

Ledbetter, Kevin

From: Whiting, David D.
Sent: Monday, March 08, 2010 7:42 AM
To: Ledbetter, Kevin
Cc: Swanson, Cheryl
Subject: FW: Scholz 316(a) and 316(b) comments
Attachments: Scholz 316(a) SCI results_FDEP comments 3-5-10.docx; Scholz 316(a) HD results_FDEP comments 3-5-10.docx; Scholz 316(b) study results_FDEP comments 3-5-10.docx

Morning Kevin,

Please see Cheryl's attached comments on the Scholz Plant 316a and 316b submittals.

Dave

From: Swanson, Cheryl
Sent: Friday, March 05, 2010 2:00 PM
To: Whiting, David D.
Subject: Scholz 316(a) and 316(b) comments

Dave,
Attached are 2 reviews of 316(a) and 1 review of 316(b) documents for Plant Scholz. Please edit as you like then forward to Kevin Ledbetter. NW District has decided to postpone the FY15 for Scholz until summer. Thank you.
Cheryl

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FDEP Biology review (March 5, 2010) of
Gulf Power Company Scholz Electric Generating Plant
“Scholz Stream Condition Index Report” (dated November 2009)

- 1) FDEP Biology was not aware of any plan to perform Stream Condition Index (SCI) sampling for Plant Scholz. It was our understanding that the Hester Dendy study was performed because there was very little habitat in the area. What was the rationale for performing SCI sampling?
- 2) Did Shannon McMorrow, the person who passed the FDEP SCI audit, perform all of the dipnet sweeps? The photos included in the report indicate that this may not be the case.
- 3) Are any of the samplers in pass status for the FDEP Habitat Assessment? It appears that the percent habitat for such a large system may be overestimated. Also, the SCI #2 velocity ranking on the Habitat Assessment (HA) appears to be incorrectly ranked higher than the data indicates on the Phys/Chem form. The Intake Canal HA categories for Habitat Smothering and Artificial Channelization do not appear to complement one another. The same comments apply for the Discharge Canal.
- 4) The report includes three vertical profile measurements (shallow, middle and deep) of the physical parameters dissolved oxygen, pH, temperature and specific conductance in the intake canal, discharge canal, and at the 4 sites in the Apalachicola River. The measurements do not vary much between locations or with depth. Was the facility operating on the day of sampling? Is there any data available that documents the change in water temperature between the time the water enters and leaves the facility or documents the path of a thermal plume in the River?
- 5) The SCI method targets productive habitat however, in large systems, it is possible for discharge plumes to hug one of the banks and not directly affect the other. For upstream/downstream comparisons, the sites selected should have similar conditions except for the variable in question, in this case the thermal influence. This is a large system. From which areas of the river or banks were the habitats sampled? What assurance can be given that the substrates sampled in the Apalachicola River would be under the influence of the thermal plume? Without knowing that the thermal condition was indeed tested, a result of “no difference” has little value.
- 6) The flow measured in the intake canal was 0.09 m/s and the discharge canal was 0.14 m/s. Is this indicative of the facility not operating? If the low flow measured in the intake canal is a consistent condition, this would account for the lowest SCI score in the intake canal. In addition to habitat limitation, higher conductivity water (169-170 μmhos) can be limiting for some taxa and therefore lower the SCI scores. In this case, the actual scores may be less important than the comparison between the scores.
- 7) FDEP would disagree with the statement that *Corbicula manilensis* dominated most of the samples, although it is true that this taxon was abundant in the samples. *Corbicula manilensis* was only the dominant taxon in 3 replicates (Rep 2 of SCI #3 and both replicates of the discharge canal). *Hyalella azteca* was dominant in all other replicates and sites.
- 8) FDEP was surprised to see the identification of *Corbicula manilensis*. This name was used in Heard’s “Identification manual of the freshwater clams of Florida”, however much work has been done since 1979. Please see “Hornbach, D.J. 1992. Life history Traits of a Riverine Population of the Asian Clam *Corbicula fluminea*. American Midland Naturalist 127(2):248-257”.

FDEP Biology's Review (March 5, 2010)

Plant Scholz 316(b) Impingement Mortality Characterization Study

(dated November 2009, received February 10, 2010)

The Plant Scholz Impingement Mortality Characterization Study presents the biological results of:

- Bi-weekly 32 impingement events: 2x month sampling was conducted between March 2006 and February 2007 and 1x month sampling between May 2005 to June 2006 and monthly March to May 2007 and August to October 2007. Five days of diurnal measurements were taken (two 12 hour concurrent collections) during the May 2005 to June 2006 timeframe.
- MACTEC conducted electrofishing quarterly in Apalachicola River and the intake canal in 2006 and again in intake summer 2007. The Fish and Wildlife Commission's electrofishing data from 1984-1993 and 2000-2003 in the Apalachicola River is included.

Comments:

- 1) This study collected 1 full and 1 partial year of impingement data. Flow-weighted fish impingement, although less than 1 fish per million gallons, was higher May through August 2005 than the same period in 2006 and 2007. This reinforces the importance for multiple years of sampling to capture the variation in the data. The data captured a few seasonal pulses in the number of individuals and indicates a lower number of species impinged in the winter. The limited diel sampling shows that more organisms were impinged at night than during the day for all events. The electrofishing survey and the impingement study data show a similar composition of fish. A greater number of the smaller size classes of fish (juveniles) were found in the intake canal and these size classes were the ones that were most often impinged.
- 2) Please provide some clarification regarding the operation of Plant Scholz, which FDEP Biology understood to be intermittent. Figure 4-1 shows great fluctuation in flow for a large portion of the first year of the study, December 2005 and July 2006, but at all other times, including the second year of the study, shows flow to be 130 MGD (full operation). Does this figure accurately represent the variation in and operation schedule of the facility?
- 3) Impingement of hogchoker was highest during high flow in river. Can MACTEC provide any explanation for this correlation?
- 4) At collection, 25% fish and 83% shellfish were alive. Does the facility have a fish return system? Mortality may be less than the impingement numbers indicate but survival cannot be used for 316(b) purposes if the facility does not have a safe and effective way to return impinged organisms to the river.
- 5) The Quality Assurance/Quality Control information was provided and appears acceptable.

It is expected that this study would provide sufficient data to address 316(b) requirements if and when the need arises.

FDEP Biology review (March 5, 2010) of
Gulf Power Company Scholz Electric Generating Plant
“Hester-Dendy Identification and Enumeration Report” (dated November 2009)

The merit of the biological assessment of macroinvertebrates using Hester Dendy samplers performed at the Scholz Plant cannot yet be determined. The Proposed Biological Monitoring Plan states that the “purpose of this investigation is to assure that the thermal discharge from the Scholz Plant is not causing substantial damage or harm to the aquatic life or vegetation...” There is some key information pertaining to the study design, method, and results that was not provided and without it, the report’s interpretation of the data cannot be accurately assessed by FDEP Biology.

- 1) The map provided as part of the Proposed Biological Monitoring Plan does not use the same site names or identify the placement of the Hester-Dendy (HD) samplers in this study. The distances or relationships between the placement of the HDs and the intake canal, discharge canal, and banks of the Apalachicola River are not specified in the report. Please provide site location information. A map would be helpful.
- 2) The report does not include any measures of physical parameters such as dissolved oxygen, pH, temperature, and specific conductance at the 4 sites in the Apalachicola River. What assurance is there that the “test” Hester-Dendys were placed in areas of thermal influence? Is there any data recording the thermal regime to which the HDs were exposed over the study period, even if only at deployment and retrieval? Without such data demonstrating that different thermal conditions were tested, a result of “no difference” has little value.
- 3) The Proposed Biological Monitoring Plan states the HDs will be anchored 1 ft above the streambed in 1.5m of water. What was the actual deployment depth below the surface? This is important for the following reasons.
 - a. First, a 1.5 m deployment depth is beyond the 1 m deployment depth specified in DEP’s Standard Operating Procedures for Biological Communities (DEP-SOP-001/01 FS 7000 General Biological Community Sampling). Second, attachment 1 of the “Scholz Stream Condition Index Report, November 2009” is a hydrograph of this portion of the Apalachicola River and shows a change in gage height of approximately 0.5m over the study period. This suggests that if HDs were anchored, they may have been even deeper for a portion of the deployment. The FDEP SOP provides the option of floating HDs or, if flow regime or potential for vandalism is great, using both floating and anchored. The Department cannot accept data that wasn’t collected according to FDEP Standard Operating Procedures.
 - b. The community that develops on an artificial substrate sampler (HD) is influenced by drift colonization and depth. In areas with little natural habitat, artificial substrate (HD) placement is important in accurately assessing colonization potential and ensuring the data is comparable between sites. Attachment 2 of the “Scholz Stream Condition Index Report, November 2009” report shows secchi depths of 0.75 m to 1.0 m at the SCI locations in the Apalachicola River. Samplers deployed at depths deeper than 1.0 m may not receive adequate light to support the colonization of certain community contributors such as grazing organisms. Samplers deployed at different depths have the potential to bias the comparisons between sites.

- 4) The tables reporting taxonomic data for each location note at the upper right that the numbers are “adjusted for split factor.” The split factors, if any, are not provided or, if they are, it is not clear from the information provided. Do the tables provide the actual counts or adjusted counts? Please clarify.
- 5) What explanation can be provided as to what might account for the large number of individuals on the HD at the AR5RA site? Without a map or lat/longs it is difficult to know where the site was located. Could HD depth or flow regime be a factor? As a side note from a reviewer’s perspective, a single table showing the taxa and taxa counts at each site is helpful in visualizing and comparing the similarities and differences in taxonomic composition and abundance among sites.
- 6) Despite using 4 HD replicates for the AR4R and AR5R locations, less than 300 individuals were counted. The diversity scores may be negatively biased due to calculation based on fewer than 300 individuals (Lande 1996). Interpretation of data with fewer than 300 individuals should be made with caution.

Lande, R. 1996. Statistics and partitioning of species diversity, and similarity among multiple communities. *Oikos* 76: 5-13
- 7) The Proposed Biological Monitoring Plan states that the “purpose of this investigation is to assure that the thermal discharge from the Scholz Plant is not causing substantial damage or harm to the aquatic life or vegetation...” There is no mention of any assessment of vegetation or vegetation quality in this report.