

MEETING NOTES

**ALABAMA POWER COMPANY
MARTIN RELICENSING
Modeling Workshop**

**APC Headquarters
Birmingham, AL
February 10, 2009**

ATTENDEES:

*See attached list

ACTION ITEMS:

- Revise Study Plan 12 a
- Stakeholder comments on study plans should be submitted to FERC by February 16, 2009.
- Alabama Power will file revised study plans with FERC by March 18, 2009.
- Final study plans will be approved by the FERC by April 17, 2009.

MEETING NOTES:

These notes summarize the major discussion items and are not intended to be a transcript or analysis of the meeting. All slide presentations are attached as separate PDFs.

Jim Crew (Alabama Power) began by welcoming all the participants and briefly discussing the purpose of the modeling workshop. Following the January 10, 2009, Study Plan meeting, Alabama Power determined that providing a modeling workshop may facilitate understanding and support for the hydrologic models that will be used in the Martin relicensing process. The workshop focused on review and discussion of the assumptions, methodology, and the applicable data sets for the proposed models. Monte TerHaar (FERC) noted that Alabama Power has developed a couple operating alternatives to evaluate. He asked if Alabama Power had a final date for all stakeholder alternatives to be submitted to Alabama Power. Jim Crew responded that Alabama Power has been working with stakeholders for 18 months to develop those alternatives and that all alternatives known from stakeholders are represented for analysis in the existing Study Plan 12(a).

Jim Crew turned the workshop over to Ashley McVicar (Alabama Power) and Maurice James (Water Resource Consulting, LLC).

Overview of the Models (Ashley McVicar)

Ashley's presentation was an overview of the information that would be presented and discussed during the workshop.

- Review of Models to be used (HEC-River Analysis System (HEC-RAS), HEC-Reservoir System Simulation program (HEC-ResSim), HEC-Flood Frequency Analysis (HEC-FFA) and HEC-Statistical Software Package (HEC-SSP))

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- Alabama Power's Project Routing Model
- Alabama Power's Hydro Energy Model
- Flow charts of the interaction of the models

James Hathorn (USACE) asked Ashley to describe the time step for the routing model; Ashley responded that the time step is hourly.

Data Gathering (Maurice James)

In this presentation, Maurice presented the following information for discussion:

- Standard info – types, sources and reliability of data
- ACT data set
- special Flood Events (1990 and 2003)
- Topography

Maurice explained that the long term data set was comprised of average daily flows from 1939-2001 (62 years of daily flows at key gaging stations).

James (USACE) and Charles Stover (Alabama Power) discussed the status of the USACE's work on the 2006 water data set. James explained that it is almost final; however, the 2007 data, which includes the 2007 exceptional drought, would take much longer to finalize and they have not published a scheduled release date for the 2007 data.

James also asked Maurice if the bottom profile (thalweg) was specifically done for the modeling study. Maurice responded affirmatively.

Jesse Cunningham (LMHOB0) asked if Maurice could include rule curve elevations for both 1990 and 2003 graphs. Ashley noted that her presentation later in the afternoon includes that information.

Charles Stover (Alabama Power) provided a very brief update on the status of the downstream flood litigation. In summary, the Supreme Court decided in favor of Alabama Power in the downstream cotton farmers' lawsuit. Charles Stover explained that the court found that Alabama Power had operated the projects according to operational guidelines. Charles Borden (LMRA) asked that in light of that decision, could the potential downstream flooding below Thurlow be negated or at least de-emphasized in the Martin relicensing process. Charles (Alabama Power) said that FERC and the USACE still need to be convinced that proposed changes in operations won't adversely

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impact downstream users and property owners and these potential impacts must be compared to the baseline, or existing, conditions.

Jesse Cunningham (LMHOB0) asked who holds the data set and whether it is available to the public. James Hathorn (USACE) responded that the USACE holds the smoothed data set and it is available to the public.

Hydrologic Analysis (Maurice James)

Maurice discussed the Flood Frequency Analysis, special flood events and representative flood, including:

- Unsmoothed, unimpaired data set
- 100 year flood – monthly frequency analysis
- Use of Special Flood Events
- Design Flood - what is it and how did APC develop this

There was a lot of discussion on flood events and the Probable Maximum Flood (PMF). James Hathorn (USACE) told Alabama Power that the USACE would like to see an analysis of the PMF once Alabama Power and the stakeholders narrow down to the preferred winter pool level.

Simulation Modeling & APC Routing Models (Maurice James and Ashley McVicar)

Maurice and Ashley presented the following information:

- HEC-RAS modeling
- APC Operational Spreadsheet models
- Elevation – Volume – Area
- Project Routing Model
- Model calibration – peak and volume
- Model Demonstration – show the spreadsheet
- Drought curve

James Hathorn (USACE) asked Ashley McVicar (Alabama Power) whether Alabama Power was planning to have an induced surcharge curve at Martin. Ashley responded that Alabama Power would not be able to have an induced surcharge curve at Martin due to the physical limitations of raising gates at Martin and the fact that there is no area to which to surcharge because Alabama Power only owns up to elevation 491 msl.

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In response to discussion and questions on drought curves, Ashley also talked about the drought contingency curve and that at present, Alabama Power is working with the state of Alabama to develop a Statewide Drought Management Plan. The content of that Plan would be incorporated into the Martin relicensing.

HEC-ResSim (Stacey Graham)

Stacey Graham (Alabama Power) presented the HEC-ResSim model focusing on the application and features of the model. At present, Alabama Power has the data for Martin in the daily average format but it would need to be on an hourly basis in order to accurately model operating alternatives. Stacey noted that moving from daily to hourly data in the model was extremely time consuming and that it would not be possible to do in time to complete this FERC study. At some point in the future, the data will be in the hourly time step for Martin.

Hydro Energy Model (Manly Appleby)

Manly Appleby (Alabama Power) presented Alabama Power's Hydro Energy Model. Manly discussed the history of the model, how it is used at Alabama Power, its use in previous Alabama Power relicensing proceedings (Yates and Thurlow, Coosa and Warrior Projects), the model features, inputs and outputs, and its proprietary status.

Monte TerHaar (FERC) noted that FERC accepts these models on a case-by-case basis and affirmed that FERC has accepted the model in Yates and Thurlow and in the Coosa/Warrior Relicensing proceedings. He also stated that FERC would independently evaluate the numbers that Alabama Power provides. Monte said that FERC is seeing more challenges on the appropriateness of a particular number (\$value) from stakeholders. He encouraged Alabama Power to consider the potential value to stakeholders when determining what economic information to make available to the public/stakeholders in the Martin relicensing process.

Jim Crew (Alabama Power) asked Monte to comment on the level of detail in the revised study plans. Monte prefers the revised study plan (12 a) to contain less detail compared to the information presented at today's meeting.

Jesse Cunningham (LMHOB0) asked if Alabama Power can change the existing conservation pool (currently 45 ft below full pool). James Hathorn (USACE) noted that in an extreme drought, the USACE will use whatever useable storage is necessary to meet the critical needs of the system.

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Monte TerHaar (FERC) responded to LMRA's question on how FERC and the USACE will balance recreation and power generation. James Hathorn (USACE) noted that its interests are flood control, navigation and water quality, but that the USACE will not have jurisdiction to mandate specific requirements. Monte noted that given the political emphasis on renewable energy, there is a great deal of emphasis placed on projects providing renewable energy. Having said that, Monte noted that it is not a dollar for dollar comparison and that it was important to document the benefits of various enhancement measures and operating alternatives on the resources (generation and non-generation resources) affected.

Stacey Graham (Alabama Power) and James Hathorn (USACE) discussed the boundary for the study effort with regard to navigation, which currently ends at the confluence of the Coosa/Tallapoosa River. James asked Stacey about including the Coosa River into the model. Stacey commented that she has incorporated a calculation that the USACE previously developed for the Tallapoosa contribution to the 4640 cfs navigation flow in the Alabama River.

Jim Crew (Alabama Power) adjourned the meeting and reminded the participants that comments on the study plans are due on February 16, 2009.

