



## E10 Project Releases: Smith Tailrace Working Group

### Meeting Summary: APC Corporate Headquarters, Birmingham

Wednesday, February 19, 2003

Warrior and Coosa Projects Combined

[www.southerncompany.com/alpower/hydro](http://www.southerncompany.com/alpower/hydro)

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Draft 03-01-03

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- Narrow down list of potential mussel restoration sites  
Malcolm Pierson & Jeff Garner                      March 2003

### Meeting Notes

*These notes summarize the major items discussed during the meeting and are not intended to be a verbatim transcript or analysis of the meeting.*

Jim Crew began the meeting by distributing copies of the draft October 7, 2002 meeting summary, draft Smith Tailrace Working Group Work Plan, trout telemetry study reports, revised macroinvertebrate study report, and a draft list of candidate streams for mussel relocation/stocking.

Members were asked if they had any comments on the October 7, 2002 meeting summary. No comments were received and the meeting summary will be finalized and placed on the website.

Bill Sim reviewed creel survey and tailrace use data for Smith and presented a map depicting angler use in the Smith, Thurlow, and Jordan tailwaters. In general, the data indicated angler use of the Smith tailwater was comparable to or greater than use at the Thurlow and Jordan tailwaters. Additionally, the data demonstrated a wider geographic distribution of users at Smith compared to the Thurlow and Jordan tailwaters.

John Eisenbarth distributed copies of an angler survey that he developed and has been asking his customers to complete over the last year. John also provided a question-by-question breakdown of the survey results.

Stephanie White noted that surveillance information collected by security personnel at Smith Dam may be useful in describing use of the tailrace fishing platform. Jason agreed to contact Bill Campbell (E/PRO) to obtain this data.

Malcolm Pierson stated that he and Jeff Garner drafted a list of potential stream sites for mussel restoration. Malcolm explained that he and Jeff will be visiting some of these sites in an effort to narrow down the list. Malcolm noted that one site on the draft list, New River, has already been ruled out and should be stricken from the list. Henry reminded Malcolm that Jason Moak was working with E/PRO to develop a GIS layer of dams in Alabama that may prove helpful to Malcolm and Jeff. Jason agreed to provide the GIS information to Malcolm once it is available.

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Henry asked the group to provide comments on the draft Work Plan. The Working Group members generally agreed with the methodology presented in the Work Plan. One member pointed out the potential erosion impacts caused by project releases. Henry noted that erosion in the Smith tailrace is currently being addressed by the E2 Erosion IAG. Other members suggested the group focus on in-stream habitat enhancements, such as installation of additional Fish Attraction Devices (FADs). Another member suggested that the group's immediate focus should be on project releases and the potential to enhance the trout population.

Stan Cook suggested the group determine the feasibility of supporting a naturally reproducing trout population. Henry noted that even if natural reproduction of trout were possible, recruitment could be greatly outpaced by angling pressure. Henry agreed to do some research and pull together information on trout production. If it is determined that a naturally reproducing trout population is not feasible for the Smith tailwater, Stan suggested the group drop back to look at enhancement of a Put-Grow-Take fishery.

Henry ended the meeting by asking the group to review the information that was distributed at the start of the meeting. Henry asked the group to provide additional comments on the Work Plan and to provide suggestions for potential habitat enhancements for trout.

### **Conclusion**

The next meeting of the Smith Tailrace Working Group will held on March 19, 2003 in Birmingham. All meeting materials for the Smith Tailrace Working Group will be placed on the website at <http://www.southerncompany.com/alpower/hydro/home>.

**E10 – Smith Tailrace Working Group  
Meeting Summary: June 18, 2003**

**Final 08-22-03**

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**Meeting Location – APC Corporate Headquarters – Birmingham, AL**

Warrior Project

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**Work Group Members**

Jim Crew - APC  
John Eisenbarth – TU  
Malcolm Pierson - APC

Stan Cook - ADCNR  
Patric Harper – USFWS  
Henry Mealing - KA

Steve Rider - ADCNR  
Jim Lochamy - APC  
Andy Sheppard - APC

**Other Attendees**

Jerry Moss - ADCNR  
Larry Goldman - USFWS  
Ashley McVicar - APC  
Bob Allen - ACOE

Ed Tyberghein - APC  
Jim Moore - ADEM  
Mike Akridge - APC  
Amber Houston - ACOE

Ralph Thompson - USFWS  
Corey Wigginton - USFWS  
Marci Jackson - ACOE

**By phone:** Kelly Schaeffer– KA, Steve Kartalia - FERC

**Action Items**

- Prepare and distribute meeting notes and summary to team members.  
Jim Crew: Due – July 14, 2003
- Prepare a study plan outlining method to assess hydrology of tailrace  
Jim Crew, Henry Mealing: Due – July 21, 2003
- Provide turbine log data showing generation and tailrace elevation during a 24-hour period of typical operations  
Andy Sheppard: Due – July 21, 2003
- Try to get a Tennessee Wildlife Resource Agency (TWRA) trout biologist to assist the Working Group  
Stan Cook: Due – July 17, 2003

**Meeting Notes**

*These notes summarize the major items discussed during the meeting and are not intended to be a transcript or analysis of the meeting.*

**Introductions and IAG Background**

Jim Crew summarized the group's progress to date. Henry Mealing distributed copies of the February meeting notes for final comment. Henry reviewed action items from the previous meeting. Henry noted that tailrace fishing platform use data is currently being assembled by the Recreation IAGs. Malcolm Pierson noted that he and Jeff Garner are continuing to evaluate potential sites for mussel relocation in the Warrior Basin.

**Access Restrictions**

It was noted that the Recreation IAG is considering recommendations that would eliminate or severely reduce angler access to the first quarter-mile of the tailrace between Smith Dam and the Birmingham Water Works (BWW). This recommendation was based on safety concerns for wading fishermen. Jim Moore noted that the BWW is currently developing a bio-terrorism plan that may affect access near this area as well. The IAG agreed that it should coordinate with the Recreation IAG to ensure the consistency of recommendations in this area.

## **E10 – Smith Tailrace Working Group Meeting Summary: June 18, 2003**

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### **Minimum Flows and Releases**

Jim Crew informed the group that he obtained data regarding the amount of flow coming into the river from the drainage weir. Jim indicated that the flow from the weir ranges from 0.8 to 1.3 cfs, averaging around 1 cfs. Henry noted that even during periods of non-generation, there appears to be some flow in the river in addition to the flow contributed by the weir.

There was some discussion about flow releases from Smith Dam. APC noted that the turbines are only operated at efficient gate (72%) to avoid the severe cavitation problems associated with operating at lower gates. This gate setting corresponds to approximately 5,000 cfs. Some members suggested the possibility of using pumps and/or siphons to pass a minimum flow.

There was some discussion about how long it takes the tailrace to return to normal water levels after generation events. Henry suggested that the Group gather some site specific data to better understand the hydrology of the river below Smith dam during generation, post-generation, and extended periods of non-generation. Andy Sheppard indicated that APC could coordinate some flow pulses from Smith to allow the Group to observe these conditions, potentially in July or August. Andy also noted that turbine logs contain data on tailrace elevations and generation.

Discussions about the magnitude of potential minimum flows focused on ADCNR's desire to manage the tailrace so it resembles a trout stream. John Eisenbarth noted that above certain flows, the best fishing areas become unsafe or too deep to wade. Stan Cook suggested that the group contact a TWRA trout biologist to help the group assess the situation and develop some strategies.

### **Conclusion**

The next meeting of the E10 Smith Tailrace Working Group will be determined at a later date. APC will send meeting materials including an agenda and work products as well as meeting logistics to members in advance of the next meeting.

Smith Tailrace Working Group documents and materials are posted on the Internet at [www.southerncompany.com/alpower/hydro](http://www.southerncompany.com/alpower/hydro).

**E10 – Smith Tailrace Working Group  
Meeting Summary: August 22, 2003**

**Final 12-01-03**

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**Meeting Location – Lewis Smith Dam Powerhouse and Tailrace**

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**Work Group Members**

Jim Crew – APC  
Patric Harper - USFWS  
John Eisenbarth – TU  
Andy Sheppard – APC

Stan Cook – ADCNR  
Jim Lochamy – APC  
Steve Rider – ADCNR  
Henry Mealing – KA

Keith Floyd – ADCNR  
Steve Kartalia – FERC  
Jeff Powell – USFWS  
Rick Allums – APC

**Other Attendees**

Jason Moak – KA  
Keith Bryant – APC  
Bill Campbell – EPRO

Barry Lovett - APC  
Bill Dillahunty – APC  
Frank Fiss – TWRA

Karen Jordan – TU  
Len Simmons – APC

**Action Items**

- Post June 18, 2003 meeting notes on website  
Jason Moak: Due – August 30, 2003
- Prepare and distribute meeting summary to working group members  
Jim Crew: Due – September 5, 2003
- Schedule a joint meeting with the Smith Recreation IAG  
Jim Crew: Due – September 5, 2003

**Meeting Notes**

*These notes summarize the major items discussed during the meeting and are not intended to be a transcript or analysis of the meeting.*

The Group met at the Smith Powerhouse for the start of the meeting where Jim Crew reviewed the Working Group's progress to date. Jim noted that at the last meeting, Working Group members identified the need to better understand the hydrology of the Smith tailrace. Jim pointed out that Frank Fiss, a trout & stream specialist with the Tennessee Wildlife Resources Agency, was present to view the tailrace and provide some suggestions on potential ways to enhance the fishery.

Jim and Bill Sim explained that APC had performed some field measurements of the existing baseflow in the tailrace. The measurements were taken just upstream of the Birmingham Water Works (BWW) pumping station on weekday mornings following a previous day of normal generation. Jim explained that these measurements indicated the baseflow under these conditions was around 35 cfs.

Jim explained that APC had performed a thorough review of ways (siphon, pumps, release structures, etc.) to provide a "fishing" flow below Smith Dam. As a result of this analysis, APC investigated the possibility of using an existing penstock drain valve as a viable option. APC tested this option by opening the drain valve and measuring the resulting flow at the same transect used to for the base-flow measurements. The results of that test showed that the drain pipe released a flow of 91.5 cfs under the test conditions. Jim also pointed out that the water released from the drain pipe appeared to be highly aerated, and had a dissolved oxygen concentration of approximately 11 mg/l.

## **E10 – Smith Tailrace Working Group Meeting Summary: August 22, 2003**

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Jim Lochamy provided two maps showing the results of APC's trout tracking study to help orient the group on trout use of the tailwater. The Group then proceeded to the Smith tailrace to view the existing baseflow after approximately 12 hours of non-generation. Group members measured the existing baseflow (30.5 cfs) and then the penstock drain valve was opened at the dam. While waiting for the drain valve flow to stabilize, several group members launched canoes at the powerhouse and boated the tailrace downstream to the Highway 69 bridge to observe the available tailrace habitats.

After the drain valve flow had stabilized (approximately 2-hours), Group members again measured the tailrace flow at approximately 143.3 cfs. Subtracting the baseflow of 30.5 cfs, showed that the drain valve passed a flow of approximately 112.8 cfs. Also, the dissolved oxygen concentration in the water released from the drain valve was measured at 9 mg/L.

Several Group members expressed a desire to better understand typical hydro operations at Smith and the associated flows in the tailrace during generation, post-generation on weekdays, and non-generation periods on weekends. Andy Sheppard explained that, typically, generation at Smith occurs only on weekdays. During wet years, generation may also occur on weekends. Based on current observations, water levels in the tailrace tend to stabilize roughly 12 hours after generation. John Eisenbarth noted that, even on weekends during non-generation, water levels and flows remain fairly constant.

For the final flow test, the Group reconvened on the banks of the tailrace just upstream of the BWW pumping station to observe how water levels rise as generation begins.

Frank Fiss provided some initial impressions of the tailrace, including the following:

- The Smith tailrace has similarities to other tailrace trout fisheries in the region,
- Flows provided by the penstock drain valve appear adequate, and any additional flow would impact fishermen's ability to wade-fish,
- Material available onsite (*e.g.*, trees) could easily be used to create velocity refuges and stabilize eroding banks,
- Peaking flows are high, but their effects could be mitigated with velocity refuges, and
- Improved access for anglers is needed.

Stan Cook agreed with Frank's suggestions and pointed out that the most important remaining aspect relative to the Smith tailrace appears to be access. Stan suggested that the Group hold a joint meeting with the Smith Recreation IAG to further explore the issue of access. Jim Crew and Barry Lovett agreed to schedule and coordinate this meeting.

### **Conclusion**

APC will try to schedule the next meeting of the Smith Tailrace Working Group in September 2003. APC will send meeting materials including an agenda and work products as well as meeting logistics to members in advance of the next meeting.

Working Group documents and materials are posted on the Internet at [www.southerncompany.com/alpower/hydro](http://www.southerncompany.com/alpower/hydro).



## **E10 Project Releases: Smith Tailrace Working Group**

### **Meeting Summary: Alabama Power Headquarters, Birmingham, AL Wednesday, September 17, 2003**

Draft 09-22-03

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*These notes summarize the major items discussed during the meeting and are not intended to be a verbatim transcript or analysis of the meeting.*

#### **Introduction**

Jim and Henry reviewed the meeting agenda and asked for comments on the meeting notes from their previous meeting – 8-22-03. Bill Sim noted that he had been left off the Attendee list. With this addition, the meeting notes will be finalized and posted to APC's hydro relicensing website.

#### **Fishing Access downstream of the Birmingham Water Intake**

The group noted that recreational access sites may be developed in a "phased" approach with Phase 1 as early development and Phase 2 as later development.

#### **Phase 1 Recreation Development**

Based on field observations, the Smith Recreation IAG identified several areas in the Smith tailrace between the Smith dam and Hwy 69 bridge that would be suitable for improved recreation access (Figure 1.). APC proposed to improve some existing Smith tailrace recreation access down to the flood zone (and possibly into the flood zone) at 0.2, 0.4 and 0.8 miles above the Hwy 69 bridge. The selection of these locations was based on existing access and fishing use observed in the tailwater (foot paths, parking, and lateral access to the tailrace).

Suggested improvements at these sites include:

- off-road parking,
- foot path (i.e. steps, stairs, developed trails),
- clearing of underbrush,
- signage, and
- addition of habitat and/or velocity refuge structures (i.e. Fish Attraction Devices, boulders, or logs)

All three sites would be improved at the same time to decrease construction costs for mobilization.

#### **Phase 2 Recreation Development**

Also identified were access areas that might be improved or developed at a later date during the license. These include a potential ADA fishing access site at 1.8 miles above the Hwy 69 bridge and an erosion improvement site at 1.6 miles above the Hwy 69 bridge.

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Additional discussions identified the possible need of fishing access improvements downstream of the Hwy 69 bridge. This access area would be located further downstream (possibly at the confluence with Mulberry Cr.) and would provide bank fishing for several warm water species of fish.

#### **Fishing Access upstream of the Birmingham Water Intake**

Due to safety concerns and potential liabilities, APC has not prepared any plans to provide formal recreation access above the Birmingham Water Intake (BWI). Currently, APC will neither encourage nor discourage recreation access above the BWI. In addition, APC will continue its efforts to consult with the Birmingham Water Board concerning any proposed limitation of recreation access to the tailrace area as part of "terrorist protection".

In accord with field observations, several group members suggested a few habitat improvements for this area: habitat structures and velocity refuge areas (boulders and logs), redistributed channel boulders, and bank protections (logs).

Keith Bryant stated that the Smith Recreation IAG will meet in October, but has not planned to address tailrace recreation access. Representatives from the STWG would like to provide input when the Smith Recreation IAG discussions on recreation access are held.

#### **Recreation - Fishing Flows**

Jim reported that APC is continuing to identify modifications for the penstock drain valve to provide downstream flow releases. The current valve will need to be replaced and motorized for best use. APC will continue to investigate options and will keep the Work Group informed.

The group then discussed potential downstream flow release schedules from the valve.

Bill Sim presented the following downstream flow release schedule:

- fishing flow during daylight hours only (dawn to 1 hour after dusk)
- fishing flow begins when the tailrace elevation falls below 255.93
- fishing flow is terminated when generation starts
- fishing flow is terminated during drought conditions when reservoir elevation is below the lower rule curve
- fishing flow is terminated when the Birmingham Water Intake is withdrawing

There was considerable discussion of the following topics:

Fishing flows during daylight hours. APC proposes a recreational fishing flow to enhance stocked trout fishing opportunities and experience during the daylight hours. The fishing flow may have little benefit to fish habitat improvement, whereas, habitat improvement

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### **Meeting Summary: Alabama Power Headquarters, Birmingham, AL Wednesday, September 17, 2003**

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would come through habitat modifications (boulders and logs) as recommended by Frank Fiss at the August 22, 2003 STWG meeting. The group had a lengthy discussion of recreation flows versus a continuous minimum flow especially for weekends and extended outage periods. ADCNR stated that their policy for minimum flows was "continuous". If the fishing flow is more related to enhancement of a recreation or fishing experience, then it should be identified as a recreation flow. This clarification would provide consistency with ADCNR's current minimum flow policy. Stan noted that a recreation flow would not improve mussel populations in the tailrace and other considerations to improve mussel populations or habitat either on site or off site should be included in our plan.

Use elevation 255.93 as the "trigger" for releasing the fishing flow. Bill explained that this tailrace elevation coincides with reaching the "base flow" in the tailrace. Some group members suggested using a slightly higher elevation trigger to prevent reaching the lowest baseflow. Possibly an elevation trigger of 256 would be more appropriate.

The fishing flow would not be released when the turbines are operating. All group members agreed with this item.

The fishing flow will be reduced or stopped during drought periods. When the lake elevation goes below the lower rule curve during drought periods the fishing flow would be stopped. Several group members wanted to discuss other strategies for drought periods other than reducing the fishing flow.

The fishing flow would be curtailed when the BWI withdraws water. Upon further internal discussion following the STWG meeting, APC withdraws this portion of their proposal. Operation of the BWI should not influence the release of the fishing flow.

### **Conclusion**

The next meeting of the Weiss Bypass Working Group will be determined at a later date and announced via email two weeks in advance. All meeting materials for the Working Group will be placed on the website at <http://www.southerncompany.com/alpower/hydro/home>.



**E-10 – Smith Tailrace Working Group  
Meeting Summary: November 17, 2003**

Revision 11-30-03

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**Meeting Location – APC Birmingham Corporate Office**

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**Work Group Members**

Jim Crew	APC	Steve Rider	ADCNR	Jeff Powell	USFWS
Henry Mealing	KA	Stan Cook	ADCNR	Jim Lochamy	APC
Bill Sim	APC	Malcolm Pierson	APC	Keith Floyd	ADCNR
John Eisenbarth	TU				

**Other Attendees**

Kelly Schaeffer	KA	Andy Sheppard	APC	Ed Tyberghein	APC
Jason Moak	KA	Jon Hornsby	ADCNR	Danny Minor	APC
Alan Peeples	APC	Mike Akridge	APC	Rick Allums	APC
Barry Lovett	APC	Bill Campbell	EPRO	Shane Boring	KA

**Action Items**

- ADCNR and the Recreation IAG continue to discuss recreation access in the Smith Tailrace and tailwater areas.  
Barry Lovett and Stan Cook Due – April 2004
- APC to develop a Drought Contingency Plan to present at the next Smith Tailrace Working Group Meeting  
Jim Crew Due – February 2004
- Develop Draft Mussel Restoration Plan  
Smith Tailrace Working Group Due – August 2004

**Meeting Notes**

*These notes summarize the major items discussed during the meeting and are not intended to be a transcript or analysis of the meeting.*

The Working Group began the meeting by discussing potential recreation access in the Smith Tailrace and tailwater areas.

**Recreation access north of the Birmingham Water Works (BWW).**

- Development of recreation access in the area north of the BWW presents multiple safety and security problems for APC and for the BWW.
- The BWW is currently working on a terrorist prevention plan for the intake area and upstream of the intake. They are concerned about boats and people being able to access the intake area.
- APC is concerned about the legal issue of “encouraging” fishing in the tailrace area due to rapidly changing water levels.
- ADCNR prefers that some type of enhanced fisherman access be developed above the BWW.

**Recreation access south of the BWW**

- The working group has discussed and agreed on some of the recreation access points south of the BWW.
- This includes three access sites between the Hwy 69 bridge and the BWW.

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- An additional site South of 69 bridge was discussed but has not been agreed upon. This site should be coordinated with representatives of Cullman and Walker Counties.
- The Recreation IAG and the ADCNR will continue to discuss and finalize the location and types of potential recreation access site improvements

The group then began discussion of minimum flows in the tailrace.

### Valve replacement

Danny Minor presented APC's findings regarding the installation of a new automated valve to pass flows in the tailrace. The current valves create flow velocities in excess of 14 ft/sec in the piping which can actually erode the pipe and compromise the safety of the structure. APC designed an "orifice valve" that would decrease the flow velocity to less than 14 ft/sec and could be used on a long term basis. APC plans to install an orifice valve on each of the penstocks. Each orifice valve is calculated to yield a flow of approximately 23 to 25 cfs with a cumulative flow of approximately 46 to 50 cfs.

Jim Crew handed out a "Smith Tailrace - Revised Minimum Flow Proposal" that had the following bullets:

- Tailrace base flow of about 35 cfs
- Minimum flow release is approximately 50 cfs (25 cfs from each penstock)
- Release begins when tailrace drops to 85 cfs (at the corresponding elevation measured at powerhouse)
- Release is stopped when generation begins
- Release is modified when drought conditions exist (specific criteria to be determined and agreed upon)

APC prepared this revised minimum flow proposal to address concerns that the ADCNR raised in their September 23, 2003 letter to Jim Crew. Basically, the minimum flow proposal represents a compromise that would provide continuous minimum flows in the tailrace – even during typical unit outages. APC caveats this proposal with the need to develop some type of Drought Contingency Plan that will be part of the proposal. The group agreed to discuss this Drought Contingency Plan at the next meeting.

### Potential Mussel Restoration sites

Malcolm gave the group an update of his and Jeff Garner's review of potential restoration sites for snails and mussels. They investigated 14 streams but only 2 appeared to be realistic restoration sites.

Clear Creek	Winston Co.
Blackwater Creek	Winston – Walker Cos.
Blevins Creek	Winston – Cullman Cos.
Rock Creek	Winston Co.
Crooked Creek	Cullman Co.
Duck River	Cullman Co.
Broglen Creek	Cullman Co.
<b>Upper Locust Fork</b>	<b>Blount – Marshall Cos. (potential site)</b>
Slab Creek	Marshall Co.
Lost Creek	Walker Co.
Wolf Creek	Walker Co.
Gurley Creek	Jefferson Co.
<b>Blackburn Fork</b>	<b>Blount Co. (potential site)</b>
North River	Fayette – Tuscaloosa Cos.

John Eisenbarth suggested considering Blue Springs as an additional site to review

The next steps would include developing a restoration plan that would address the following:

- Determine how much restoration is enough – which species, how many locations, level of effort expended.

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- Perform detailed surveys of the two (maybe three) streams for restoration.
- Do we need outside experts involved.

### **Conclusions**

APC will try to schedule the next meeting of the Smith Tailrace Working Group in February 2004. APC will send meeting materials including an agenda and work products as well as meeting logistics to members in advance of the next meeting.

Working Group documents and materials are posted on the internet at [www.southerncompany.com/alpower/hydro](http://www.southerncompany.com/alpower/hydro).