

600 18th Street North
Birmingham, AL 35203-8180

205/257-4070



June 29, 2010

Project No. 2165
Warrior River Project
Article 408 Correspondence
by electronic filing

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

Dear Ms. Bose:

On March 31, 2010, the Commission issued a new license to Alabama Power Company (APC) for the Warrior River Project, FERC Project No. 2165. In accordance with Article 408 of the new license, APC is required to develop and file with the Commission for approval, a plan and installation schedule for two penstock release valves to provide the minimum flow required in Article 407 for the Smith development. On May 10, 2010, APC sent a letter to the U.S. Fish and Wildlife Service, the Alabama Department of Environmental Management, and the Alabama Department of Conservation and Natural Resources, as directed by the license, requesting comments or concurrence on the plan and schedule. APC allowed 30 days for the agencies to comment or to make recommendations as required by the article. Concurrence responses were received from each of the agencies and are attached. The Smith Dam Flow Release Plan and schedule are contained in the attached letter to the agencies.

Please contact me at 205-257-4070 if you need additional information.

Sincerely,

A handwritten signature in black ink that reads "Jason Powers". The signature is written in a cursive style with a large, looped initial "J".

Jason Powers
APC Hydro Services
Alabama Power Company

JEP/jep
Enclosures

cc: Mr. Bill Pearson, U.S. Fish and Wildlife Service
Mr. Lance LeFleur, Alabama Department of Environmental Management
Mr. Barnett Lawley, Alabama Department of Conservation and Natural Resources

Letter to the Agencies

600 North 18th Street
P.O. Box 2641
Birmingham, AL 35291-0380

205-257-4140

May 10, 2010



Mr. Bill Pearson – Field Supervisor
U.S. Department of the Interior
Fish and Wildlife Service
1208-B Main Street
Daphne, Alabama 36526

M. Barnett Lawley - Commissioner
Alabama Department of Conservation
and Natural Resources
64 North Union Street
Montgomery, Alabama 36130-1901

Lance R. LeFleur - Director
Alabama Department of Environmental Management
Post Office Box 301463
Montgomery, AL 36130-1463

Subject: Warrior Project License Article 408 - *Smith Dam Flow Release Plan*

Gentlemen:

On March 31, 2010 the Federal Energy Regulatory Commission (Commission) issued an “Order Issuing New License,” (License) for the Warrior Project, FERC Project No. 2165, which includes the Lewis Smith Dam development (Smith Dam). As part of this new License under Article 408, within 90 days from the date of license (June 29, 2010), Alabama Power Company (APC or Licensee), is required to develop and file with the Commission for approval, a final plan and installation schedule for the two penstock release valves to provide the minimum flow required in Article 407 for the Smith development.

This installation will be consistent with Article 407 - *Minimum Flow at Smith Dam*, of the Warrior Project License which states “The licensee shall release a minimum flow of 50 cubic feet per second from the Smith dam by passing water through two automated valves that will be installed in the penstocks. The minimum flow release shall begin upon completion of installation of the release valves required in Article 408. The minimum flow shall be provided during periods of non-generation when the tailrace water elevation drops to 256.2 feet mean sea level.”

Subsequent to filing the Warrior Project application for relicense in 2005 and in anticipation of a minimum flow requirement at Smith Dam as proposed in the Warrior application, Licensee began planning and design of a minimum flow system, and then initiated installation of the major components for the minimum flow system during the year in 2009. While the physical installation is essentially complete, there is much work left to complete the minimum flow project. The final installation schedule for the two penstock release valves includes the physical equipment installation at the Smith Dam as well as the testing, evaluation, and tuning of the associated equipment and controls.

To achieve a minimum flow at the Smith Dam requires a sophisticated scheme and system of piping, valves and automated controls. This consists of penetrating the unit penstocks to provide a source for the minimum flow, and tying that source into the existing penstock drain systems which discharge to the draft tube leading to the tailrace. Figure 1 in the Appendix shows the basic configuration of the minimum flow piping, valves and liquid jet exhaustor (Eductor). Figures 2 and 3 of the Appendix show side and end view representations of the installation, while Figure 4 shows a portion of the actual installation on Unit 1, focusing on the Eductor.

It is estimated that each of the 2 units will be able to provide approximately 25cfs minimum flow, for a total plant minimum flow release of approximately 50 cfs. Minimum flow testing for the two units will be done by individual unit as well as together. Flow testing and verification will be performed through direct measurement using an Acoustic Doppler Current Profiler (ADCP), which is accepted and widely used by the United States Geological Survey (USGS). In the unlikely event that results with the ADCP are deemed inconclusive or inconsistent, flow tests using dye will be investigated. To ensure minimum flow effects of head due to reservoir elevations are considered, flow testing will occur when the reservoir is at its minimum pool, which normally occurs during the October to November timeframe.

The results of the flow tests will be used to determine/define the normal amount of flow that will be released into the tailrace when the minimum flow systems are operating, either together or individually.

Following is the final plan and installation schedule:

System Component or Action to be Completed	Completion Date
Install necessary piping, valves, controls	December 31, 2010
Testing/Checkout/Tuning	
In-Service Normal Operations	January 1, 2011

In addition to the minimum flow system, Licensee included considerations in the installation that are aimed at improving dissolved oxygen (DO) in the minimum flow releases by incorporating aeration into the system, helping ensure that state water quality standards outlined in the Smith Dam Water Quality Certificate will be met downstream of the Smith dam during the minimum flow releases. This will be accomplished by installation of a very large water jet exhauster, the Eductor, in-line of the minimum flow piping, just downstream of the control valve and penetration at the penstock (see description above). The Eductor is used to suck atmospheric air from its source point, which is inside the dam at the location of the Eductor, utilizing a high pressure motive liquid, which in this case is the water used for the minimum flow that flows under head pressure directly from the penstock. Motive liquid (the minimum flow water) is discharged at a high velocity through a specialized nozzle inside the Eductor and sprayed through the body and venturi throat and tail, creating a vacuum which pulls the atmospheric air into the motive liquid. It is this mechanism and process which aerates the minimum flow, using the head pressure of the water in the penstock, the physics of the Eductor and the atmospheric air in the vicinity of the Eductor. Referring to Figure 3, Isolation Valve C for the Eductor air intake will be operated in conjunction with the minimum flow valves so that any time the minimum flow system is called on (as outlined in the plan), the minimum flow will be aerated.

The Plan which will ultimately be implemented once installation is complete was filed with the Warrior relicense application and approved by FERC:

- APC will install one “minimum flow valve” on each penstock drain at the Smith powerhouse to allow for flow releases into the Smith tailrace during non-generation periods.
- The valves are estimated to have a discharge capacity of approximately 25 cubic feet per second (cfs) each, and a combined flow of 50 cfs when both valves are open. The valves may pass slightly more or less flow than listed here and may vary with lake elevation.
- The valves will be opened when the tailrace elevation drops to a water surface elevation 256.2 msl. The valves will be closed when generation begins and will remain closed until the tailrace again recedes to the 256.2 msl water surface elevation. This scenario will provide flows during non-peaking periods including both night and weekend periods.
- During annual turbine inspection and repair events, there may be periods when only one or neither valve will be available to operate. Safety requirements specify that each respective penstock be drained prior to turbine inspection. Therefore, minimum flows will be reduced or eliminated during these events. APC will make a good faith effort to limit the duration of these events.


To accomplish this plan, Licensee will implement a fully automated system using programmable logic controllers (PLC) to control motor operated valves at the primary trip points identified in the plan. Simplified, when the controls system receives the signal that the tailrace elevation has receded to elevation 256.2, the controls system will send a signal to open the minimum flow valves on both units. Referring to Figure 2 in the Appendix, the

sequence of valves opening to start the minimum flow is: Isolation Valve B opens first, then, Isolation valve A opens establishing flow, then Isolation valve C opens beginning the air entrainment. Valve operations occur in close succession. Alternately, when the unit(s) are called to begin generating, the controls system will send the signal to close the minimum flow valve(s) and Eductor(s) air inlet. Closing sequence is opposite of opening sequence. There are appropriate alarms built into the control logic to ensure the valves operate as they called to do.

Note that this license Article 408 is strictly for the plan and schedule for installation of the valves and does not attempt to address compliance with the minimum flow. That issue will be addressed in a subsequent filing for Article 409 - *Project Operations and Flow Monitoring Plan*, and your offices will be consulted during the process of developing that plan as well.

In accordance with the requirements in Article 408, Licensee must file the plan with FERC by June 29, 2010. As such, we request that you review the plan and notify us of your concurrence in writing or by email within 30 days of the date of this letter. If during the review of the plan you have any questions or concerns that need to be addressed prior to providing your concurrence, please contact Mr. Alan L. Peeples of this office at (205) 257-1401.

Sincerely,



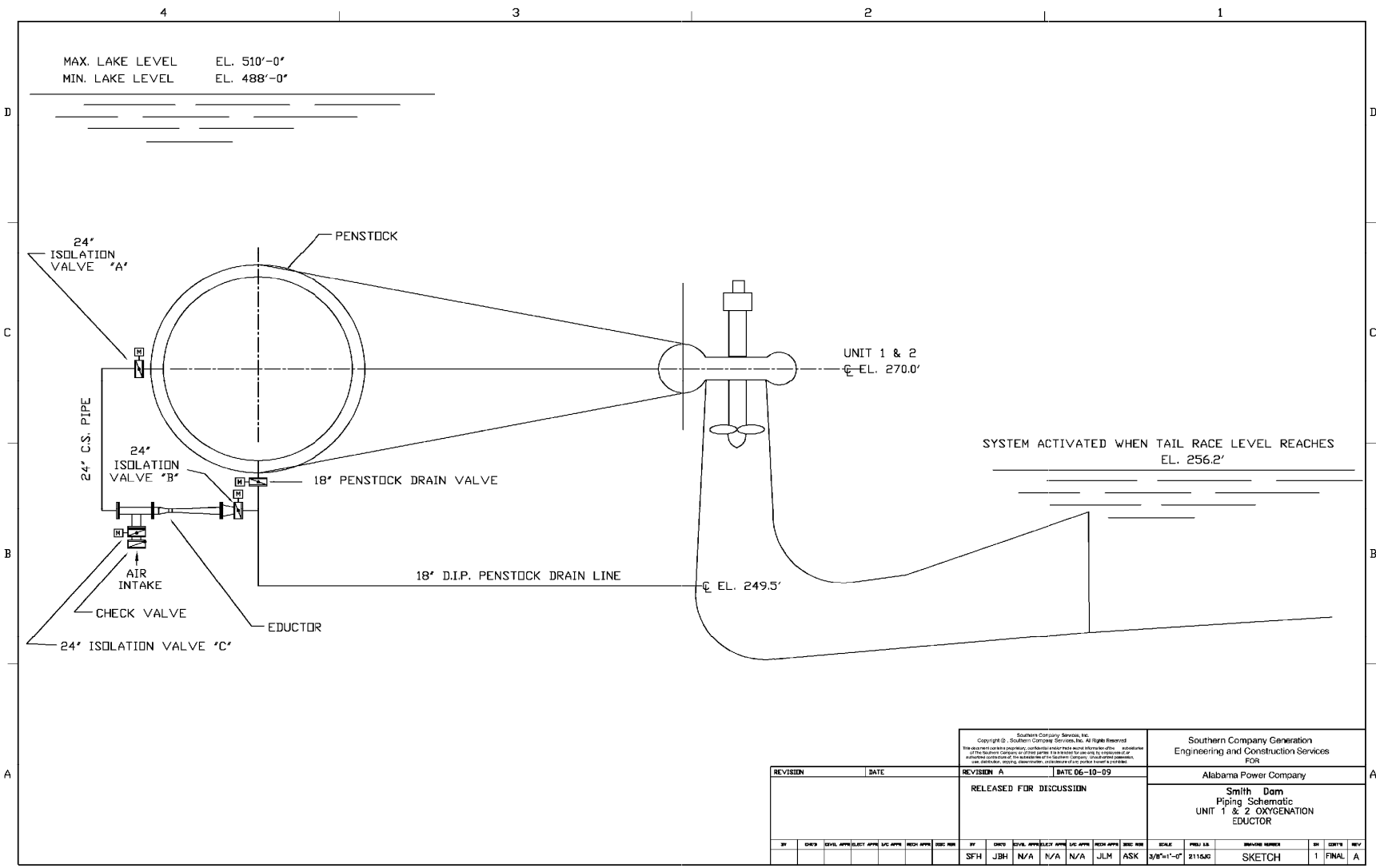
John. D. Grogan, Manager
Environmental Compliance

cc: Mr. Jeff Powell - USFWS
Mr. Stan Cook - ADCNR
Mr. Lynn Sisk - ADEM

bcc: Mr. Larry Gay
Mr. Len Simmons
Mr. Danny Minor
Mr. Charles Stover
Mr. Bill Dykes
Mr. Alan Peeples
Mr. Jim Crew

APPENDIX

Figure 1 Basic System Schematic



<small>Southern Company Services, Inc. Copyright © Southern Company Services, Inc. All Rights Reserved. This document is the property of Southern Company Services, Inc. and is not to be distributed outside of the Southern Company. It is to be used only for the purposes of the project for which it was prepared. All other rights are reserved.</small>										Southern Company Generation Engineering and Construction Services FOR Alabama Power Company						
REVISION DATE REVISION A DATE 06-10-09 RELEASED FOR DISCUSSION					Smith Dam Piping Schematic UNIT 1 & 2 OXYGENATION EDUCTOR											
BY	CHKD	DEVL	APPROV	ELECT	APPR	LOC	APPR	RECH	APPR	DESC	REV	SCALE	PROJ. NO.	DRAWING NUMBER	REV.	DATE
SFH	JBH	N/A	N/A	N/A	JLM	ASK						3/8"=1'-0"	211540	SKETCH	1	FINAL

Figure 2
Side View

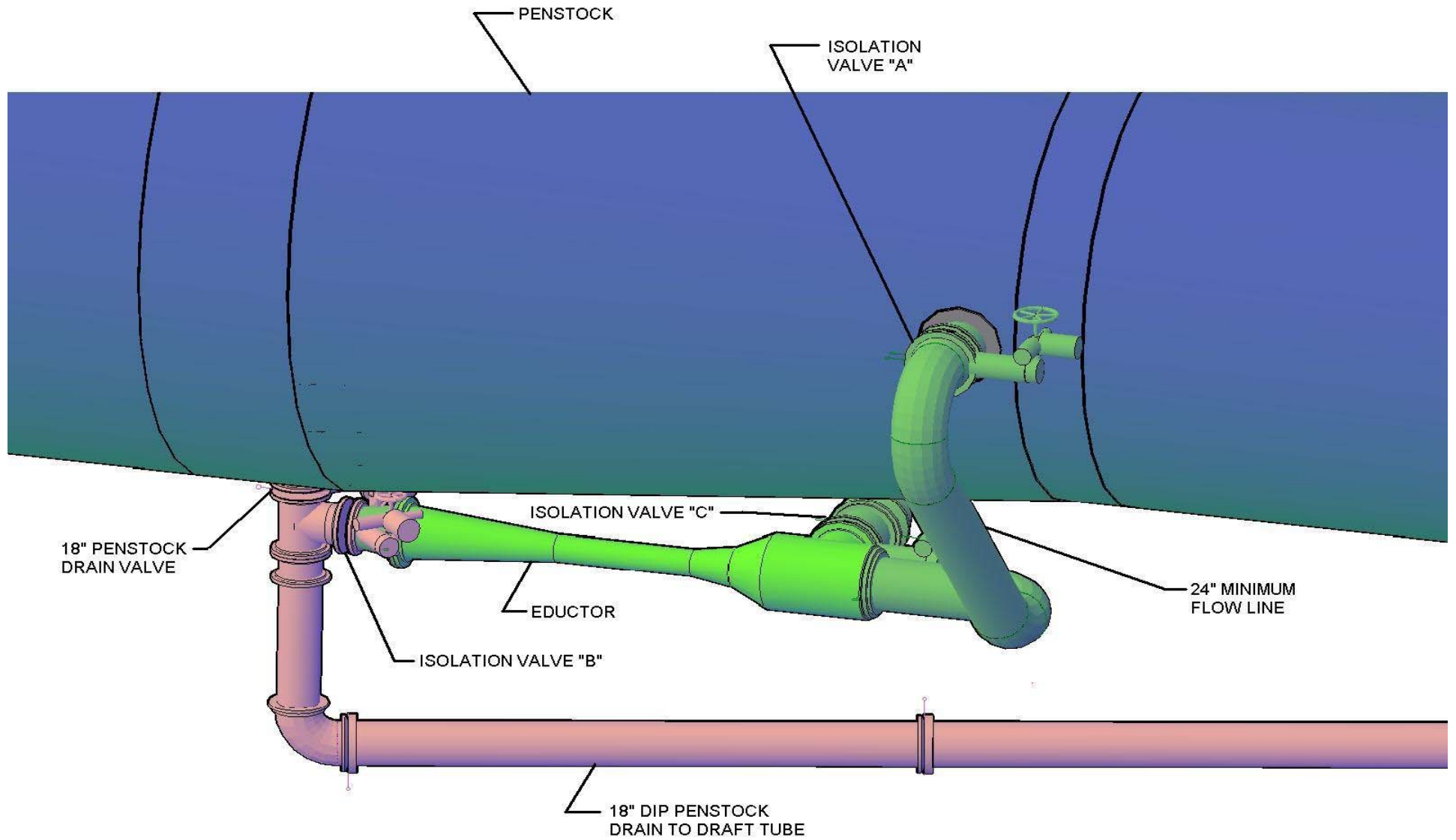


Figure 3
End View

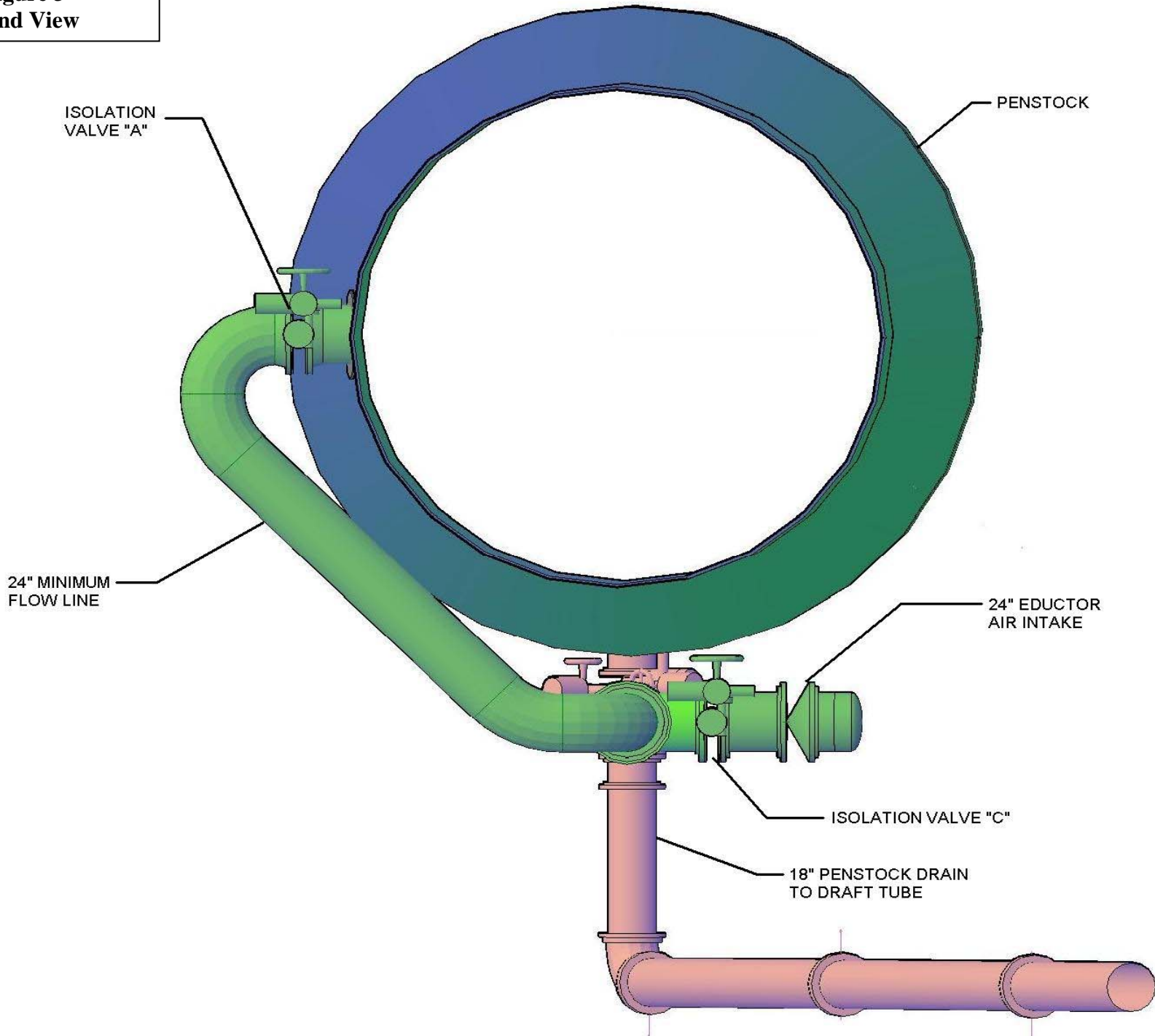
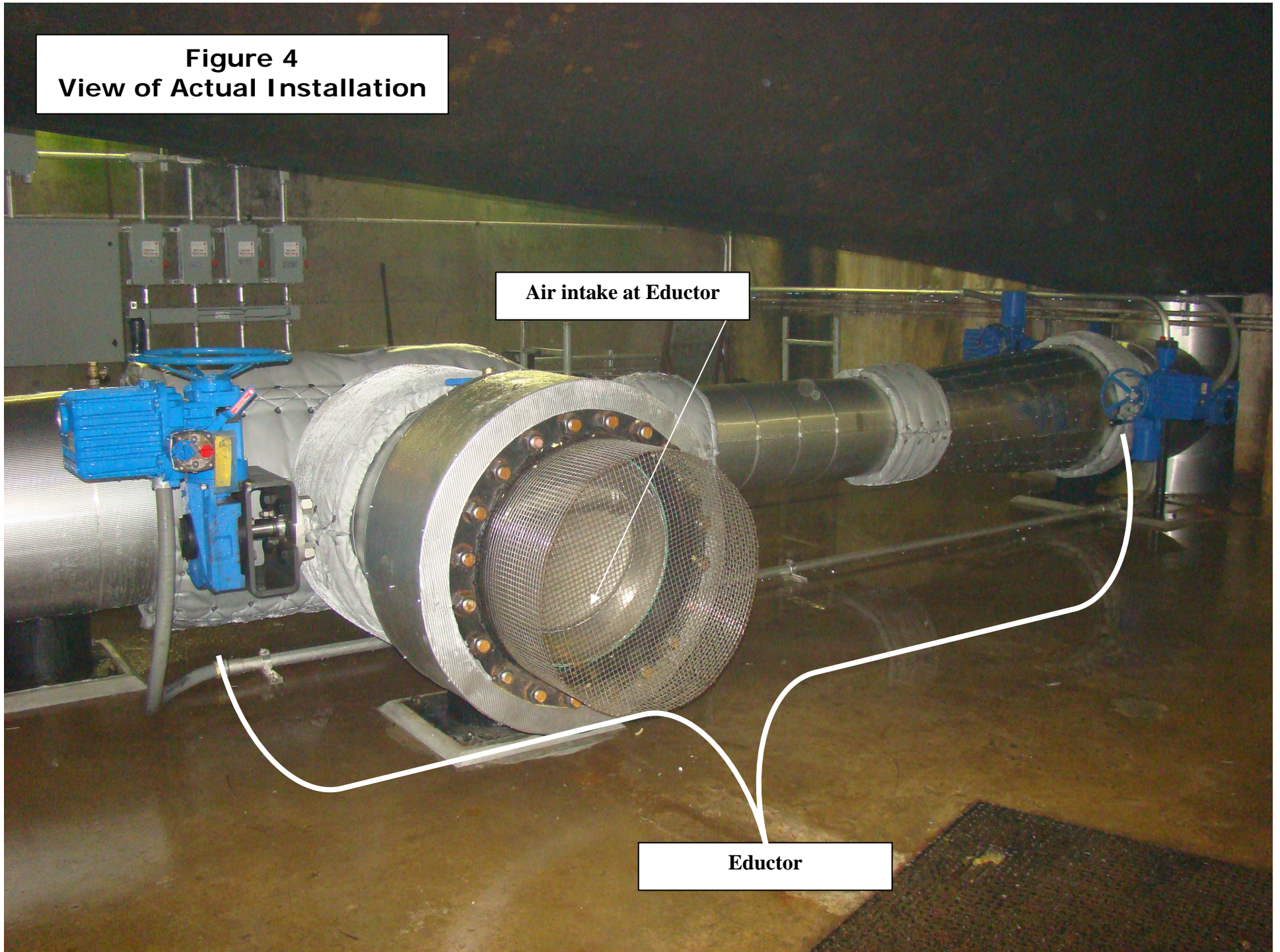


Figure 4
View of Actual Installation

Air intake at Eductor

Eductor



Responses from the Agencies



United States Department of the Interior

FISH AND WILDLIFE SERVICE
1208-B Main Street
Daphne, Alabama 36526

JUN 09 2010

IN REPLY REFER TO:
2007-FA-0139

Mr. John D. Grogan
600 North 18th Street
P.O. Box 2641
Birmingham, Alabama 35291-0380

Dear Mr. Grogan:

This letter is in response to your May 10, 2010, letter requesting written concurrence on the Smith Dam Flow Release Plan according to Articles 407 and 408 in the new license (FERC Project No. 2165). We appreciate the opportunity to review the plan and concur with the steps and schedule you have outlined in your letter.

If you have need additional information, please contact Jeff Powell at (251) 441-5858.

Sincerely,

Dan Everson
Deputy Field Supervisor
Alabama Ecological Services Field office

Powers, Jason

From: Peeples, Alan L.
Sent: Friday, June 18, 2010 8:05 AM
To: Powers, Jason
Subject: FW: Warrior Project License Article 408 - Smith Dam Flow Release Plan

From: Peeples, Alan L.
Sent: Monday, June 14, 2010 3:32 PM
To: Lovett, Barry K.
Subject: FW: Warrior Project License Article 408 - Smith Dam Flow Release Plan

the last one. I think this is ready to be filed with FERC now.

From: Grogan, John D.
Sent: Monday, June 14, 2010 3:30 PM
To: Peeples, Alan L.
Cc: Stover, Charles M.; Segars-Anderegg, Angela; Crew, James F.
Subject: FW: Warrior Project License Article 408 - Smith Dam Flow Release Plan

Letter from ADEM.

John Grogan

Alabama Power Company
PO Box 2641
Birmingham, AL 35291-0830
Office: 205-257-4140
Cell: 205-288-4140
Linc: 1*15*4140

From: Sisk, Lynn [<mailto:LS@adem.state.al.us>]
Sent: Monday, June 14, 2010 3:29 PM
To: Grogan, John D.
Cc: Jeff.Powell@fws.gov; stan.cook@dcnr.alabama.gov; McIndoe, Mac; Leslie, Fred
Subject: RE: Warrior Project License Article 408 - Smith Dam Flow Release Plan

John,

ADEM has reviewed the Smith Dam Flow Release Plan submitted on May 10, 2010. The plan states that the design includes considerations to ensure that state water quality standards will be met downstream of Smith Dam during the minimum flow releases. Therefore, the Department has no objections to the plan as outlined, provided the discharge from the minimum flow release valve is monitored in accordance with the Warrior River Project Section 401 Water Quality Certification issued by ADEM on July 1, 2005, to ensure compliance with Alabama's dissolved oxygen criterion.

Lynn Sisk
Chief, Water Quality Branch
Water Division, ADEM
(334) 271-7826

Powers, Jason

From: Grogan, John D.
Sent: Monday, June 14, 2010 1:12 PM
To: Peeples, Alan L.
Cc: Stover, Charles M.; Segars-Anderegg, Angela; Crew, James F.
Subject: Fw: Warrior Project License Article 408 - Smith Dam Flow Release Plan
Attachments: Article 408 Consultation Final.doc; Picture (Metafile) 1.jpg

FYI

John Grogan
Alabama Power Co
Office 205-257-4140
Cell 205-288-4140
Linc 1*15*4140

From: Greene, Chris <Chris.Greene@dcnr.alabama.gov>
To: Grogan, John D.
Cc: Cook, Stan <Stan.Cook@dcnr.alabama.gov>
Sent: Mon Jun 14 11:29:11 2010
Subject: FW: Warrior Project License Article 408 - Smith Dam Flow Release Plan

John,

The ADCNR - Fisheries Section (per Chief Stan Cook) has reviewed Alabama Power Company's **Warrior Project License Article 408 - Smith Dam Flow Release Plan** and concurs with the proposed course of action.

J. Chris Greene
Environmental Affairs Supervisor
Alabama Wildlife & Freshwater Fisheries
64 N. Union Street, Suite 658
Montgomery, AL 36130
(334) 353-0210
Chris.Greene@dcnr.alabama.gov

-----Original Message-----

From: Cook, Stan
Sent: Monday, June 14, 2010 10:17 AM
To: Greene, Chris
Subject: FW: Warrior Project License Article 408 - Smith Dam Flow Release Plan

Stan Cook
Chief of Fisheries
Alabama's Division of Wildlife and Freshwater Fisheries
Fisheries Section
64 North Union St
Suite 551
Montgomery, Alabama 36130
334.242.3471

-----Original Message-----

From: Grogan, John D. [mailto:JDGROGAN@southernco.com]

6/29/2010

Sent: Monday, June 14, 2010 10:04 AM

To: Lawley, M. Barnett; Bill_Pearson@fws.gov; llefleur@adem.state.al.us

Cc: Jeff Powell (Jeff_Powell@fws.gov); Cook, Stan; Lynn Sisk

Subject: Warrior Project License Article 408 - Smith Dam Flow Release Plan

On May 10, 2010 I transmitted Alabama Power Company's (APC) Warrior Project License Article 408 - Smith Dam Flow Release Plan (see attachment) to you for your agency's review and concurrence. APC is required by FERC to coordinate with your agency concerning this plan, and thus we need a letter of concurrence from you to include with our filing. You will note in my letter of May 10th that we requested your response within 30 days so that we can meet our June 29th FERC filing deadline.

Please provide me with your concurrence as soon as possible so that we may include your response in our filing with FERC on May 29, 2010. You may respond via email if that is convenient.

If during the review of the plan you have any questions or concerns that need to be addressed prior to providing your concurrence, please contact Mr. Alan L. Peeples of this office at (205) 257-1401.

Alabama Power Company
PO Box 2641
Birmingham, AL 35291-0830
Office: 205-257-4140
Cell: 205-288-4140
Linc: 1*15*4140

6/29/2010