status of all sites within the area of potential effects (APE) and the decisions that were made regarding each site. Also, because the site table will be used by Alabama Power throughout any new license term, it is important that it contain accurate information. Therefore, please provide, as an appendix to the HPMP, information in an updated, comprehensive site table as follows:

(a) 74 of the sites at Lake Harris were not subject to assessment and are recommended as ineligible for listing on the National Register of Historic Places (National Register) based on the statement that there is “no additional info in site file.” However, a table included with the earlier draft HPMP (Attachment 2, Consultation Record 2), filed on June 29, 2021 as part of the PLP, provides additional descriptive information on the 74 sites. Most of the sites are described in this attachment as having aboriginal artifact scatters. Please confirm that all descriptive information for each site within the project APE is correct and is accurately carried over from the earlier table to the updated, comprehensive site table.

(b) Overall, the site table in the application identifies numerous sites at Harris Lake and Skyline as recommended as ineligible for listing or removed from consideration. Many of these previously recorded sites were investigated in the 1970s and 1980s, and may have been recommended ineligible at that time, but it is not clear that the Alabama SHPO has concurred. Absent formal evaluations of each site within the project APE and documentation of SHPO concurrence, all sites remain potentially eligible for listing on the National Register. Please provide documentation of written concurrence, from the Alabama SHPO for each site recommendation. If no formal concurrence has been received for a particular site, please indicate in the updated comprehensive table that the eligibility of the site remains undetermined. Please provide a copy of any request for concurrence to the SHPO with the updated, comprehensive table. If formal evaluation of effects for a particular site has been completed by the SHPO, and a copy of Alabama Power’s concurrence request for the site is provided, please list the site in the updated comprehensive table as “concurrence pending.”

(c) Although it is not always possible to identify or predict the potential impacts to historic properties prior to license issuance, several potential impacts were previously identified in Attachment 2 of the June 29, 2021 draft HPMP, including, but not limited to recreational use and other public access, looting, shoreline erosion, past construction, and the ongoing use of project facilities and roads. Neither the table provided with responses to Commission staff’s PLP Comments, nor the tables provided with the revised HPMP filed on November 23, 2021, specify inundation as a potential, project-related, adverse effect. Inundation can result in chemical and mechanical changes to archaeological sites that can alter the characteristics for which they may qualify for listing on the National Register (see Lenihan et al., 1982; and Ware, 1989). Though inundated sites at the project are not currently accessible and National Register evaluations of the effects of inundation are not possible at this time, until formal evaluations of National Register eligibility have been completed for each site within the APE, the submerged sites cannot be removed from consideration. Unless the SHPO has concurred with removing these sites from consideration, please indicate in the updated comprehensive table that the eligibility of these sites remains undetermined.

(d) Attachment 3, Appendix A, of the April 2021 “Cultural Assessment for Alabama Power Company lands in Randolph County,” includes figures 2-13, which show the locations of some previously

*recorded cultural resource sites at Lake Harris; and figures 14-25, which identify the locations of the assessed sites at Lake Harris. However, not all previously assessed and unassessed sites within the APE in these areas are included in the figures. Complete maps are necessary for Commission staff to understand the location and status of all cultural resource sites, relative to the project boundary and facilities. Please file as privileged, a set of comprehensive maps in a separate appendix to the HPMP that includes all previously assessed and unassessed sites within the APE at Lake Harris, Skyline, and the Tallapoosa River downstream from Harris Dam. Locations of all project facilities, including, but not necessarily limited to, existing and proposed hydroelectric and energy system features, transmission lines, project access roads, project recreation areas, mitigation areas, and other principal project features or locations should be identified. Use colors and/or symbols to distinguish map features, particularly assessed versus non-assessed sites.*

*(e) Section 4.7.3 of the November 23, 2021 HPMP indicates that a cultural resources assessment of lands proposed to be removed from the Harris Project boundary and lands proposed to be developed for recreational use was completed in August 2021, and that consultation with the Alabama SHPO and participating tribes regarding these areas would be completed. Please file the results of the investigations and documentation of this consultation. If any cultural resource sites were identified in these areas, please ensure that they are included in the updated site table.*

*(f) Section 1.1 of the November 23, 2021 HPMP states that “Historic properties on private property are not within Alabama Power’s administrative area of control and the evaluation of any historic property affected by Project operations is distinct from those on project lands or lands under the jurisdiction of FERC or Alabama Power.” The Commission cannot require a licensee to conduct cultural resource surveys on private property if the property owner denies access. However, if an owner will allow the work to be conducted to identify any potential historic properties that could be affected by the project, then these studies should be conducted. Please file any documentation of outreach to private property owners regarding the completion of cultural resource surveys on their lands.*

#### **Alabama Power Response:**

Alabama Power’s response to (a) through (f) is below. As the HPMP should provide for the management of historic properties in the Harris Project APE for the life of the new Project license and some of the information that FERC has requested in this AIR does not accomplish this objective, Alabama Power is not filing a revised HPMP at this time.

- (a) The information in both tables referenced by FERC, the table provided as part of the Consultation Record in the June 2021 PLP (PLP Consultation Table) and the table filed in response to staff’s PLP Comment No. 46 included with the November 2021 HPMP (HPMP Response Table) is accurate and was correctly transferred. Alabama Power has revised the Harris Project APE Cultural Resources Site Information Table to include additional information from the component and/or site type column in the PLP Consultation Table.
- (b) The revised Harris Project APE Cultural Resources Site Information Table includes a column indicating SHPO concurrence on each cultural resources site recommendation. The SHPO provided concurrence with the archaeological site information on June 8, 2022. Documentation of consultation and the revised table is included with this AIR response (filed as Privileged).

As stated previously in the response to FERC PLP comments, Alabama Power worked with the SHPO, FERC, and applicable tribes to select sites for reassessment at Skyline and Lake Harris. Alabama Power discussed site selection with stakeholders on May 22, 2019, July 9, 2019, November 6, 2019, and May 28, 2020. To date, no one has objected to the sites selected or NRHP recommendation. In addition, Alabama Power distributed reports to the SHPO and applicable tribes on June 29, 2021, regarding surveys conducted during relicensing, with recommended eligibility determinations. The

SHPO responded to these reports on October 1, 2021, noting “We have completed our review of the appendices and have no substantial comments at this time.”

- (c) The inundation status of identified cultural resources was presented in the Pre-Application Document (PAD), Appendix R. Following the PAD, some inundated sites were removed from further consideration during stakeholder consultation. Also, inundation was not presented as an issue by stakeholders in the Harris Action Team (HAT) 6 meetings or in the comments submitted on the HPMP or survey reports. Note that not all sites that have an undetermined status are a result of inundation. SHPO provided concurrence on removing the inundated site from analysis on June 9, 2022. Documentation of consultation is included with this AIR response (filed as Privileged). Alabama Power will evaluate currently inundated sites within the APE for listing on the NRHP *if and when they become exposed*, and any sites that may be inundated in the future. If exposed, Alabama Power will evaluate inundated sites, assess the effects of inundation and identify ways to avoid, minimize, or mitigate adverse effects and implement appropriate treatment.
- (d) Maps that show all previously assessed and unassessed sites within the APE at Lake Harris, Skyline, and the Tallapoosa River downstream from Harris Dam are being filed with this AIR response (filed as Privileged). Please note that there are no project access roads or mitigation areas for the Harris Project.
- (e) The report, “A Cultural Resources Assessment and Testing of Tracts To Be Removed From The Harris Project Boundary in Randolph County, Alabama”<sup>6</sup> was sent to the SHPO and applicable tribes for review on March 21, 2022. Alabama Power is currently addressing comments received from the SHPO and the Muscogee (Creek) Nation and will file with FERC the final report, along with consultation.
- (f) Currently, Alabama Power has not reached out to individual property owners regarding conducting cultural resources surveys on their land. Unlike some other states, cultural resources located on private properties in Alabama are not protected. Even listing properties on the Alabama Register of Landmarks and Heritage does not restrict the rights of private property owners in the use, development or sale of the property. Further, under Alabama law, Ala. Code § 41-9-249.1, written consent of the landowner is required prior to any surveys on private lands, and any artifacts found on private property will belong to that landowner. As noted by the SHPO in a HAT meeting on March 11, 2019, the only laws in Alabama protecting cultural resources on private property are those associated with burials and human remains. As such, Alabama Power’s approach to best protect cultural resources on private properties, as described in the final HPMP, is to develop a brochure to provide advice to owners interested in the protection, rehabilitation, restoration or maintenance of cultural properties on private land, and to develop a Memorandum of Understanding with any landowner for further analysis and/or mitigation if the landowner identifies effects from Harris Project operations to historic properties on their property. In addition, Alabama Power’s Shoreline Management Plan (filed in November 2021), limits disturbance around Lake Harris from permitted shoreline activities to any known cultural resources prior to review by Alabama Power Environmental Affairs. After the review, additional testing, consultation, and mitigation may be required prior to the activity. For impacts downstream, Alabama Power identified 19 cultural sites in the Tallapoosa River downstream of Harris Dam through Horseshoe Bend, 18 of which are on private property. No lands at Skyline are owned by private landowners. SHPO provided concurrence with this approach on June 9, 2022. Documentation of consultation is included with the AIR response (filed as Privileged).

---

<sup>6</sup> The errors discovered in the Project Lands Proposal as part of the Response to License Application Deficiencies do not impact the cultural resources assessments as the errors do not affect the tracts as a whole that are proposed to be added, removed, or reclassified. Rather, the errors are in the acreage totals and are the result of not properly accounting for existing project lands that will remain Project Lands.

## Attachment 2

Correspondence with Auburn University

---

**From:** Jason Moak  
**Sent:** Tuesday, August 31, 2021 8:58 AM  
**To:** Dennis Devries  
**Cc:** Rusty Wright  
**Subject:** RE: Harris Report Revisions  
**Attachments:** FINAL\_COMBINED\_QCed\_TR-MA-WA.xlsx

Thanks Dennis. I'll pass this along to Angie and get the ball rolling.

I've attached the temperature dataset that we corrected.

---

**From:** Dennis Devries <[devridr@auburn.edu](mailto:devridr@auburn.edu)>  
**Sent:** Tuesday, August 31, 2021 9:55 AM  
**To:** Jason Moak <[Jason.Moak@Kleinschmidtgroup.com](mailto:Jason.Moak@Kleinschmidtgroup.com)>  
**Cc:** Rusty Wright <[wright2@auburn.edu](mailto:wright2@auburn.edu)>  
**Subject:** RE: Harris Report Revisions

Jason,

Here's a pdf of a letter with the scope of work and budget estimate for the data reanalysis and revision of the appropriate parts of the final report. I did not list the individual table, figures, and text page that require revision (as you listed below in this email string), but if you think that information needs to be included, I can add it to the letter. We estimate that our postdoc can do this in about 2 weeks of her time so that plus fringes is all that we've budgeted. The fringe rate changes on 1 October, so there's a chance that it might vary a bit from what I have here, but if it does, it should only be a small change.

As best I can understand the process here, there are two things that need to be done in a modification or amendment to the current agreement. First, the end date of the contract needs to be extended. The current end date is 30 November 2021, and given that Angie said she was extending the end date by 2 years at her end, we'll need to do the same here so they match up, but there will need to be contractual language from Alabama Power that extends it. Second, would be the addition of the proposed amount to be added to the agreement for this reanalysis work.

Let me know if this makes sense or if there is anything else that you need from me. And whenever you have it ready, go ahead and forward the revised data set and we can start to look it over and get it into shape for the re-analysis.

Dennis

---

**From:** Jason Moak <[Jason.Moak@Kleinschmidtgroup.com](mailto:Jason.Moak@Kleinschmidtgroup.com)>  
**Sent:** Monday, August 16, 2021 8:01 PM  
**To:** Dennis Devries <[devridr@auburn.edu](mailto:devridr@auburn.edu)>  
**Subject:** [EXT] Re: Harris Report Revisions

**CAUTION: Email Originated Outside of Auburn.**

Sounds good, Dennis. I am playing catch-up as well after getting COVID a couple of weeks ago. Luckily my symptoms were very mild thanks to the vaccine, my good health, or some combination of both.

Jason Moak  
Senior Scientist  
Kleinschmidt Associates  
Office: 803-755-3565  
Mobile: 706-496-6319

---

**From:** Dennis Devries <[devridr@auburn.edu](mailto:devridr@auburn.edu)>  
**Sent:** Monday, August 16, 2021 4:48:35 PM  
**To:** Jason Moak <[Jason.Moak@Kleinschmidtgroup.com](mailto:Jason.Moak@Kleinschmidtgroup.com)>  
**Subject:** RE: Harris Report Revisions

Hi Jason,

Sorry for the delay; I was out most of last week and am just now working through my accumulated emails. I can try to call you sometime this week to talk through what you'll need, what the budget might look like, etc.

Dennis

---

**From:** Jason Moak <[Jason.Moak@Kleinschmidtgroup.com](mailto:Jason.Moak@Kleinschmidtgroup.com)>  
**Sent:** Wednesday, August 11, 2021 2:32 PM  
**To:** Dennis Devries <[devridr@auburn.edu](mailto:devridr@auburn.edu)>  
**Subject:** [EXT] Harris Report Revisions

**CAUTION: Email Originated Outside of Auburn.**

As Angie mentioned in her email, we have some work for your folks.

After reviewing the historical water temperature dataset, it was determined that data for a couple of sites had been transposed in three of the years. To summarize:

- 2015 - Data for Tailrace and Wadley were the same in 2015; the data for the tailrace was inadvertently copied into the Wadley data
- 2009 – Data for Tailrace and Wadley were transposed for August – October

We have gone back through the dataset and corrected all the errors, then had someone QC behind me so everything is right now. Unfortunately, these errors require revisions to your final report. Here's my summary of the affected portions of your report:

- ☐ Table 2.1
- ☐ Figure 2.1
- ☐ Figure 2.2B
- ☐ Figure 2.2C
- ☐ Figure 2.3
- ☐ Figure 2.4
- ☐ Figure 2.5
- ☐ Figure 2.7B
- ☐ Figure 2.7C
- ☐ Page 13 text regarding temperature deltas

I don't think the errors in the original dataset you all analyzed are going to result in perceptible differences, but we do have to get all of these revised.

I can send along the corrected 2000-2018 temperature data whenever you are ready for it.

I'm not sure we need a full blow proposal for this work – I short letter with a cost estimate would be fine.

We do need to get the report revised in time to file prior to or with the final license application in November, so it would be great if your folks could accomplish this by early to mid October.

Let me know if you have questions and I will be in touch.

Thanks!

Jason

Jason Moak

Senior Scientist

The logo for Kleinschmidt, featuring the word "Kleinschmidt" in a stylized, bold, blue font with a green underline.

O: 803-755-3565 C: 706-496-6319

Follow us on [LinkedIn](#)

*We provide practical **solutions** for complex renewable energy, water, and environmental projects!*

---

**From:** Dennis Devries <devridr@auburn.edu>  
**Sent:** Wednesday, October 20, 2021 10:21 AM  
**To:** Jason Moak  
**Cc:** Rusty Wright; Ehlana Stell  
**Subject:** revised report  
**Attachments:** Auburn Univ report to Alabama Power-Harris bioenergetics revised 10-19-21-CLEAN.pdf

Hi Jason,

Sorry that it has taken us this long, but a combination of factors made this effort much more complicated and more difficult than we had expected. Here are the items that were modified:

- pages 13 and 14 text regarding temperature deltas (both pages changed due to word changes on page 13 that spilled over as format changes on page 14)
- Table 2.1
- Figure 2.1
- Figures 2.2A, 2.2B, 2.2C, 2.2D
- Figure 2.3
- Figure 2.4
- Figure 2.5
- Figures 2.7A, 2.7B, 2.7C

We have attached a pdf of the full revised report that incorporates the changes to the temperature data you provided; given the difficulties we had in working with the individual figures, we thought it easier and safer to simply send a pdf of the entire revised report. As expected, the changes generated extremely small changes in the proportion of temperature fluctuations beyond 2 degrees C.

Also, while working through the data to correct transposition of sites etc. we found another error in figure 2.4 for the tailrace and Wadley hourly temperature variation that stemmed from a data filtering issue. The graphs now show a much greater \*number\* of observations (as indicated by dramatically increased scale on the y-axes), although the patterns and conclusions were not altered.

Let us know that you've received this and if you have any questions.

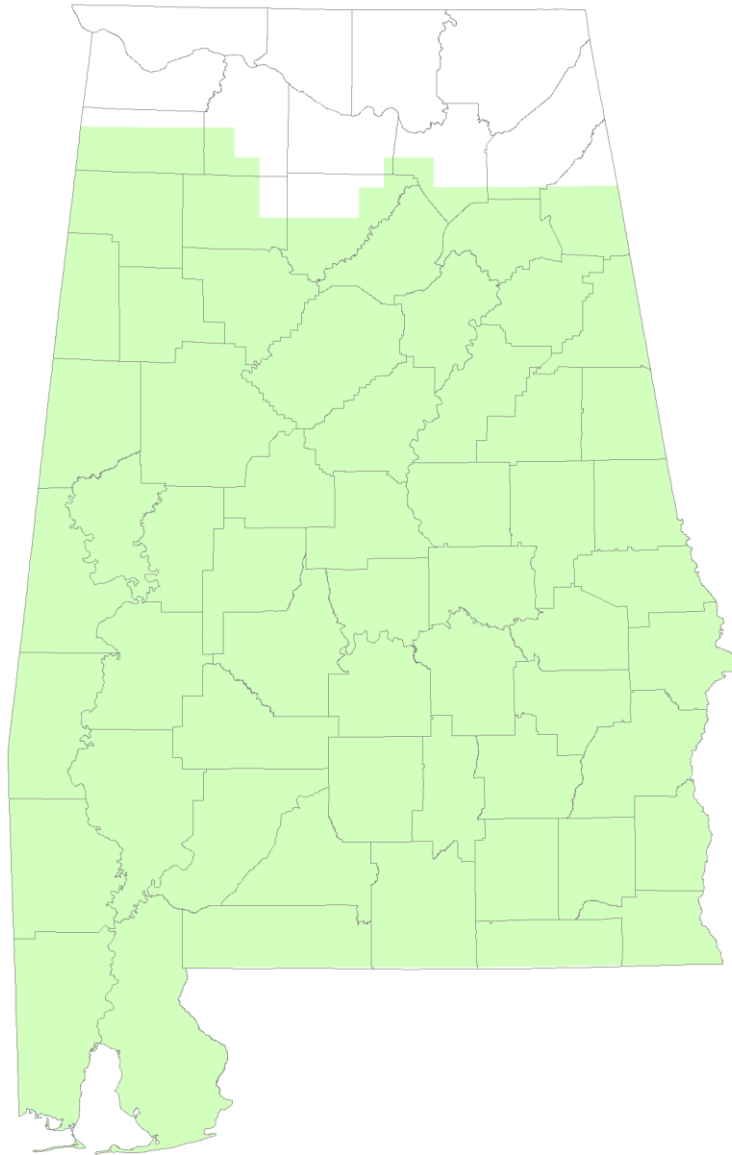
Dennis

## Attachment 3

### Avian Protection Plan

# **AVIAN PROTECTION PLAN**

## **ALABAMA POWER COMPANY**



**JANUARY 2022**

**ALABAMA POWER COMPANY  
AVIAN PROTECTION PLAN  
WORKING GROUP  
NOVEMBER 2021**

**Environmental Affairs**

Chad Fitch	Env. Affairs Biology, Staff	EA-Water Field Services
Mary Coker	Env. Affairs Compliance Team Leader	EA-Compliance
<b>Joel Stevens</b>	<b>Env. Affairs Specialist I</b>	<b>Birmingham Division</b>
<b>Jordan Johnson</b>	<b>Env. Affairs Specialist II</b>	<b>Eastern Division</b>
<b>Cliff Young</b>	<b>Env. Affairs Specialist, Sr.</b>	<b>Mobile Division</b>
<b>Kelly Yates</b>	<b>Env. Affairs Specialist I</b>	<b>Southeast/Southern Divisions</b>
<b>Trey Stevens</b>	<b>Env. Affairs Specialist, Sr.</b>	<b>Western Division</b>
Jeff Baker	Env. Affairs Biology Staff	EA-Water Field Services
Dylan Shaw	Env. Affairs Biologist, II	EA-Water Field Services

**Substations**

Jimmy Cummings	Substations Team Leader	Birmingham Division
Lacy Allison	Substations Team Leader	Eastern Division
Dustin Ott	Substations Team Leader	Mobile Division
Guirreck J. Walton	Substations Team Leader	Southeast Division
Wilbur W. Wynn	Substations Team Leader	Southern Division
Charnita Lanier	Substations Team Leader	Western Division

**Divisions**

Demetrius Spear	Regional Compliance Analyst, Sr.	Birmingham Division
Ashley Teel	Regional Compliance Analyst, Sr.	Eastern Division
Steven Minchew	Regional Compliance Analyst, Sr.	Mobile Division
Jim Bonner	Compliance Coordinator	Southeast Division
Ryan Kyser Wilson	Regional Compliance Analyst I	Southern Division
Barry Andress	Regional Compliance Analyst, Sr.	Western Division

**Generation – Fossil**

Matt Weatherford	Team Leader – Compliance	Barry Steam Plant
Jonathan Watts	Compliance Specialist	Gadsden Steam Plant
Jodi Webb	Team Leader – Compliance	Gaston Steam Plant
John Pate	Compliance Specialist	Gorgas Steam Plant
Jason Arledge	Team Leader -- Compliance	Greene Co. Steam Plant
Tamera Coleman	Team Leader – Compliance	Miller Steam Plant
Katie Boss	Compliance Specialist	Theodore and Washington County

**Generation – Hydro**

David Tait	Plant Superintendent	Bankhead Dam
Chuck Easterling	Plant Superintendent	Bouldin and Mitchell Dam
Tim Mitchell	Plant Superintendent	Harris Dam

John Davison	Plant Superintendent
Andy Allison	Plant Superintendent
Noel Harrison	Plant Superintendent
David Dennis	Plant Superintendent
Travis Cheaney	Plant Superintendent
Walter Thornton	Plant Superintendent
Jeff Harris	Plant Superintendent
Bobby Vining	Plant Superintendent
Keith Daniel	Plant Superintendent
Joel Johnson	Plant Superintendent
Scotty McNeil	Plant Superintendent

Holt Dam  
Jordan Dam  
Lay Dam  
Logan Martin Dam  
Martin Dam  
Mitchell Dam  
Neely Henry Dam  
Smith Dam  
Weiss Dam  
Thurlow Dam  
Yates Dam

(primary contacts in red)

## GLOSSARY OF TERMS

***Active (or Occupied) Nest*** - A nest with an incubating adult (sitting on eggs), or eggs or young present. These normally occur during the breeding season from approximately February through August.

***Avian Interaction*** - Any condition which involves a direct, and usually adverse, relationship between any species of bird and electrical transmission, distribution, substation, and/or communication equipment such as bird electrocutions, collisions, or nesting activities on or with transmission or distribution structures, energized or non-energized conductors or guy wires, etc. or interruption of electrical service caused by bird activities or contamination of electrical components.

***Avian-safe*** - Engineering practices to provide safety for large perching birds is referred to as avian-safe construction standards. These design standards are consistent with avian-safe specifications recommended by federal wildlife agencies.

***Imminent Danger*** - Due to the presence of a bird nest, there is an imminent danger of fire or electrocution to the birds, or imminent danger to human life or property. Imminent danger is normally considered to be a rare situation.

***Inactive (or Unoccupied) Nest*** – A nest that is not currently being used by birds as determined by the continuing absence of any adult, egg, or dependent young at the nest. An inactive nest may become active again.

***Problem Nest*** - A nest that may cause electrocution and death to the birds, electrical outage, property damage, or otherwise interfere with power operations.

***Raptors*** - Birds of prey with hooked beaks and talons for grasping and killing prey; includes eagles, hawks, falcons, kites, owls, and osprey. All eagles in APC's service territory are protected by the Bald and Golden Eagle Protection Act.

***Threatened and Endangered Species (T&E Species)*** – Species that are threatened with extinction and protected by federal law (Endangered Species Act).

## TABLE OF CONTENTS

1.0	SAFETY .....	6
2.0	INTRODUCTION .....	6
3.0	BACKGROUND .....	6
4.0	REGULATORY GUIDANCE.....	7
5.0	PLAN COMPONENTS .....	9
5.1	POLICY STATEMENT.....	9
5.2	TRAINING.....	9
5.3	PERMIT COMPLIANCE.....	10
5.4	CONSTRUCTION DESIGN STANDARDS .....	10
5.5	NEST MANAGEMENT AND REPORTING .....	11
5.6	AVIAN ENCOUNTERS AND REPORTING.....	13
5.7	RISK ASSESSMENT .....	14
5.8	MORTALITY REDUCTION PLAN.....	15
5.9	AVIAN ENHANCEMENT OPTIONS.....	16
5.10	QUALITY CONTROL.....	16
5.11	PUBLIC AWARENESS .....	17
5.12	KEY RESOURCES.....	17
6.0	TABLE 1. CONTACT INFORMATION FOR AVIAN/UTILITY INTERACTIONS .....	19
7.0	APPENDIX A. AVIAN INTERACTION REPORT FORM .....	20
8.0	APPENDIX B. FEDERALLY LISTED BIRDS IN ALABAMA.....	21

---

## **1.0 SAFETY**

---

As with any other Alabama Power Company policy, the safety of employees, customers, and the public is of paramount importance. The actions outlined in this Avian Protection Plan will only be undertaken in accordance with Alabama Power Company and Southern Company safety procedures. The tenets of Target Zero will always take precedence over any portion of the Avian Protection Plan.

## **2.0 INTRODUCTION**

---

Alabama Power Company (APC) provides safe, reliable electricity to nearly 1.5 million residential and commercial customers across a service territory of 44,500 square miles. APC has over 80,000 miles of transmission and distribution power lines and over 1.5 million poles and towers across its service territory. APC shares this service territory with a diverse population of avian species. The development of an Avian Protection Plan (APP) will benefit APC and its customers by improving system reliability, reducing costly delays, protecting natural resources, maintaining positive relationships with resource agencies, and ensuring regulatory compliance.

Primary guidance for the development of this APP was provided in the following documents: (1) *Avian Protection Plan (APP) Guidelines* (Avian Power Line Interaction Committee [APLIC] and U.S. Fish and Wildlife Service [USFWS], 2005); (2) *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (APLIC, 2006); *Avian Protection Program for Georgia Power Company* (Georgia Power Company, 2006); and *Reducing Avian Collisions with Power Lines: State of the Art in 2012* (<http://www.aplic.org/Collisions.php>).

## **3.0 BACKGROUND**

---

Utility structures can benefit large birds, particularly raptors (hawks, falcons, and eagles), by providing perching and/or nesting sites. Unfortunately, these same structures can also pose a threat to raptors and other birds through electrocution or collision with power lines. Although large birds are most often associated with power line electrocutions, many other birds can also be killed by electrocution or by colliding with lines or other structures. Closely spaced equipment in a transformer substation, for example, can pose a risk to smaller birds such as crows or blue jays. Large wading birds, such as herons or egrets, also use transmission structures for nesting or roosting, and therefore can also be at risk. In addition to the obvious

potential threat to the birds, these types of interactions can also create reliability and safety issues for APC and its customers.

Avian-safe structures and construction guidelines exist to reduce the number of collisions and electrocutions. These are designed to provide clearance for large birds to prevent completing the circuit as well as increasing the visibility of lines to reduce collisions. A successful avian interaction reporting system can be used to identify areas requiring avian-safe retrofitting. Despite such efforts, some mortality may occur due to influences that cannot be controlled, such as the weather.

Many organizations have worked together to monitor bird/power line interactions, identify areas of particularly high risk, and develop methods to reduce these risks. This plan reflects the results of these efforts.

## **4.0 REGULATORY GUIDANCE**

---

There are three federal laws that provide protection to native North American birds: The Migratory Bird Treaty Act (MBTA); the Bald and Golden Eagle Protection Act (BGEPA); and the Endangered Species Act (ESA). These laws, briefly summarized below, are enforced by the USFWS. APC's service territory is located within U.S. Fish and Wildlife Service (USFWS) Region 4, headquartered in Atlanta, GA.

All native, migratory birds in North America are protected under the MBTA. House (English) sparrows, European starlings, rock doves (pigeons), and non-migratory upland game birds (managed by hunting regulations) are excluded from the MBTA. The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. "Take" is defined as *"to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect"*. Bald and golden eagles are protected by the MBTA and the BGEPA, and additional penalties may be issued for the taking of an eagle. Finally, bird species which have been federally listed as "endangered" or "threatened" by the USFWS (Appendix B) are also afforded protection under the ESA; the definition of "take" under the ESA includes *"harm"* and *"harassment"* in addition to what is defined by the MBTA.

Criminal penalties could be issued for individual employees and/or APC for violating any of the above regulations. Penalties can include a fine and/or imprisonment, depending on the nature and severity of the incident. Incidental take, or unintentional take that occurs in carrying out an otherwise legal activity, is also enforced by USFWS and can involve an

investigation of the take by federal authorities. Incidental takes can include electrocutions and collisions with power lines and other infrastructure.

## 5.0 PLAN COMPONENTS

---

### 5.1 POLICY STATEMENT

*Alabama Power Company (APC) operates across the central and southern portions of Alabama, an area rich in biodiversity. APC takes pride in being proactive in its stewardship of the state's valuable natural resources.*

*Powerline interactions can cause bird injuries/mortalities that can result in power outages and fires. APC seeks to manage and minimize potentially harmful or fatal avian interactions with power lines, transmission towers, or other APC structures. The development and implementation of an Avian Protection Plan, following guidelines set forth in peer-recognized industry and/or resource agency publications, supports this goal. APC's plan is designed to ensure regulatory compliance with bird protection laws at all levels, provide for enhanced avian protection by revising best management practices where appropriate, allow and encourage cooperative protection efforts involving resource agencies and other stakeholders, provide adequate training and other resources for APC employees, and provide avian-friendly alternatives for construction standards and procedures as applicable. APC understands that minimizing negative avian/utility structure interactions has multiple potential benefits to the Company and to our customers including increased reliability, cost savings, and opportunities for positive public relationships and environmental stewardship.*

### 5.2 TRAINING

As a part of the APP, Environmental Affairs (EA) personnel will conduct training that will build on existing avian protection efforts by educating appropriate management and staff on the overarching regulatory framework and beneficial practices concerning avian protection. This training will be conducted with the goal of obtaining a consistent response to avian incidents over multiple work groups and service areas. Elements of the training program will include: (1) Review of federal and state regulations concerning avian protection; (2) Procedures for managing avian incidents in the field; and (3) Procedures for collecting and transmitting data related to avian incidents.

Additional training regarding the implementation of protection/deterrent measures on new or existing structures will be targeted toward relevant personnel, as appropriate.

APC-Environmental Affairs personnel will coordinate with the APC APP Working Group to ensure that training is provided to new employees and/or contractors. Refresher training will

also be available to appropriate personnel on a periodic basis. Training may include the following:

- A copy of the current APP will be made available to all appropriate APC personnel at: <http://environmental.southernco.com/apc/compliance/EGD.html>
- Initial training to include an overview of avian electrocutions and collisions
- Support materials (E.g., brochures, videos, etc.) describing APC avian issues and procedures

### **5.3 PERMIT COMPLIANCE**

APC will work with the appropriate federal and/or state regulatory agency personnel to ensure that any necessary permits are applied for and obtained prior to any activities that might require such permits.

### **5.4 CONSTRUCTION DESIGN STANDARDS**

*MODIFICATION OF EXISTING STRUCTURES* – Existing structures may require modification if there is evidence of repeated adverse avian interactions or if there are any regulatory concerns. The need for such modifications may be identified by resource agency personnel, or they may become apparent to APC directly due to decreased system reliability and/or frequent avian interactions and mortalities/injuries in the vicinity of such structures. The main objective of any modifications of this sort is to minimize or eliminate any avian mortality/injury or other negative effects and to increase system reliability.

When modifying existing structures, the following practices are generally considered to provide a raptor-safe configuration (APLIC, 2006):

- 60-inch (1.5 m) minimum separation between conductors and/or grounded hardware
- if the above spacing requirement cannot be met, then component insulation must be provided to prevent simultaneous contact
- visibility of conductors and overhead ground wires must be increased to lessen or prevent mid-air collisions
- safe perches can be provided for use by birds while hunting or during nest construction if appropriate, and perch or nest deterrent devices may be installed on the structure.

NEW CONSTRUCTION – When constructing new power lines in areas known to APC to be high risk bird areas (breeding sites, migratory routes, etc.), or on federal lands, the same concepts used to make existing structures raptor-safe should be applied to new construction: namely, to provide for 60 inches (1.5 m) clearance between energized conductors and grounded hardware, or to insulate energized hardware if this spacing cannot be accomplished. These design standards are consistent with those recommended by federal wildlife agencies. The installation of these structures on new construction should be favorable both from a legal/public relations viewpoint and by providing for more reliable service since adverse avian impacts should be minimized or eliminated.

## **5.5 NEST MANAGEMENT AND REPORTING**

The nesting season for most birds in Alabama generally occurs between February 1 and August 31. Occasionally, birds select APC infrastructure as nesting sites. Typically, these nests do not pose a significant risk to the nesting birds or cause any issues to APC operations, but sometimes the nests can cause problems. If a nest has the potential to cause the birds to be electrocuted, cause an electrical outage, property damage, or otherwise interfere with APC operations, it is deemed a “problem nest”. If a nest does not meet any of these requirements then it is not a problem nest, and no action is needed. If possible, any action on a problem nest should be taken before the nest becomes occupied. Prior to taking any action, employees/contractors are required to determine:

1. The species of the bird using the nest
2. The status of the nest. Is it occupied with incubating or tending adults, eggs, or young present?

The answers to these questions guide the next steps. The primary point of contact for reporting nest management issues are listed in Table 1. These individuals will be responsible for receiving the Avian Interaction Report Forms from field personnel and forwarding the information to the appropriate EA personnel. The list of the primary contacts, and the secondary contact, will be updated as needed and will be available to all involved personnel. Contact information will also be included for additional EA employees who will serve as alternate points of contact.

NON-EAGLE AND NON-THREATENED OR ENDANGERED SPECIES PROBLEM NESTS – If APC personnel encounter a non-eagle or non-threatened or -endangered species problem nest, following the steps should be taken:

1. Employee who discovers the problem nest should contact the appropriate EA representative to report the situation (see Table 1) as soon as possible. EA personnel will provide guidance in proceeding with the problem nest. No action should be taken until the appropriate EA personnel have been contacted. Only in the case of ***imminent danger***, which is extremely uncommon, should any action be taken prior to contacting EA.
2. Once EA has been contacted, fill out the Avian Interaction Report Form. Information in the report should include location of the nest (GPS coordinates if possible), whether the nest is occupied or unoccupied, and the species of bird associated with nest if that can be determined. If possible, include digital photos of the problem nest and any associated birds with the submitted form.
3. Submit the report through the Mobi app or email it to the appropriate EA representative as soon as possible. This will help EA personnel determine the best course of action. EA personnel may need to visit the nest site before determining what, if any, action needs to be taken.
4. In most cases, EA will recommend that unoccupied nests be removed.<sup>1</sup> If the nest is occupied, then EA personnel will provide appropriate guidance.

**BALD OR GOLDEN EAGLE OR THREATENED OR ENDANGERED SPECIES PROBLEM NESTS** – All eagles and federally listed threatened and endangered (T&E) species (Appendix B), and their nests, are protected under federal law regardless of whether the nest is occupied or not.<sup>2</sup> APC, as well as individual employees, could be subjected to legal action and/or fines as a result of the improper removal of a nest. Although it is uncommon for a bald or golden eagle or T&E species to nest on APC structures or other equipment, it can occur. For example, bald eagles have been observed nesting on transmission structures in the Mobile-Tensaw Delta. Therefore, it is necessary to take appropriate measures to determine whether any nests on APC equipment or structures belong to a bald or golden eagle or a T&E species.

The following actions should be taken when managing the nest of an eagle or T&E species:

1. Contact EA ***immediately*** and before taking any action. In the exceptional case of ***imminent danger*** due to storm damage or other extraordinary circumstances, EA should be contacted as soon as possible after emergency repairs are made so that appropriate regulatory personnel can be notified.
2. Fill out Avian Interaction Report Form and submit form through the Mobi app or email to the appropriate EA representative (Table 1) as soon as possible.

---

<sup>1</sup> 2003. USFWS Nest Destruction Memo MBPM-2

<sup>2</sup> Bald and Golden Eagle Protection Act (1940); National Eagle Conservation Plant Guidance (2007); Endangered Species Act as amended (1973)

3. EA will contact USFWS for appropriate instruction.
4. EA will relay guidelines/regulations to field personnel. An EA representative or other qualified wildlife personnel must be present in any situation involving the removal or relocation of an active nest of any type or of an inactive bald or golden eagle or T&E species nest. Only nests determined to be inactive may be removed during the non-breeding season. The non-breeding season for most migratory birds is September 1 through January 31, but for bald eagles typically occurs May 16-September 30. Golden eagles are not known to nest in the state, only to migrate through.

## 5.6 AVIAN ENCOUNTERS AND REPORTING

All avian encounters, including mortalities/injuries, that can be attributed to an interaction with APC infrastructure must be properly documented and reported to the appropriate EA personnel as set forth below. Any interactions with federally listed species or bald and/or golden eagles must be reported ***immediately***. All other interactions should be reported as soon as possible.

The primary points of contact for reporting avian encounters issues are listed in Table 1. These individuals will be responsible for receiving the Avian Interaction Report Forms from field personnel and forwarding the information to the appropriate EA personnel.

**BIRD FATALITY** –When an employee encounters a bird fatality due to an interaction with APC infrastructure, the following steps should be taken:

1. Employee who discovers the bird should fill out the Avian Interaction Report Form (Appendix A) and submit it through Mobi app or email it to the appropriate EA representative as soon as possible. (see Table 1). Whenever possible, take several digital photographs of the bird to include with the report when it is submitted. This will assist with positive species identification.
2. Be sure to take note if the bird is a T&E species OR a bald or golden eagle. If so, notify EA ***immediately***. EA personnel will provide guidance in proceeding with the dead bird. No action should be taken until the appropriate EA personnel have been contacted. Only in the case of ***imminent danger*** should any action be taken prior to contacting EA. EA will notify the proper regulatory agency personnel. It may be necessary for the employee to remain on site until an EA representative can reach the location.
3. Removal of a bird carcass is advised if it is in a public area or could interfere with the completion of the job. If removal of the carcass is advised, the employee should put the bird in a plastic bag and dispose of it in a proper waste container. The carcass can be left alone if it is in a remote area and does not conflict with completing work tasks.

Removal of an eagle or T&E species is NEVER advised except in the case of ***imminent danger***.

***Under no circumstances is the carcass of an eagle, or any federally listed T&E species, to be handled or removed without first seeking guidance from EA.***

**BIRD INJURY** – The following procedure should be followed for interactions with injured birds as a result of an interaction with APC infrastructure:

1. Employee who discovers the bird should contact the appropriate EA representative to report the situation (see Table 1) as soon as possible. EA personnel will provide guidance for the situation. No action should be taken until the appropriate EA personnel have been contacted. Only in the case of ***imminent danger*** should any action be taken prior to contacting EA.
2. ***Do not under any circumstances attempt to capture or otherwise handle an injured bird. This could be a violation of federal law and the bird could inflict serious harm to any person attempting to catch it.***
3. Complete the Avian Interaction Report Form including species and location, and attempt to describe the injury. If possible, take digital photos to include with the report. Submit the report through the Mobi app or email it to the appropriate EA representative as soon as possible. This will help EA personnel determine the best course of action.
4. Once EA has been notified of the situation, they will contact the appropriate animal control/wildlife rescue personnel about removing the injured bird. It may be necessary for the employee who reported the incident to remain at the location until EA representative or other rescue personnel arrives.

Injuries or mortalities to raptors or birds of prey will be reported by EA to USFWS via the Voluntary Migratory Bird Fatality/Injury Reporting Program (U.S. Fish & Wildlife Service - Migratory Bird Program | Conserving America's Birds ([fws.gov](https://www.fws.gov))). This program allows utility companies to report avian/utility interactions via the Law Enforcement Management Investigation System (LEMIS) website. This voluntary, non-punitive program enables USFWS personnel to maintain a comprehensive database of bird injuries/mortalities across the country.

## **5.7 RISK ASSESSMENT**

Hundreds of utility poles and other structures are located within areas of suitable habitat for raptors and other migratory birds. To locate potential “hot spots” for greatest risk to perching or nesting birds, some type of risk assessment procedures should be employed. APC utilizes a GIS-based system to analyze the data reported to EA via the Avian Interaction Report Forms. The use of GIS data layers to track pole and other structure location, configuration, evidence of avian activity, presence of dead/injured birds, etc., should allow APC to effectively identify potential “hot spots” and initiate the appropriate corrective measures. Additional GIS layers used in the risk assessment could include elements such as known migration corridors, wildlife refuges, riverine corridors, and other areas known to periodically have high migratory bird concentrations. The risk assessment database created by collecting these data will be updated and refined as new information is obtained.

When siting new transmission lines or building substations or other facilities, APC will utilize the information gathered during the risk assessment activities described above to ensure that adverse impacts to resident or migratory birds are minimized.

## **5.8 MORTALITY REDUCTION PLAN**

Reducing avian interactions and mortalities due to APC equipment and structures is the goal of this APP. Bird collisions and electrocutions typically involve larger birds such as raptors and herons. There are many variables that factor into the likelihood of avian interactions such as habitat, bird size and flight patterns, and line configurations and placement. Several options are available to help reduce the number of avian mortalities. Making the lines more visible to birds could greatly reduce collisions that cause injury and death. Marker balls, spiral vibration dampers, and bird flight diverters are a few of the options available to increase line visibility. Although increasing line visibility is the preferred method, there are other options to help reduce collisions. Burying the line, reconfiguring the line, or removing the overhead ground wire are all approved methods to reduce avian interactions.

The same large birds that are prone to collisions also have a higher chance of getting electrocuted. Increasing line visibility can reduce electrocutions as well as collisions. Often, retrofitting just a few structures can significantly reduce most electrocution hazards on existing lines. Increasing the spacing between the conductors, installation of perch discouragers, and insulation of conductors, equipment, or support structures are considered solutions to electrocution problems.

With respect to problem nests, raptors, especially ospreys, often return to the same nesting location year after year. There are a few options to help prevent birds from reusing existing

structures. Constructing a nesting platform or altering the existing structure to safely accommodate the nest could alleviate the problem. Another possible solution is to construct and install approved nest deterrents on existing structures where frequent interactions occur. EA is available for consultations and recommendations for every situation.

Raptor-safe construction standards should always be used when constructing new lines or rebuilding lines to prevent future problems from occurring. These standards can be found in the *Construction Design Standards* section of this APP. When constructing new lines, known areas of high bird concentrations should be avoided if possible. If these locations cannot be avoided, then necessary precautions would need to be taken. Any or all the previously mentioned enhancements and construction standards should be utilized in these situations.

Each situation is different and requires site specific planning before any action is taken. All employees/individuals should contact EA prior to performing any remedial actions.

## **5.9 AVIAN ENHANCEMENT OPTIONS**

Power lines and structures can provide many benefits to birds including hunting vantage, nesting, and roosting. Unfortunately, these benefits come with an added risk to both birds and equipment. Utilizing the avian safe construction standards and implementing methods to reduce interactions, referenced above, could enhance the overall survivability of birds using power lines and structures. APC will monitor potential “hot spots” and continue to implement these measures to ensure avian protection, product reliability, and customer satisfaction.

## **5.10 QUALITY CONTROL**

A quality control program will be implemented to confirm that measures taken to reduce negative avian interactions are effective. This program could include the following quality control assessments:

- routinely assessing the bird mortality reporting procedure to ensure that any such events are being accurately documented

- assessing the response to bird mortality incidents to ensure that timely, appropriate actions are being taken
- ensuring that Company policies and procedures are being followed in all aspects of implementation of the APP
- assessing georeferenced avian interaction reports to conduct risk assessments for possible mitigation of potential hotspots
- soliciting regulatory agency feedback and opinions on the APP

## 5.11 PUBLIC AWARENESS

A proactive, successful APP can generate a positive public response and could result in more public involvement in reporting bird injuries/mortalities. Accordingly, the APP should be shared with the public via the numerous methods of public relations that APC employs. In addition, working collaboratively with regulatory agencies as part of the APP will help to maintain the positive working relationship that APC has fostered with these agencies.

APC takes pride in its record of positive environmental stewardship; an open, collaborative APP will serve as another example of the ways that APC works to minimize environmental impacts while providing safe, reliable, and affordable energy to our customers.

## 5.12 KEY RESOURCES

A member of the Biology Team, Environmental Affairs, will be responsible for coordination of the APP and will serve as chairman of the APC APP Working Group.

Regulatory agencies that can serve as a resource for the APP include:

**U.S. Fish and Wildlife Service Region 4 Migratory Bird Permit Office**, P.O. Box 49208, Atlanta, GA 30359; 404.679.7070; U.S. Fish & Wildlife Service - Migratory Bird Program | Conserving America's Birds ([fws.gov](http://fws.gov))

**U.S. Fish and Wildlife Service Region 4 Office of Law Enforcement**, P.O. Box 492226, Atlanta, GA 30359; 404.679.7057

**U.S. Fish and Wildlife Service/Alabama Ecological Services Field Office**, 1208B Main Street, Daphne, AL 36526; 251.441.5181

**Alabama Department of Conservation and Natural Resources/Division of Wildlife and Freshwater Fisheries;** 64 N. Union Street, Montgomery, AL 36130;  
<http://www.outdooralabama.com/>

Other organizations that can support APC's avian protection efforts include:

**Avian Power Line Interaction Committee (APLIC)**, an industry group (Edison Electric Institute) formed to help reduce negative power infrastructure/avian interactions. APC is a member of APLIC and will attend APLIC workshops/meetings as appropriate, to remain abreast of current technologies and developments in avian/utility interactions.

**Electric Power Research Institute (EPRI)**, another industry group that has avian publications and that could serve as a research partner if necessary.

**Alabama Wildlife Center**, the largest wildlife rehabilitation center in the state, located in Pelham, Alabama; primary contact for the capture of any injured birds found at or near APC facilities

**Southeastern Raptor Center**, located in Auburn, Alabama, an educational and rehabilitation program that has treated and released thousands of injured birds of prey back into the wild

Publications that could be a useful resource to APC:

Avian Power Line Interaction Committee (APLIC). 1994. *Mitigating Bird Collisions with Power Lines: The State of the Art in 1994*.

APLIC. 2006. *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*.

Georgia Power Company (GPC). 2006. *Avian Protection Program for Georgia Power Company*.

Mississippi Power Company (MPC). 2015. *Avian Protection Plan*.

New Mexico Avian Protection Working Group. 2006. *Lineman's Guide to Avian Diseases*.  
<http://nmavianprotection.org/>

The Institute of Electrical and Electronic Engineers. 1993. *Guide for Animal Deterrents for Electric Power Supply Substations*.

Southern Engineering Company. 1996. *Animal-caused Outages*.

**6.0 TABLE 1. CONTACT INFORMATION FOR AVIAN/UTILITY INTERACTIONS**

---

<b>Division</b>	<b>Primary Contact</b>	<b>Phone Numbers</b>	<b>Secondary Contact</b>	<b>Phone Numbers</b>	<b>Alternate Contact</b>	<b>Phone Numbers</b>
Birmingham	Joel Stevens	205-825-7536 (Cell) 256-231-3436 (Office)	Chad Fitch	205-438-3149 (Cell) 205-664-6246 (Office)	Jeff Baker	205-351-1631 (cell) 205-664-6053 (office)
Eastern	Jordan Johnson	205-600-9118 (Cell) 205-257-4136 (Office)	Chad Fitch	205-438-3149 (Cell) 205-664-6246 (Office)	Jeff Baker	205-351-1631 (cell) 205-664-6053 (office)
Mobile	Cliff Young	205-438-5007 (Cell) 251-434-5537 (Office)	Chad Fitch	205-438-3149 (Cell) 205-664-6246 (Office)	Jeff Baker	205-351-1631 (cell) 205-664-6053 (office)
Southeast/Southern	Kelly Yates	205-438-1804 (Cell) 334-832-3459 (office)	Chad Fitch	205-438-3149 (Cell) 205-664-6246 (Office)	Jeff Baker	205-351-1631 (cell) 205-664-6053 (office)
Western	Trey Stevens	205-734-3595 (Cell) 205-349-6811 (Office)	Chad Fitch	205-438-3149 (Cell) 205-664-6246 (Office)	Jeff Baker	205-351-1631 (cell) 205-664-6053 (office)

## 7.0 APPENDIX A. AVIAN INTERACTION REPORT FORM

AVIAN INTERACTION REPORT FORM				
Name:			Division/Office:	
Phone/Radio #:			Email:	
Date:	Time:	Location (GPS):		
Photos Attached: <input type="checkbox"/> Yes <input type="checkbox"/> No				
Incident Type:	<input type="checkbox"/> Fatality	<input type="checkbox"/> Injury	<input type="checkbox"/> Nest	<input type="checkbox"/> Other (describe):
Cause of Incident:	<input type="checkbox"/> Electrocution	<input type="checkbox"/> Collision	<input type="checkbox"/> Other (describe):	
Nest Occupied: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown			Eggs/Chicks Present: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
Outage Caused? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown			Outage Date/Time/Number:	
Bird Type <i>Consult EA representative for help if needed</i>				
<input type="checkbox"/> Eagle	<input type="checkbox"/> Woodpecker		<input type="checkbox"/> Dove	
<input type="checkbox"/> Hawk/Falcon/Osprey/Kite	<input type="checkbox"/> Heron/Egret/Crane		<input type="checkbox"/> Songbird/Small Bird	
<input type="checkbox"/> Vulture/Buzzard	<input type="checkbox"/> Sandpiper/Shorebird		<input type="checkbox"/> Pigeon/Rock Dove	
<input type="checkbox"/> Owl	<input type="checkbox"/> Duck/Goose/Cormorant		<input type="checkbox"/> Starling	
<input type="checkbox"/> Crow	<input type="checkbox"/> Gull/Tern		<input type="checkbox"/> House Sparrow	
<input type="checkbox"/> Blackbird	<input type="checkbox"/> Pelican		<input type="checkbox"/> Other	
Common name, if known:				
Wildlife Protection Present:	<input type="checkbox"/> No	<input type="checkbox"/> Bushing Cover <input type="checkbox"/> Conductor Cover <input type="checkbox"/> Insulated Wire <input type="checkbox"/> Insulator Disc <input type="checkbox"/> Flight Diverter <input type="checkbox"/> Nest Deterrent <input type="checkbox"/> Other:		
Circuit #:		Structure #:		Voltage:
Structure/Equipment Description:				

## 8.0 APPENDIX B. FEDERALLY LISTED BIRDS IN ALABAMA

---

(<http://www.aces.edu/natural-resources/wildlife/birds.php>)

(<http://www.fws.gov/endangered>)



Photo courtesy of Giff Beaton

### **Bald Eagle (*Haliaeetus leucocephalus*)**

**Federal Status: Protected (Bald & Golden Eagle Protection Act)**

Description: The adult bald eagle is the most easily recognized bird in the United States. Adult bald eagles have dark bodies and wings with the familiar white head, neck, and tail feathers. Young eagles are less distinctive, adding the white feathers gradually after one year of age. Bald eagles are large birds, with body lengths of 28 to 32 inches and with wingspreads of 6 to 7 feet. Eagles catch and eat fish and other prey and will eat dead animals along lake and river shores and roadsides. Bald eagles nest near the tops of large trees, often near water; occasionally, nests will be built at the top of large manmade structures

such as transmission line towers. The nests are usually added to and re-used year after year. Generally, eagles nest in Alabama from October to May. Bald eagles are increasing in numbers across the nation.

Distribution by County: Bald eagles are known to nest in several Alabama counties, usually associated with river systems, lakes, bays, and other bodies of water. The Alabama Department of Conservation and Natural Resources have records of Bald Eagles sighted in every county in AL.



Photo courtesy of Jonathan Stober

## **Golden Eagle (*Aquila chrysaetos*)**

### **Federal Status: Protected (Bald & Golden Eagle Protection Act)**

Description: The golden eagle is one of North America's largest raptors with a wingspan of over seven feet; females can weigh up to fifteen pounds. The species is dark brown or black in coloration and gets its name from the golden colored feathers on the back part of the head, neck, and upper back. Golden eagles are often mistaken for immature bald eagles; however, the legs of the bald eagle are bare, while the golden eagle has feathers down the entire length of the leg. Golden eagles tend to inhabit areas near grasslands and open pastures

where food is plentiful. Unlike the bald eagle, golden eagles tend to catch the majority of their prey which consists of rabbits, squirrels, gophers, deer fawns, wild turkeys, reptiles, and other small birds. During the winter, and especially in the southeastern United States, they will often scavenge on road-killed or shot white-tailed deer carcasses. Golden eagle nests can be as large as eight feet across and three to four feet deep. They are typically found on narrow ledges of cliffs or in the tops of tall trees. There are usually two nestlings, which fledge at approximately 2-3 months of age. The average lifespan of the golden eagle is about 30 years.

Distribution by County: The golden eagle is an uncommon, mainly winter, resident in Alabama. It is not known to nest here but could potentially be encountered in any county in the state. There have been recent records of the golden eagle in northeast (Cleburne, Jackson), northwest (Colbert, Marshall), and southeast (Barbour) counties in Alabama. Historical records have documented sightings in many other Alabama counties.



Photo courtesy of Giff Beaton

## **Red-cockaded Woodpecker (*Dryobates borealis*)**

**Federal Status: Endangered (proposed Threatened)**

Description: A small (7 - 8 inches in length) black and white woodpecker, with ***no visible red***. It can be distinguished from other black and white woodpeckers by its large white cheek patch and zebra striped or ladder back. Other small Alabama woodpeckers have either an unstriped white back, a black eye-stripe, or red on the head. The red-cockaded is also the only Alabama woodpecker that lives in living pine trees, drilling a round hole approximately 3 inches in diameter through the sapwood and into the heart of the tree. They also peck out resin wells, half-dollar sized wounds which bleed

resin onto the tree trunk. The resin-encrusted tree stem is often easier to identify than the bird. It can resemble a large wax candle and is easily seen in the open woods the bird usually inhabits. Other woodpeckers and some animals use abandoned red-cockaded dens, but often enlarge the entrance. The resin on active trees is clear or amber in color. Red-cockaded woodpeckers live in small groups in a one-to-ten-acre area called a cluster or colony. They feed by prying off loose bark and feeding on the mites, insects, and larvae underneath rather than by drilling into dead wood like other woodpeckers.

Distribution by County: Red-cockaded woodpeckers can occur anywhere in the state where there is old pine timber in open stands. Counties where they are known to have historically occurred or currently occur include Barbour, Bibb, Bullock, Calhoun, Cherokee, Chilton, Clay, Cleburne, Conecuh, Coosa, Covington, Dallas, Escambia, Hale, Macon, Perry, Talladega, Tallapoosa, and Tuscaloosa.



Photo courtesy of Giff Beaton

## Wood Stork (*Mycteria americana*)

### Federal Status: Threatened

Description: Wood storks are large wading birds approximately 3 1/2 feet in height with a wingspan of over 5 feet. They are distinguished by a dark unfeathered head and neck, a white body, and a black tail and wing tips. Like most other wading birds, wood storks feed on small fish in shallow freshwater wetlands. They use tall cypresses near

the water for colonial nest sites. They will occasionally visit Alabama's swamps to forage but the species apparently no longer nests in the state.

Distribution by County: Wood storks have been sighted in Autauga, Baldwin, Barbour, Bibb, Bullock, Butler, Chilton, Choctaw, Clarke, Coffee, Conecuh, Covington, Crenshaw, Dale, Dallas, Elmore, Escambia, Fayette, Geneva, Greene, Hale, Henry, Houston, Lamar, Lee, Lowndes, Macon, Marengo, Mobile, Monroe, Montgomery, Perry, Pickens, Pike, Russell, Sumter, Tallapoosa, Tuscaloosa, Washington, and Wilcox counties.



Photo courtesy of Giff Beaton

### **Piping Plover (*Charadrius melodus*)**

**Federal Status: Threatened**

Description: A small shorebird about 7 inches long with a sand-colored upper side and a white underside. They use coastal beaches for their wintering grounds. These birds may migrate as early as July.

Distribution by County: Gulf Coast beaches in Baldwin and Mobile counties.

---



Photo courtesy of Giff Beaton

### **Red Knot (*Calidris canutus rufa*)**

**Federal Status: Threatened**

Description: Red knots grow to a size of 9-11 in. These birds are known to occur on the beaches of Alabama throughout the winter (non-breeding) months. During this time adults are pale, ashy gray on top, from head to tail, with feathers on the back narrowly edged with white. The underside is white with the breast lightly streaked and speckled.

Distribution by County: Gulf Coast beaches in Baldwin and Mobile counties.

## Attachment 4

Contents of Response to Harris Project License Application Additional  
Information Requests

## CONTENTS OF FILING

### R.L. Harris Hydroelectric Project (P-2628)

DESCRIPTION	SECURITY	FILE NAME
<b>Cover Letter, AIR #1 and AIR #2 Response, Auburn University Correspondence, Avian Protection Plan, Contents</b>	Public	2022-06-15 Cover Letter for AIRs.pdf
<b>Exhibit A</b>	Public	Exhibit_A_June2022.pdf
<b>Exhibit D</b>	Public	Exhibit_D_June2022.pdf
<b>Exhibit E</b>	Public	Exhibit_E_June2022.pdf
Appendices A through H	Public	Exhibit_E_Appendices_June2022.pdf
<b>Exhibit H</b>	Public	Exhibit_H_June2022.pdf
<b>FINAL REPORTS</b>		
<b>Operating Curve Change Feasibility Analysis Phase 2 Report</b>	Public	FSR_Op_Curve_Phase_2_June2022.pdf
<b>Downstream Release Alternatives Phase 2 Report</b>		
Main Report, Appendices A through D, Appendix F	Public	FSR_DRA_Phase_2_June2022.pdf
Appendix E - Maps	Privileged	FSR_DRA_Phase_2_AppE_June2022.pdf
Appendix E - Data	Privileged	FSR_DRA_Phase_2_AppE_Data_June2022.xlsx
<b>DRAFT PME &amp; CONCEPTUAL PLANS</b>		
<b>Shoreline Management Plan</b>		
Main Report, Appendix A, Appendices C through E	Public	PME_Shoreline_Management_Plan_June2022.pdf
Appendix B - Shoreline Classification Maps Part 1	Public	PME_Shoreline_Management_Plan_AppB_Pt1_June2022.pdf
Appendix B - Shoreline Classification Maps Part 2	Public	PME_Shoreline_Management_Plan_AppB_Pt2_June2022.pdf
Appendix B - Shoreline Classification Maps Part 3	Public	PME_Shoreline_Management_Plan_AppB_Pt3_June2022.pdf
<b>Water Quality Monitoring Conceptual Plan</b>	Public	PME_Water_Quality_Monitoring_Conceptual_Plan_June2022.pdf
<b>Draft Recreation Plan</b>		
Main Report, Appendix A	Public	PME_Draft_Recreation_Plan_June2022.pdf
Appendix B - Project Recreation As-Built Site Plan Drawings Part 1	Public	PME_Draft_Recreation_Plan_AppB_Pt1_June2022.pdf
Appendix B - Project Recreation As-Built Site Plan Drawings Part 2	Public	PME_Draft_Recreation_Plan_AppB_Pt2_June2022.pdf
Appendix B - Project Recreation As-Built Site Plan Drawings Part 3	Public	PME_Draft_Recreation_Plan_AppB_Pt3_June2022.pdf
Appendix B - Project Recreation As-Built Site Plan Drawings Part 4	Public	PME_Draft_Recreation_Plan_AppB_Pt4_June2022.pdf
Appendix B - Project Recreation As-Built Site Plan Drawings Part 5	Public	PME_Draft_Recreation_Plan_AppB_Pt5_June2022.pdf
<b>AIR #2, QUESTION 19</b>		
Harris Project Cultural Resources Site Information Table	Privileged	AIR2Q19_Site_Info_Table.pdf
June 8, 2022 SHPO Concurrence on Site Information	Privileged	AIR2Q19_SHPO_Concurrence.pdf
Harris Project Cultural Resources Site Information Maps of Lake Harris	Privileged	AIR2Q19_Lake_Harris_Maps.pdf
Harris Project Cultural Resources Site Information Maps of Downstream Sites	Privileged	AIR2Q19_Downstream_Maps.pdf
Harris Project Cultural Resources Site Information Maps of Skyline	Privileged	AIR2Q19_Skyline_Maps.pdf
<b>SHAPEFILES</b>		
AIR #1, Question 10 - Proposed Project Boundary <sup>6</sup>	Public	Harris_Proposed_Project_Boundary_June2022.zip
AIR #1, Question 10 - Proposed Changes to Project Boundary	Public	Proposed_Changes_June2022.zip
AIR #2, Question 17 - Hwy 48 Day Use Park Proposed Amenities - Points	Public	Hwy48DayUsePark_Point.zip
AIR #2, Question 17 - Hwy 48 Day Use Park Proposed Amenities - Lines	Public	Hwy48DayUsePark_Line.zip
AIR #2, Question 17 - Hwy 48 Day Use Park Proposed Amenities - Polygons	Public	Hwy48DayUsePark_Poly.zip
AIR #2, Question 17 - Harris Tailrace Canoe/Kayak Put-In Proposed Amenities - Lines	Public	HarrisTailracePutIn_Line.zip
AIR #2, Question 18A - Palezone Shiner survey sites (figure 11-2)	Public	PalezoneShiner_SurveySites.zip
AIR #2, Question 18B - forested lands/area (i.e., shapefile(s) associated with Indiana Bat and Northern Long-eared Bat in figures 11-12, 11-14, 11-30, and 11-31) <sup>6</sup>	Public	ForestedLands.zip
AIR #2, Question 18C - karst landscape (i.e., a shapefile associated with federally listed bat habitat in figures 11-13, 11-15, and 11-16)	Public	AL_KarstGeology.zip

<sup>6</sup> This file is over 50 MB; therefore, this file will be available at <http://harrisrelicensing.com>.

DESCRIPTION	SECURITY	FILE NAME
AIR #2, Question 18D - Price's Potato-bean survey sites at Skyline Wildlife Management Area (figure 11-18)	Public	PricesPotato bean_SurveySites.zip
AIR #2, Question 18E - the 100-foot stream buffer within limestone landscape (i.e., a shapefile associated with Price's Potato-bean habitat in figure 11-19)	Public	HundredFoot_Buffer.zip
AIR #2, Question 18F - south-southwest slopes in limestone wooded areas (i.e., a shapefile associated with Morefield's leather flower habitat in figure 11-20)	Public	S_SW_Slopes_LimestoneWoods.zip
AIR #2, Question 18G - coniferous lands (i.e., a shapefile associated with red-cockaded woodpecker habitat in figure 11-22)	Public	ConiferousLands.zip
AIR #2, Question 18H - Red-cockaded Woodpecker survey sites (figure 11-23)	Public	RCWSurveySites.zip
AIR #2, Question 18I - Finelined pocketbook survey sites (figures 11-25, 11-26, 11-27, and 11-28)	Public	Finelined_SurveySites.zip
AIR #2, Question 18J - granite area (i.e., a shapefile associated with little amphianthus habitat in figure 11-32)	Public	Granite.zip
AIR #2, Question 18K - White Fringeless Orchid survey sites at Harris Lake (figure 11-34)	Public	WFO_SurveySites_LakeHarris.zip
AIR #2, Question 18L - White Fringeless Orchid survey sites at Skyline Wildlife Management Area (figure 11-18)	Public	WFO_SurveySites_Skyline.zip