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Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1A
Washington, DC 20426

RE: World Wildlife Fund comments on Alabama Power Company's Martin Hydroelectric Project (Project P-349-150) March 18, 2009 Final Study Plan filing

1. Introduction

World Wildlife Fund (WWF) appreciates the time and effort Alabama Power Company (APC) took to develop responses to stakeholder comments submitted in February on draft study plans for the Martin Hydroelectric Project (FERC Project No. 349-150) relicensing process. The tabular account of each stakeholder comment and APC's response to each comment, in particular, was very useful and clearly presented. We reviewed APC's responses to our comments and offer clarifications to a number of our points. WWF has limited the comments in this submittal only to those issues or points that we believe APC misunderstood and; therefore, are in need of additional discussion or explain. Our comments in the letter dated 17 February 2009 that have neither been addressed by APC nor elaborated upon below still remain active issues from our perspective. We simply did not want to repeat the same arguments in this letter.

WWF is an international 501(c)(3) nonprofit conservation organization dedicated to protecting the world's wildlife and wildlands. WWF maintains its primary office in Washington, DC, and has a regional office Nashville, Tennessee. The mission of the Nashville office is to ensure the protection, preservation and enhancement of aquatic life in the rivers and streams of the southeastern United States, specifically the Cumberland, Mobile, and Tennessee River Basins. WWF has over 1.2 million members in the United States - over 26,000 of whom reside in Alabama and Georgia, the two states through which the Tallapoosa River flows.

WWF has been an active participant in APC's (APC) organized Martin Relicensing stakeholder meetings (May 24-25, 2007, September 26-27, 2007 and April 1-2, 2008), the Martin Rule Curve

Meeting (March 6, 2008), draft study plan meeting (January 7, 2009) and relicensing modeling workshop (February 10, 2009). WWF also participated in the Martin Hydroproject tour and scoping meeting (September 10-12, 2008) where we provided public comment on our interests and potential points of intersection with the operation and maintenance of the Martin Project. In addition to providing comments on the Scoping Document 1 (SD1), Pre-Application Document, June 2008 draft study plans (October 12, 2008), and November 2008 draft study plans (February 17, 2009), we have also commented directly to APC on early drafts of the study plans (October 15 and December 15, 2007).

2. Study Plan 1

WWF requested the addition of several objectives to this Migratory Fish Tallapoosa Basin Literature Review study plan. APC's response was that this particular study is not designed to assess project effects on aquatic species and that some of the objectives WWF requested are included under another study plan (Study Plan 3: Evaluation of Minimum Flows Downstream of Martin Dam). WWF offers that one of the targets for a relicensing package is to document the resources in the project area and to describe any continuing impacts or new impacts from alternative operation or maintenance proposals. This is best characterized in 18 CFR Section 4.51(f)(3)(iv) which states that "*a description of any anticipated continuing impact on fish, wildlife, and botanical resources of continued operation of the project*, and the incremental impact of proposed new development of project works or changes in project operation" (emphasis added). Moreover, APC lists under section 2.0 of this study plan that "Impacts to migratory rare, threatened, endangered or commercial fish species ... are of concern to the NOAA National Marine Fisheries Service (NMFS) and the United States Fish and Wildlife Service (USFWS) as part of their Section 18 authority provided in the Federal Power Act." WWF's request to include an assessment of existing and proposed seasonal and daily flow patterns on migratory fishes seems to fall directly under the federal regulations governing relicensing studies and the stated resource management goals in the study plan itself. WWF agrees with APC that population integrity of migratory fish species is a part of Study Plan 3.

WWF also offered several specific information needs related to the potential effects of Martin dam and operation that we believe would help USFWS, NMFS, APC, Alabama Department of Conservation of Natural Resources (ADCNR), and other stakeholder better understand *how* the project may impact migrating fishes in the Tallapoosa Basin. These specific recommendations include:

- Physical passage impediment at Martin dam;
- Effects of flow regime on migration (e.g., flow-related passage barriers at shoals) for each alternative;
- Effects of flow regime on migration cues for both alternatives (i.e., do daily peaks mask migration cues for any species);
- Effects of project-related water quality impacts to migration; and effects on any known mussel species which use migrating fishes as a host during its reproductive cycle.

Again, Alabama Power responded to this request by stating that this study is not designed to assess project impacts. Our intent in providing this list of characteristics is to help inform the literature review / expert interview process. WWF contends that answers to these questions are needed for USFWS and NMFS to make reasoned decisions with respect to their Federal Power Act Section 18 obligations. Moreover, answers to these questions are needed for fulfilling relicensing application requirements directed under 18 CFR Section 4.51(f)(3)(iv).

WWF recommended that APC include a procedure to conduct interviews or workshops with species experts for any target migratory species for which established literature (published or gray) is not available. APC revised their study plan to include a procedure to document personal communications. WWF's comment is not so much focused on documenting the phone calls or meeting communications; instead, WWF's comment is about having APC commit to seeking out that expertise for any migratory species that has no or little written information. Along these lines, we suggest adding a sentence in item 2) of the Proposed Methodology that describes a commitment to interview experts for any of the identified migratory species that have limited, outdated, or no relevant literature upon which to base a review.

WWF greatly appreciates the list of fishes USFWS submitted that APC incorporated into this study plan. As we understand, this list will direct the species for which APC will gather information related to fish passage in the Tallapoosa River and its inclusion in this iteration of the study plan helps bring focus to the effort. WWF requests APC add to this list is the Gulf sturgeon (*Acipenser oxyrinchus desotoi*), a species known to occur in the Alabama River downstream of the Tallapoosa River confluence and historically known to occur in the Tallapoosa. WWF has a strong interest in conservation of this species and has committed funds to support research efforts on this species.

Along with our comments to Study Plan 1, WWF also submitted a stand alone study plan proposal to APC entitled Aquatic Species Connectivity Study Plan. This is not the first time that WWF has submitted this to APC for consideration. WWF first proposed this study plan in October 2007., shortly after APC first described their draft study plans in a series of Martin Issue Group meetings. This proposed study plan is crafted to specifically address the potential for the Martin impoundment to interrupt the ability of small stream fishes to occasionally disperse among nearby tributary streams. In APC's response to this comment, they correctly describe that connectivity is included in Section 2.0 of Study Plan 5 (Rare, Threatened and Endangered Species Surveys). Study Plan 5, however, only includes surveys for rare, threatened and endangered (RTE) species and these surveys will only occur in tributary river reaches immediately upstream of reservoir influence. While these surveys may document the occurrence of protected fish or mollusk populations in adjacent or nearby tributaries, it will not assess potential impact from interrupted connectivity. The study WWF is proposing attempts to establish expected genetic differences among adjacent tributary streams that flow into flowing sections of the Tallapoosa and compares those against the actual genetic differences among adjacent tributary fish populations that flow into the Martin impoundment. Large differences between expected and actual genetic differences would then be discussed as a possible impact that could be mitigated with an active program that moves a small number of

priority species between adjacent streams - replicating the gene flow of the Pre-Project environment. WWF does not know how such a potential impact could be documented without this approach, but is open to having a discussion specifically about this issue.

3. Study Plan 2

WWF commented that the presence or absence of aquatic macrophytic vegetation should be included as a survey site characteristic in selecting survey sites. APC responded that aquatic vegetation at Lake Martin is a non-issue at this time and went on to assert that "the study sites will be as similar as possible including slope, soil type and aquatic vegetation (or lack thereof)." We note that the revised study plan submitted by Alabama Power on 18 March does not include vegetation explicitly as a characteristic in their selection of replicate study sites. WWF understands that the sites will be selected in the dry during the winter pool level and the presence of aquatic vegetation will be difficult if not impossible to forecast. However, if some sites have vegetation nearby while other sites do not, this could strongly impact the results of the fish collection surveys. To the extent possible, WWF strongly recommends that selected sites should be consistent with respect to this habitat parameter.

WWF recommended that the benthic macroinvertebrate study sites straddle the winter pool level and that survey crews sample fishes in the fall in addition to the spring. APC's response deferred these decisions to the technical experts at ADCNR and Auburn University. This is certainly a reasonable response; the individuals consulted in the development of this study plan know these resources and Martin impoundment. We request, however, that APC forward the comments made by WWF to the specific technical staff as input to the study design. This request is true to the spirit of collaborative study design development. WWF believes both of our recommendations would make for a more robust evaluation of these habitat features and deserve consideration by the technical experts.

4. Study Plan 3

WWF again points to the relevant sections of 18 CFR Section 4.51(f)(3)(i) related to relicensing application requirements. The guidelines for the report on fish, wildlife, and botanical resources states that the application must include a "description of the fish, wildlife, and botanical resources of the project and its vicinity, and of downstream areas affected by the project ..." WWF believes that Study Plan 3 successfully meets this threshold with respect to fishes and mollusks. However, Federal guidance continues to ask for "a description of any anticipated *continuing impact* on fish, wildlife, and botanical resources of continued operation of the project ..." (emphasis added) in 18 CFR Section 4.51(f)(3)(iv). APC's study plan will not characterize the impacts of the continued operation of the Martin Project on fish or mollusk resources in the Tallapoosa River immediately downstream of Martin Dam or in the reaches of the Tallapoosa River downstream of Thurlow Dam that appear to be affected by Martin Peaking operations. Rather, Study Plan 3 proposes to describe the resulting effect of these impacts in terms of current fishes and mollusks present, without examining the actual impacts and the mechanisms by which Martin operations potentially affect fishes and mollusks. The difficulty in

this latter approach is that, without knowing what the fish and mollusks distribution and relative abundance estimates are without Martin operations, it is extremely difficult to assess *what* project operations are actually having an impact and *how* those operations are affecting aquatic resources. Peaking operations at Martin Dam result in relatively rapid, high amplitude stage fluctuations on a nearly daily basis throughout the year. At any time, these rapid, large river stage fluctuations could strand fishes, particularly benthic fishes and juveniles (that frequently orient to shorelines). During spawning periods, many fishes lay eggs that sink to the bottom of the stream and attach to the substrate in riffles and shoals. These habitats may have very large areas that area affected by fluctuating flows, leaving active nests or incubating eggs susceptible to changing river stage.

WWF proposed a series of questions in our initial comments related to Paddlefish (*Polyodon spathula*) to demonstrate the sorts of analyses that would lead to a description of Martin Dam operations' continuing impacts. APC responded that they will have discussions with ADCNR regarding the Paddlefish fishery and potential enhancements related to operational flexibility. The thrust of WWF's initial assertion is that similar conservations between APC and ADCNR, USFWS, and other technical experts, tailored to the species of interest and the ways in which that species may be impacted by Martin Dam or operations, are needed for *all species* found in the Martin tailrace and Tallapoosa River downstream of Thurlow Dam, particularly RTE and Alabama Priority Species, commercially or recreationally important species, and locally rare or Tallapoosa / Mobile endemics. By limiting conversations with ADCNR and other fish management entities, APC is missing a range of potential impacts and opportunities for enhancement to a number of priority fish, mollusk, and crayfish species.

5. Study Plan 5

WWF requested that the rare, threatened and endangered species surveys outlined in Study Plan 5 include appropriate survey methods and documentation of fishes that serve as hosts to RTE mussel species. These surveys should be conducted in all reaches where RTE mussels are known or thought to occur. APC's response to this recommendation was related to the sampling sites where crews will conduct surveys. We reiterate here that our request in this instance is not about where sampling is conducted, but rather to expand the target species to include RTE mussel fish hosts. The fish species that act as hosts to the glochidial stage for these mussels are an essential part of each species' life history. In essence, they are a habitat requirement. Some of the mussel species have very specific fish hosts. The presence and status of fish host populations in the vicinity of mussel populations is a critical evaluation component for these species.

6. Study Plan 7

WWF requested that APC incorporate inventories of vegetation (botanical resources) and wildlife as parts of Study Plan 7 (Wildlife Management Program). APC responded that they will develop the information necessary to manage wildlife and timber resources with ADCNR. WWF offers two perspectives on this response:

(1) we believe that wildlife and botanical resource inventories within the Project boundary and along the reaches of the Tallapoosa River affected by Project operations is necessary to provide a "description of the fish, wildlife, and botanical resources of the project and its vicinity, and of downstream areas affected by the project ..." as required by 18 CFR Section 4.51(f)(3)(iv); and
(2) it seems necessary that a wildlife management plan would require an inventory of some sort upon which to base management decisions. Without a good understanding of the plants and animals found in an area, it is possible to develop management targets and activities that help some species and unintentionally harm others.

The management plan should document all the potential effects of its activities and the developers of this plan will not be able to make these determinations without a solid understanding of the small and large mammals, birds, reptiles, amphibians, and plants that occur within the planning boundaries. WWF notes here that such inventories do not need to be field intensive efforts; much good information can be collected through discussions with local birding organizations, ADCNR, USFWS, and research institutions in the area (university faculty or other research institutions). This information can be supplemented with limited field surveys to fill in identified faunal, seasonal, or regional gaps.

7. Study Plan 8

WWF requested that APC extend the geographic scope of this study to include the Tallapoosa River downstream of Thurlow Dam to the mouth. The peaking operations at Martin Dam clearly affect river stage in the Tallapoosa throughout its length downstream of the dam (see WWF's previous letters). This operational pattern may influence water quality conditions throughout the course of the day as flows and river stage rise and fall. A description of the continuing effects of operations on water quality conditions is required under 18 CFR Section 4.51(f)(2)(ii), which states the applicant must provide "a *description of existing water quality in the project impoundment and downstream water affected by the project* and the applicable water quality standards and stream segment classifications" (emphasis added).

WWF requested that the Baseline Water Quality study report include current water quality conditions in the Tallapoosa River downstream of Thurlow that are affected by peaking operations at Martin Dam and water quality information during periods of both generation and non-generation. APC responded that data collection and presentation will include what is necessary to complete the requirements for the Clean Water Act Section 401 Water Quality Certification. We understand the need to collect information sufficient to apply for the Water Quality Certification. This would include the collection and presentation of data specifically demonstrating water quality compliance with Alabama Department of Environmental Management (ADEM) standards. In most cases, these data are sufficient to meet the 18 CFR Section 4.51(f)(2)(ii) guidance for relicensing applications, which states the applicant must provide "a *description of existing water quality in the project impoundment and downstream water affected by the project* and the applicable water quality standards and stream segment classifications" (emphasis added). As some interpret Alabama's water quality regulations, there

is not a threshold dissolved oxygen concentration during periods of non-generation. In this instance, by only collecting and presenting information to conform to ADEM standards, APC would fall short of fully describing the existing water quality conditions in the waters downstream of the Martin Dam during periods of non-generation. Certainly the act of not passing flow through a hydroelectric facility should be considered part of that Project's operation. This cessation of flow has the potential to affect water quality conditions, dissolved oxygen in particular, and the aquatic animals that rely on water quality. Our comment, however, does not solely relate to dissolved oxygen during periods of non-generation. WWF also believes that APC should assess whether or not peaking hydroelectric operations impact water temperatures (particularly during summer) and turbidity (particularly during up and down ramping). To accomplish both of these requests, APC would take temperature and turbidity measurements at different locations along the Tallapoosa River (some of the turbidity sampling stations should be associated with active erosion areas and others should be far from active erosion areas) and relate recorded turbidity and temperature measurements with river stage. This information is important in describing existing and potential continuing impacts of the Project to water quality conditions in the Project affected area. Moreover, WWF further contends that these effects could influence habitat quality conditions for certain aquatic animals that reside, or otherwise would reside, in these reaches of the Tallapoosa River. Therefore, APC's assessment of these water quality parameters has ties to the descriptions referenced in our comments to Study Plans 3 and 5 above.

WWF recommended a few methods for APC to consider employing when presenting water quality data in their reports and license application. APC responded that they will use methods recommended by ADEM. Just to clarify, the methods APC used to display water quality data in the Pre-Application Document (filed June 5, 2008) does not provide the reader a sense of how water quality parameters fluctuate over the course of time (at a daily, weekly, monthly, or seasonal scale). Certainly overall averages and ranges are important statistics. However, aquatic animals experience water quality in an instantaneous fashion. Extreme high temperatures or low dissolved oxygen concentrations over just the part of a day may negatively impact aquatic animals in ways that cannot be predicted by presenting average or partial daily information. We restate that APC should present water quality data in a manner that shows the distribution of results and provides more detail with respect to when measures were collected and under what conditions (depth, reservoir level, river stage, date, time, etc.).

8. Study Plan 10

WWF requested that the geographic scope of this study extend to the Tallapoosa River from Thurlow Dam to the mouth. APC responded that they would focus the study on erosion hot spots within the reservoir area as that is the erosion affected by the project. WWF agrees that the Martin Project may contribute to erosion within the reservoir area. However, we disagree that Martin Project operations do not contribute to erosion in the Tallapoosa River downstream of Martin Dam. WWF thinks that the answer to this question is unknown at this time and can only be answered if assessment of the Martin Project effect on erosion in the Tallapoosa River downstream of Thurlow Dam is included in this study plan.

APC is correct in asserting that erosion is a natural process that occurs even in unimpacted hydrologic systems. Erosion frequently occurs along rivers during high flow events, either from increased erosive forces of fast moving water, or as a result of stream bank soils, saturated during high flows, sloughing into the river as river stage recedes. WWF contends that it is possible the frequent fluctuations of the Tallapoosa River from Martin peaking operations may contribute to erosion beyond what would naturally occur along the Tallapoosa River and is therefore an effect of project operations. Stage fluctuations at the Milstead gage are frequently in the 3 to 5 foot range (extending up to as much as 9 feet on occasion) and occur five or so times per week during spring, summer, and part of the fall seasons. Increased erosion along the Tallapoosa River due to Martin operations is possible and could contribute to short term turbidity impacts and decreased habitat quality or reproductive success for fishes, mollusks, crayfishes, and other aquatic animals. WWF believes there is a nexus between Martin operations and erosion along the Tallapoosa River downstream of Martin Dam and that some evaluation or assessment of the potential for fluctuating flows to contribute to unnaturally high erosion along these reaches is warranted.

WWF made a comment related to examining headcutting in tributary mouths as well as examining reservoir erosion hotspots. APC responded that they did not understand our definition of headcutting in this instance. WWF is referring to erosion in tributary/reservoir confluence areas during the winter period. Fine sediments are deposited and may accumulate where streams enter the Martin impoundment during the summer, when reservoir levels are high. If these deposits are substantial in volume, the tributary will "cut through" these accumulated sediments during the winter when reservoir levels are as much as 10-feet lower. This yearly erosion may constitute some erosion related impact to either water quality or fish passage from reservoir to stream as the stream headcuts through the deposited sediment. We are asking Alabama Power to examine these tributary mouths during the winter to describe and evaluate the circumstances related to this potential impact.

WWF requested that APC more clearly describe how they will make determinations related to the causes of erosion hot spots around Lake Martin. APC responded that they will utilize their certified erosion expert to perform the surveys. WWF requests APC have their certified erosion expert describe their technique and insert this into the methodology portion of the study plan so the information is available to all stakeholders.

9. Study Plan 12

WWF made a general comment related to the need for a better description of how the proposed alternatives for the winter rule curve would affect water management at the Martin Project in terms of seasonal and daily patterns. Clearly the summer pool will persist longer into the fall and return to full pool will occur earlier in the spring each year. This change, in itself, constitutes a seasonal shift within the reservoir environment. Moreover, the amount of water to release in the fall and "store" in the spring is reduced by about half if the winter drawdown changes from 10 to 5 feet. These changes can be accommodated in many ways and APC

responded by stating that it is too early to assert that seasonal or daily operational patterns would likely change. WWF would like to clarify our position by stating that one way to accommodate the proposed rule curve changes *could* be through seasonal or daily operational changes (although we are relatively sure something is going to have to change rather dramatically in terms of timing or duration/magnitude of flow releases if winter rule curve decreases from 10-feet to 5-feet). In any circumstance, APC should provide clear descriptions of how water management under each alternative differs from the current circumstance and incorporate study elements to assess the impacts of such changes so that stakeholders can understand how resources of interest might be affected and discussions can occur during issue group meetings. If those changes involve shifting seasonal or daily operational patterns from the current situation, APC must assess the potential for impact to the river environment both in the tailrace and in the Tallapoosa River downstream of Thurlow Dam to the mouth of the Tallapoosa River.

10. Study Plan 12(c)

WWF recommended that APC assess how water quality conditions would change under the proposed alternative operations in special circumstances like during drought conditions. APC responded that "the goal of this study is to provide ADEM with sufficient data to examine the potential effects on water quality as a result of changing the winter rule curve elevation and/or extending the duration of the summer pool …". We agree with this assertion and point out that drought conditions periodically occur and to the extant that the proposed operations enhance or negatively impact water quality in droughts under the proposed alternative operations compared to current operations should be an important consideration for everyone with a stake in Martin's reservoir and the Tallapoosa River. We restate that APC should examine how the alternative operational proposals might affect water quality during drought and extended drought conditions.

11. Study Plan 12 (d)

WWF recommended that APC employ a water quality model as a way to assess the potentially complicated effects of proposed, alternate operations to water quality in the Martin reservoir. APC responded that they believe the analysis described in this study plan is sufficient to determine the changes. APC's proposed analysis is to assess the probability of water quality change, but does not reference the direction of water quality change. WWF reiterates here that water quality changes in reservoirs can be very complicated, especially reservoirs as long and with as many large embayments as Martin. WWF further asserts that an understanding of the probability of water quality changes due to alternate operations does not seem sufficient for stakeholders to make informed assessments. The analysis must go further to ascribe a direction and relative magnitude of water quality parameter changes under alternate operational schemes.

12. Study Plan 12(e)

WWF commented that this study should include an analysis of how potentially changed water quality parameters in the Tallapoosa River downstream of Thurlow Dam (resulting from proposed, alternate operational changes at Martin Dam) might affect RTE species. APC responded that study plan 12(e) is focused on effects to RTE species and that information from other studies will be synthesized with RTE information in the biological assessment. WWF concurs with APC that a biological assessment is an appropriate place to consolidate the range of potential enhancements and negative effects that may impact RTE species. However, we note that APC has not proposed to examine the potential effects of proposed, alternate operations to water quality in the Tallapoosa River downstream of Thurlow Dam in study plan 12(c). If APC does not examine the possible effects to water quality in these downstream reaches of the Tallapoosa, then information will not be available to incorporate into the biological assessment. It may be that the proposed, alternate operations do not have an effect on water quality, but no one will know one way or the other if APC does not look at this issue in the course of completing study 12 (c).

We appreciate the continued efforts by the many parties working on this process and look forward to continued dialogue with APC staff, other stakeholders, and the Federal Energy Regulatory Commission in this relicensing process.

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Document Content(s)