One Energy Place
Pensacola, Florida 32520

Tel 850.444.6111

GULF POWER
A SOUTHERN COMPANY

April 28, 2010

Mr. Marc Harris
Supervisor, Power Plant NPDES Permitting
Florida Department of Environmental Protection
Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399

OVERNIGHT MAIL

RE: Gulf Power Company
Scholz Electric Generating Station
NPDES Permit No. FL0002283
Renewal Application Request for Additional Information (RFI) #2

Dear Mr. Harris:

Gulf Power received via email correspondence from the Department questions regarding the above-reference application. One email, dated March 12, 2010 contained questions regarding Gulf Power's submittal of information pertaining to 316(a) and (b). Gulf Power has consulted with its consultant regarding these questions and has enclosed a response as Attachment 1.

The second email, dated April 16, 2010 contained questions concerning information provided as part of Gulf Power's response to RFI #1 dated March 18, 2010. Gulf Power has provided the responses to these questions under Attachment 2.

Please feel free to contact Susan Kennedy at (850) 444-6153 or Joe Neese at (850) 444-6429 of my staff if you have any questions or need any additional information.

Sincerely,

James O. Vick
Environmental Affairs

Cc: Bill Armstrong, FDEP Pensacola
Cc (email): Kevin Ledbetter, FDEP Tallahassee
Nancy Ross, FDEP Tallahassee
Corinna Clanton, FDEP Panama City
Brian Heinfeld, Gulf Power Plant Scholz
Kenny Peacock, Gulf Power Plant Scholz
Jora Maxwell, Gulf Power Plant Scholz
Mike Markey, Gulf Power

ATTACHMENT 1

Response to FDEP Biology's Comments (March 5, 2010) on Plant Scholz 316(b) Impingement Mortality Study (Document dated November 2009) prepared by MACTEC (on behalf of Gulf Power)

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.

   Response: Gulf Power understands there is annual, seasonal, and diel variability in impingement at Plant Scholz and that smaller fish were more commonly impinged than large fish.

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?

   Response: Figure 4-1 accurately reflects the operation of Plant Scholz during the study period.

3) Impingement of hogchoker was highest during high flow in river. Can MACTEC provide any explanation for this correlation?

   Response: Hogchokers spawn in the summer in marine coastal waters and estuaries, and spawning may commence as early as May in Florida (Marcy et al., 2005). Analyses of migration patterns in the Gulf of Mexico suggest that after spawning in the summer, most adults migrate upriver into low-salinity waters, where they remain from November to March (Peterson, 1996). It is possible that the larger hogchokers impinged in the summer of 2005 during the high flows in the Apalachicola River may have been adults migrating upstream after spawning, when they are not in the best condition and potentially unable to swim against the higher flows. They may have sought refuge in the relatively

calmer waters of the intake channel and in their weakened condition, been unable to escape impingement.

In addition, inland abundance of hogchokers can also be influenced by larvae following the salt water wedge upstream when river flows are low (Mettee et al., 1996). Juveniles gradually start following the adult migration patterns, but generally do not migrate into high-salinity spawning grounds until full sexual maturity at ages 2-4. The majority of the hogchokers impinged at Plant Scholz were less than 50 mm TL, which corresponds to 1-2 years of age (Peterson-Curtis, 1996). It is possible that these juveniles had migrated upriver the previous summer and were washed downstream during the high flows in summer 2005 and subsequently impinged.

References

Marcy, Jr., B. C., D. E. Fletcher, F. D. Martin, M. H. Paller, and M. J. M. Reichert. 2005. Fishes of the Middle Savannah River Basin: with emphasis on the Savannah River site. UGA Press: Athens. 460 pp.

Mettee, M. F., P. E. O'Neil, and J. M. Pierson. 1996. Fish of Alabama and the Mobile Basin. Monograph 15, Geological Survey of Alabama. Oxmoor House: Birmingham. 819 pp.

Peterson, T. L. 1996. Seasonal migration in the southern hogchoker, *Trinectes maculatus fasciatus* (Archiridae). Gulf Res. Rep. 9:169-176.

Peterson-Curtis, T. L. 1996. Partial life history of southern hogchokers, *Trinectes maculatus fasciatus*, in the back bay of Biloxi, Mississippi. Gulf Mex. Sci. 2:81-88.

4) At collection, 25% fish and 83% shellfish were alive. Does the facility having 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.

Response: Plant Scholz does not have a fish return system. Gulf Power understands that survival cannot be used for 316(b) purposes if the facility does not have a fish return system in place.

5) The Quality Assurance/Quality Control information was provided and appears acceptable.

Response: Duly noted.

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

Response to FDEP Biology review (dated 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.

Response: MACTEC performed a thermal plume investigation at Plant Scholz for Gulf Power in July 2008; however, the report was inadvertently not included in the 2009 NPDES submittal. During the 2009 sampling, Plant Scholz was not operating, therefore, the Hester-Dendy study completed in 2009, is not a thermal plume investigation. A summary of the methods, results, and discussion of the 2008 thermal plume study are presented below.

Introduction

The purpose of this investigation was to assure that the thermal discharge from Plant Scholz is not causing substantial damage or harm to the aquatic life or interfering with the beneficial uses of the receiving water.

The study area is located in Sneads, within Jackson County, Florida. The plant is located on the Apalachicola River 3.5 miles downstream of the Jim Woodruff Lock and Dam near Chattahoochee, Florida and 2.3 miles south of US Highway 90. The River is considered a freshwater river in the area of the Plant. The study area encompasses approximately 1 mile of the Apalachicola River (Figure 1), extending roughly one half mile upstream and downstream from the discharge canal at Plant Scholz. The average width of the stream in this area is approximately 100 yards wide and ranges in depth from 3-18 feet.

Twenty-nine Hester-Dendy artificial substrate samplers were deployed on July 8, 2008 at five locations along the Apalachicola River in the vicinity of the discharge canal. Water quality was measured upon retrieval of the samplers on August 5, 2008. The macroinvertebrate community and water quality were investigated in the Apalachicola River in the vicinity of the Scholz discharge canal to assure that the thermal discharge is not causing substantial damage or harm to the aquatic life or interfering with the beneficial uses of the receiving water.

Plant Scholz 2008 Temperature Monitoring

Methods

Temperature was measured on August 5, 2008 at three depths (shallow, mid, and deep) along transects perpendicular to shore across the river channel with a calibrated multiprobe YSI 556 field meter.

Measurements were taken along two transects upstream of the outfall and four transects downstream of the outfall (Figure 1). Measurements were taken at three locations across the transects: at the right bank (looking downstream), the middle of the channel, and at the left bank. The Plant Scholz cooling water discharge canal enters the river on the right side (looking downstream) of the Apalachicola River. The reach where temperature monitoring occurred is approximately 1 mile in length.

Water quality instruments were calibrated in the laboratory prior to use in the field. Field audits were performed prior to and following sampling to verify the measurements. The calibration procedures followed standard manufacturers' instructions to ensure equipment was functioning within tolerances established by the manufacturers.

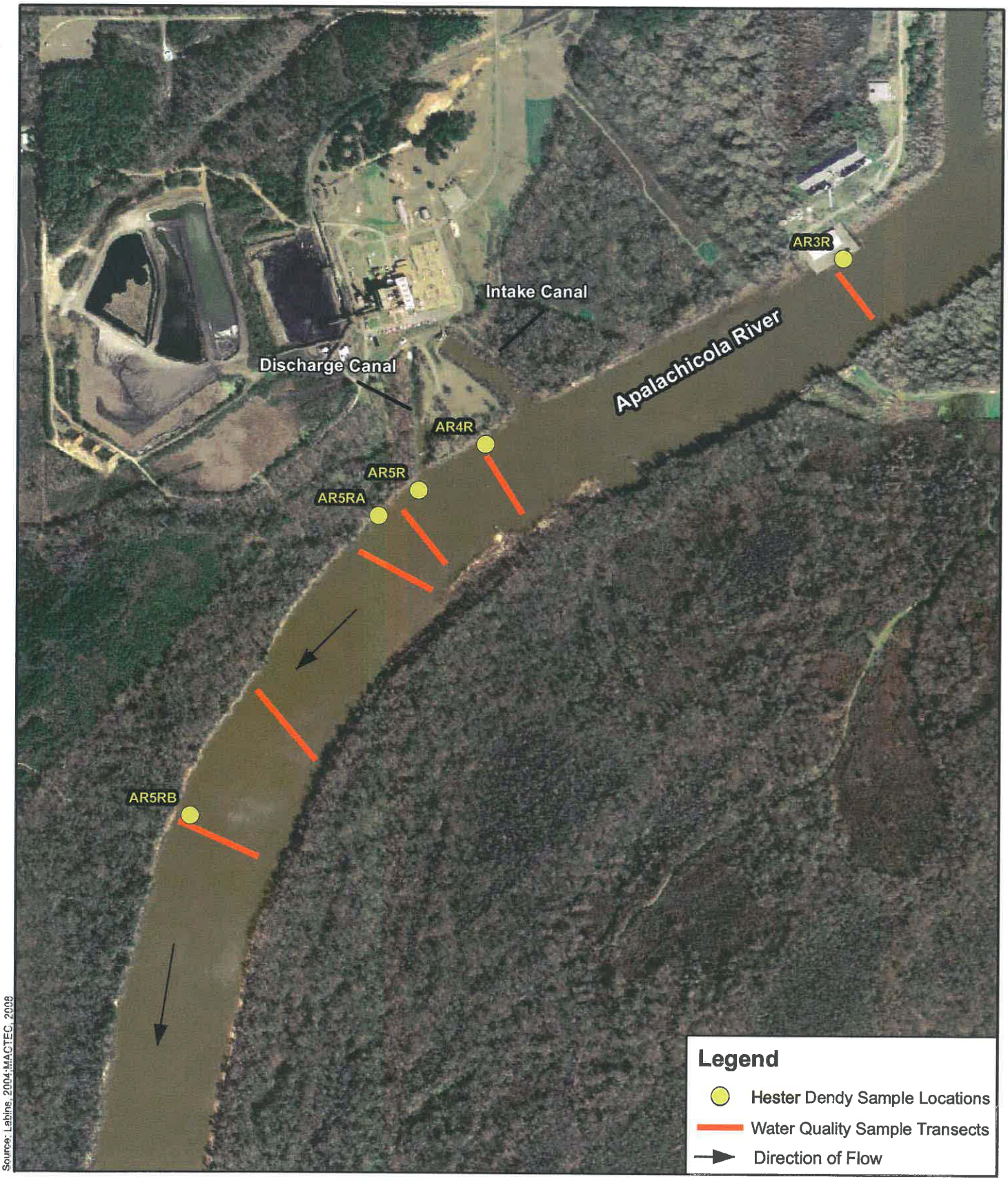
River temperature plumes were spatially interpolated based on field data. Spatial interpolation is the procedure of estimating the value of unsampled sites based on a group of samples taken within a study area. While there are several interpolation techniques, the tension spline method was selected based on the spatial distribution of the sampling sites. The interpolation was performed using ArcGIS 9.2 and Spatial Analyst. During interpolation, each sample site was given a weight of 0.1 and was influenced by a maximum of 12 neighbors. The output cell size was 2 meters. Because river bathymetry data were not available, interpolation was used for shallow (<4 feet), mid depth (4 to 9 ft) and deep (>9 ft) datasets. Samples taken at the furthest upstream transect were eliminated from the interpolation because they were too spatially removed from the other samples to accurately interpolate temperature for the area in between.

Results

Results of the temperature interpolations are illustrated in Figures 2 through 4.

Discussion

The discharge canal effluent tends to migrate into the Apalachicola River predominantly in the shallow to mid-depth interval. At the shallow interval (< 4 feet below water surface), the effluent plume affects a semicircular area approximately 500 feet in radius extending out from the outfall of the discharge canal. In addition, the plume seems to extend downstream along the right side of the river. At mid-depth (4-9 feet below the surface), the thermal plume is not as clearly defined. The right side of the river near the discharge canal is approximately 1°C warmer than the left side of the river. The deep water interval (> 9 feet below the water surface) does not show a defined increase in temperature associated with the discharge canal. The Apalachicola River is relatively shallow, therefore the deep interval sampling was limited to a few points surrounding the discharge canal and there was little evidence of a thermal plume at this interval.



Source: Labins, 2004;MACTEC, 2008

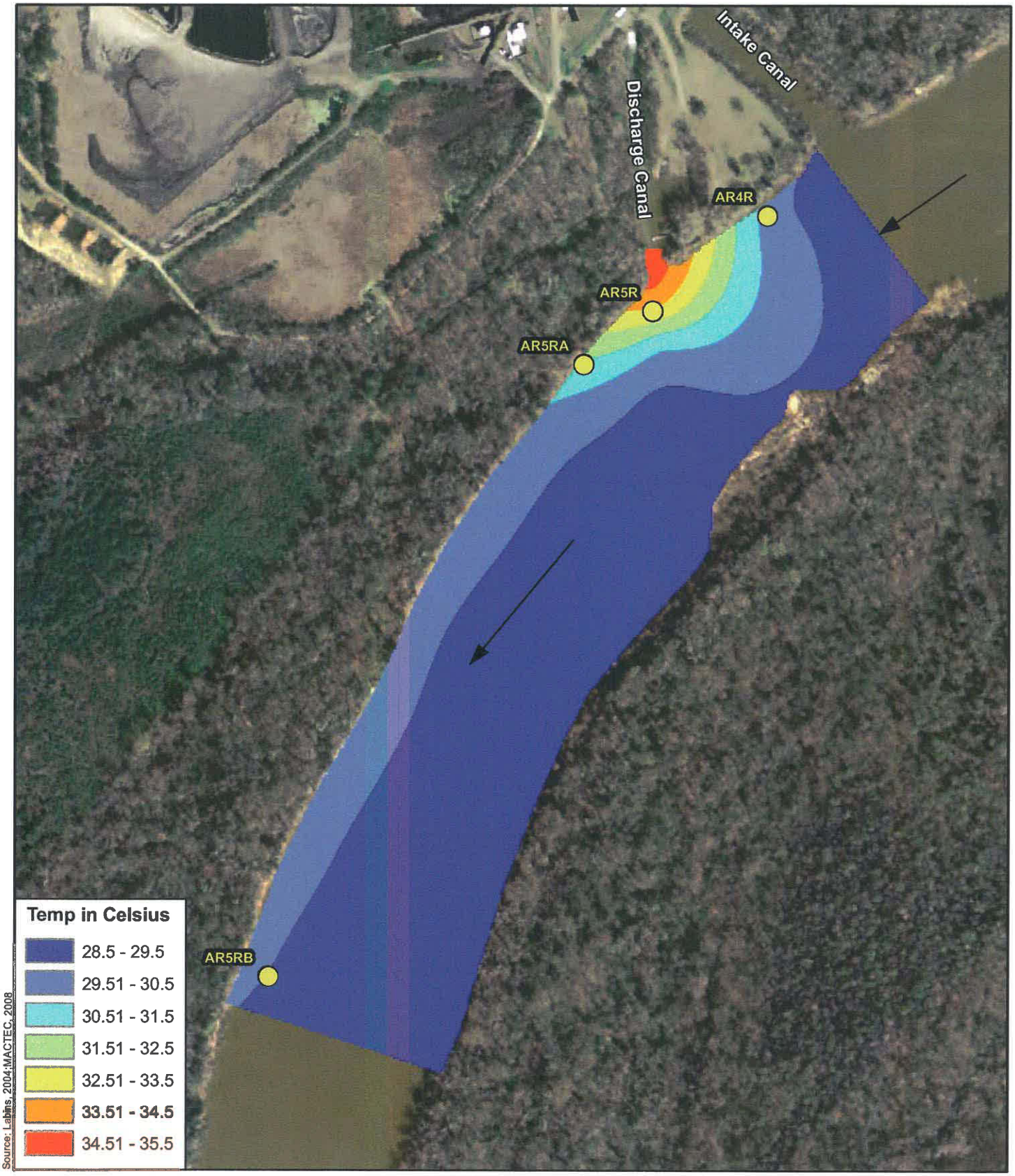
1 inch = 800 feet

0 400 800 Feet

N

PLANT SCHOLZ APALACHICOLA RIVER THERMAL PLUME STUDY

Drawn	Date	MACTEC	2008 Sample Locations	Figure 1
NMG	12/2/2008	Gainesville, Florida		
Checked	Date	Project # 6063-09-0147		
SEM	12/2/2008			



Hester Dendy Sample Locations

Direction of Flow

1 inch = 400 feet

0 200 400 Feet

N

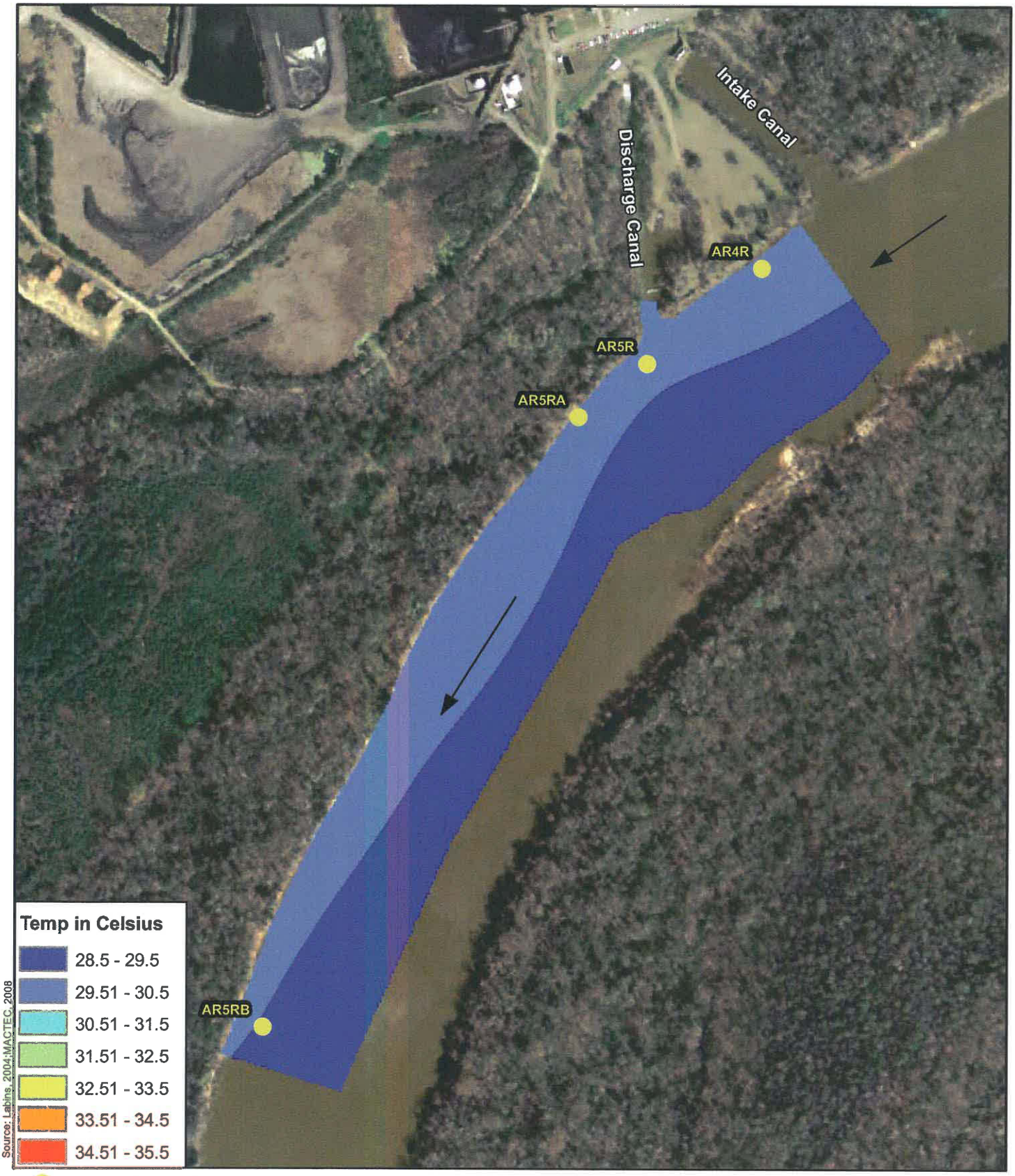
PLANT SCHOLZ APALACHICOLA RIVER THERMAL PLUME STUDY

Drawn	Date
NMG	12/2/2008
Checked	Date
SEM	12/2/2008

MACTEC
Gainesville, Florida
Project # 6063-09-0147

2008 Shallow (< 4 feet) Water Temperature

Figure 2



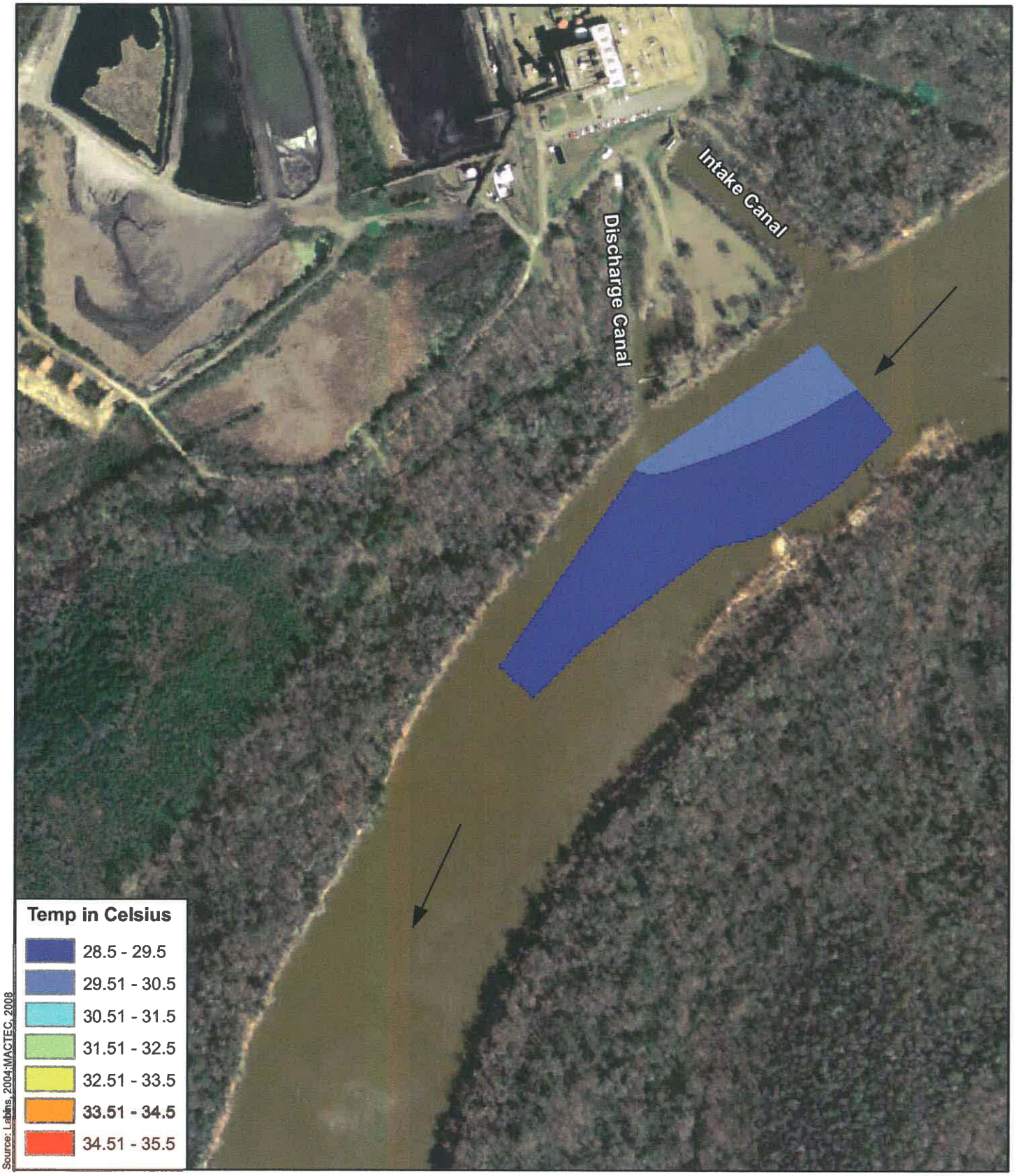
PLANT SCHOLZ APALACHICOLA RIVER THERMAL PLUME STUDY

Drawn	Date
NMG	12/2/2008
Checked	Date
SEM	12/2/2008

MACTEC
Gainesville, Florida
Project # 6063-09-0147

2008 Mid-Depth (4-9 feet) Water Temperature

Figure 3



Direction of Flow

1 inch = 400 feet

0 200 400 Feet

N

PLANT SCHOLZ APALACHICOLA RIVER THERMAL PLUME STUDY

Drawn	Date	MACTEC	2008 Deep Water (> 9 feet) Temperature	Figure 4
NMG	12/2/2008	Gainesville, Florida		
Checked	Date	Project # 6063-09-0147		
SEM	12/2/2008			

Plant Scholz 2008 Macroinvertebrate Sampling

Methods

Benthic invertebrate surveys in the vicinity of the discharge were conducted by use of Hester-Dendy artificial substrate samplers. Samplers were deployed on July 8, 2008 for a 28-day submersion period. Five locations in the vicinity of the discharge canal were sampled to determine the effects of the thermal discharge on the macroinvertebrate communities. Figure 1 shows the sample locations. AR5R, AR5RA, and AR5RB are the test stations (located downstream of the discharge canal), while AR4R and AR3R were the reference stations (located upstream of the discharge canal.) Based on the results of the temperature monitoring discussed above, AR4R is influenced by the thermal plume at the shallow interval; therefore, AR3R was considered to represent the reference condition.

Macroinvertebrate sampling, taxonomy and data analysis methods conducted in 2008 were the same as for the 2009 sampling effort and are were described in the "Hester-Dendy Identification and Enumeration Report" (dated November 2009). Water quality measurements were taken at each sampling location upon retrieval of Hester-Dendy samplers on August 5, 2008. Water quality instruments were calibrated in the laboratory prior to use in the field. Field audits were performed prior to and following sampling to verify the measurements. The calibration procedures followed standard manufacturers' instructions to ensure equipment was functioning within tolerances established by the manufacturers.

Results

Macroinvertebrate results met the acceptance criteria in that the Shannon-Weiner Index at all test locations were not less than 75 percent of the Index values from the reference site. (Acceptance Criteria = Shannon Weiner Index at Test Site $\geq$ 75% of the reference location). The Shannon-Weiner Diversity Index values were lower in samples collected in closer proximity to the discharge canal (Table 1). The near-field difference is accounted for by decreases in both richness and abundance compared to results from upstream sampling stations.

Water quality measurements at sample locations upon retrieval of Hester-Dendy samplers are shown in Table 2.

Table 1. Hester-Dendy Summary Statistics by Sampling Site 2008

Sample ID	AR3R	AR4R	AR5R	AR5RA	AR5RB
Sample Location	Upstream Reference	Thermally Influenced Upstream Station	Nearfield Downstream Test	Downstream Test	Downstream Test
Total Individuals/m2	1853	2625	2071	1175	2725
Total Species/m2	21	15	16	17	23
Total Wet Weight (g/m^2)	1.471	2.308	3.179	1.305	5.786
Shannon-Weiner	2.48	2.34	2.33	2.13	2.38

Prepared by: SEM Checked by: RDD

Table 2. Water Quality Measurement at Hester-Dendy Locations at Retrieval August 5, 2008

Sample ID	AR3R	AR4R	AR5R	AR5RA	AR5RB
Sample Location	Upstream Reference	Thermally Influenced Upstream Station	Nearfield Downstream Test	Downstream Test	Downstream Test
Sample Date	8/5/2008	8/5/2008	8/5/2008	8/5/2008	8/5/2008
Sample Time	11:22:00	15:45:00	15:08:00	9:50:00	8:48:00
Water Temperature(°C)	30.24	30.6	31.3	30.2	29.37
pH	7.17	7.33	7.29	7.04	6.91
Dissolved Oxygen (mg/L)	4.84	5.1	5.28	4.53	4.41
Salinity (ppt)	0.07	0.06	0.06	0.07	0.07
Conductivity (µs/cm)	179	146	151	168	165

Prepared by: SEM Checked by: RDD

Discussion

Total number of species increased in the nearfield with distance from the discharge canal. Sample location AR3R had the highest Shannon-Weiner diversity index followed by AR5RB. These locations are farthest from the discharge canal; however, results from the site at the mouth of the discharge canal as well as the nearfield station all meet the acceptance criteria. These results indicate that the benthic invertebrate community is not being adversely impacted by the discharge water.

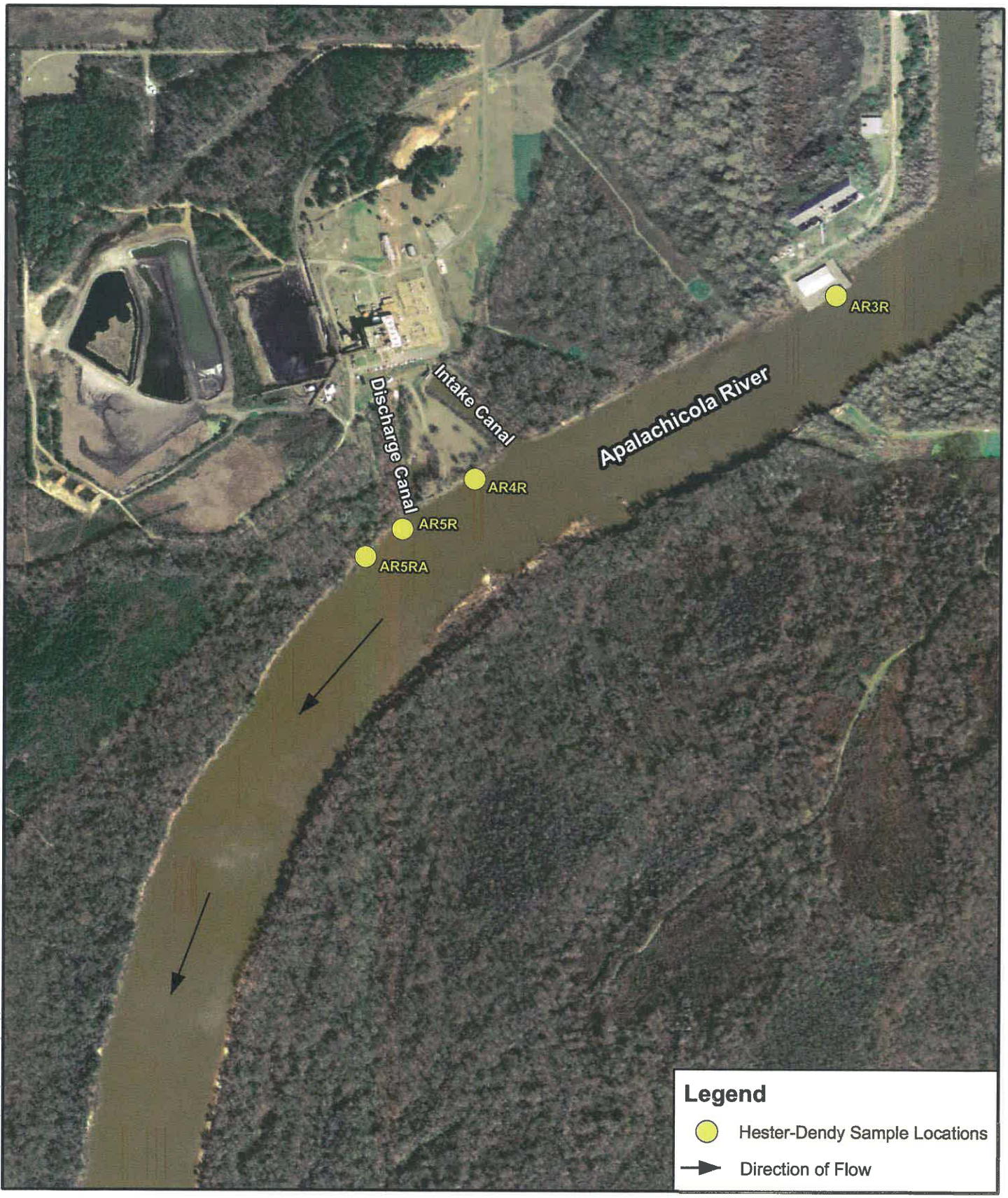
Water quality measurements taken at sampling locations upon retrieval of Hester-Dendy samplers reveals similar water quality between sample locations except water temperature at the nearfield downstream test location (AR5R) revealed temperatures approximately 1°C greater than the upstream reference location (AR3R).

Conclusions

The discharge canal effluent tends to migrate into the Apalachicola River at the shallow and mid-depth interval used in this study (< 9 ft below surface water). At the shallow water interval, the plume may affect slightly more than half the width of the channel and extend down the right side of the river. At depths greater than 9 feet, the effect is not clear due to the shallow conditions in the channel near the discharge. The Shannon-Weiner Index values of the samples collected from the test sites are > 75% of those from the reference location; therefore, the discharge of coolant water from the Plant Scholz discharge canal does not appear to have an adverse affect on macroinvertebrate communities even at the outfall of the discharge canal.

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.

Response: See Figure 5 below Sample Location Map for 2009 sampling event.



Source: Lebins, 2004;MACTEC, 2009

1 inch = 800 feet

0 400 800 Feet

N

PLANT SCHOLZ 2009 MACROINVERTEBRATE SURVEY

Drawn	Date
NMG	03/22/2010
Checked	Date
SEM	03/22/2010

MACTEC
Gainesville, Florida
Project # 6063-09-0152

2009 Sample Locations

Figure 5

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.

Response: Plant Scholz was not operational during the 2009 sampling event; therefore, none of the sampling locations were in the thermal plume. Table 3 depicts water quality information for the Hester-Dendy sampling locations for 2009 upon deployment (June 10, 2009). During the 2009 study, water temperature at the nearfield test site (AR5R) was within 0.24°C of the other sampling locations. During the 2008 sampling the Hester-Dendy samplers were in the thermal plume as outlined in the information provided above and in water quality data provided in Table 2.

Table 3. Water Quality Measurement at Hester-Dendy Locations upon Deployment June 10, 2009

Sample ID	AR3R	AR4R	AR5R	AR5RA
Sample Location	Upstream Reference	Upstream Reference	Nearfield Test	Downstream Test
Sample Date	6/10/2009	6/10/2009	6/10/2009	6/10/2009
Sample Time	14:52:41	10:15:55	11:23:28	12:05:12
Water Temperature (°C)	27.3	27.08	27.12	27.36
pH	7.45	7.55	7.49	7.51
Dissolved Oxygen (mg/L)	8.78	8.85	8.96	8.83
Salinity (ppt)	0.05	0.05	0.05	0.05
Conductivity (µs/cm)	116	124	116	116

Prepared by: SEM Checked by: RDD

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.

Response:

a. The placement of the artificial substrate samplers in the vertical water column, instead of using surface floating platforms, was chosen primarily to reduce the problem of vandalism which has been a problem at this site in the past. The Hester-Dendy samplers were deployed on June 10, 2009. They were placed approximately 1 ft above the streambed in approximately 5 ft water depth, approximately 4 ft (1.22 m) below the water surface. Following deployment, water levels continued to drop in the Apalachicola River in the vicinity of Plant Scholz (See Figure 6); therefore, Gulf Power personnel moved the Hester-Dendys to a deeper location to maintain a depth of approximately 1 meter from the water surface. The Apalachicola River is often dynamic and dependent on the Jim Woodruff dam, just upstream of the Scholz Power Plant. Gulf Power conducts macroinvertebrate sampling every year because of the site specific difficulties associated with the sampling methodology. In 2009 with the fluctuating hydrology and the plant not operating, the data collected should not be used to evaluate thermal plume impacts. Future sampling will consider the use of both floating and anchored Hester-Dendy samplers.

   During the 2008 sampling July 8 – August 5, Hester-Dendys were deployed in the same manner as above and there was an increase in river stage of approximately 1 ft (Figure 7). Therefore, Hester-Dendys were at most 5.5 ft (1.6 m) below the water surface and were in depths that exceeded 1.5 meters of water for approximately 3-4 days during the 28 day deployment.

b. Sampler were all deployed at approximately the same depth below the water surface, therefore, there is no bias in comparison 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.

Response: Hester-Dendy replicates were sub-sampled and analyzed until a minimum of 100 organisms per replicate had been enumerated, a minimum of 300 organisms per sampling station was achieved, or the entire sample was processed. In some cases replicates were sub-sampled. In those cases, the total number of individuals was calculated to account for the sub-sampling, i.e. they were "adjusted for split factor". The "adjusted for split factor" column heading was included to designate this column as the total number of individuals from each Hester-Dendy sampler.

Figure 6. USGS Hydrograph for the Apalachicola River at Chattahoochee, FL May- July, 2009

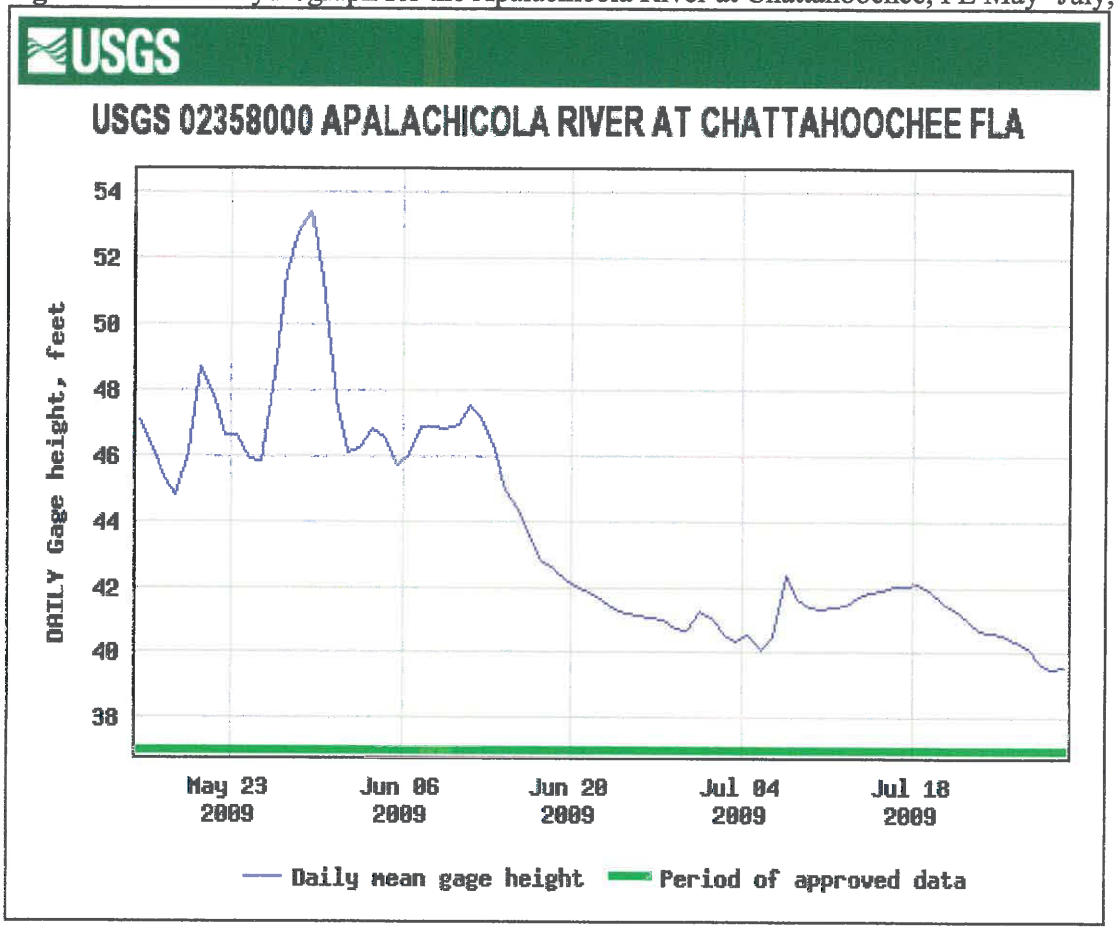
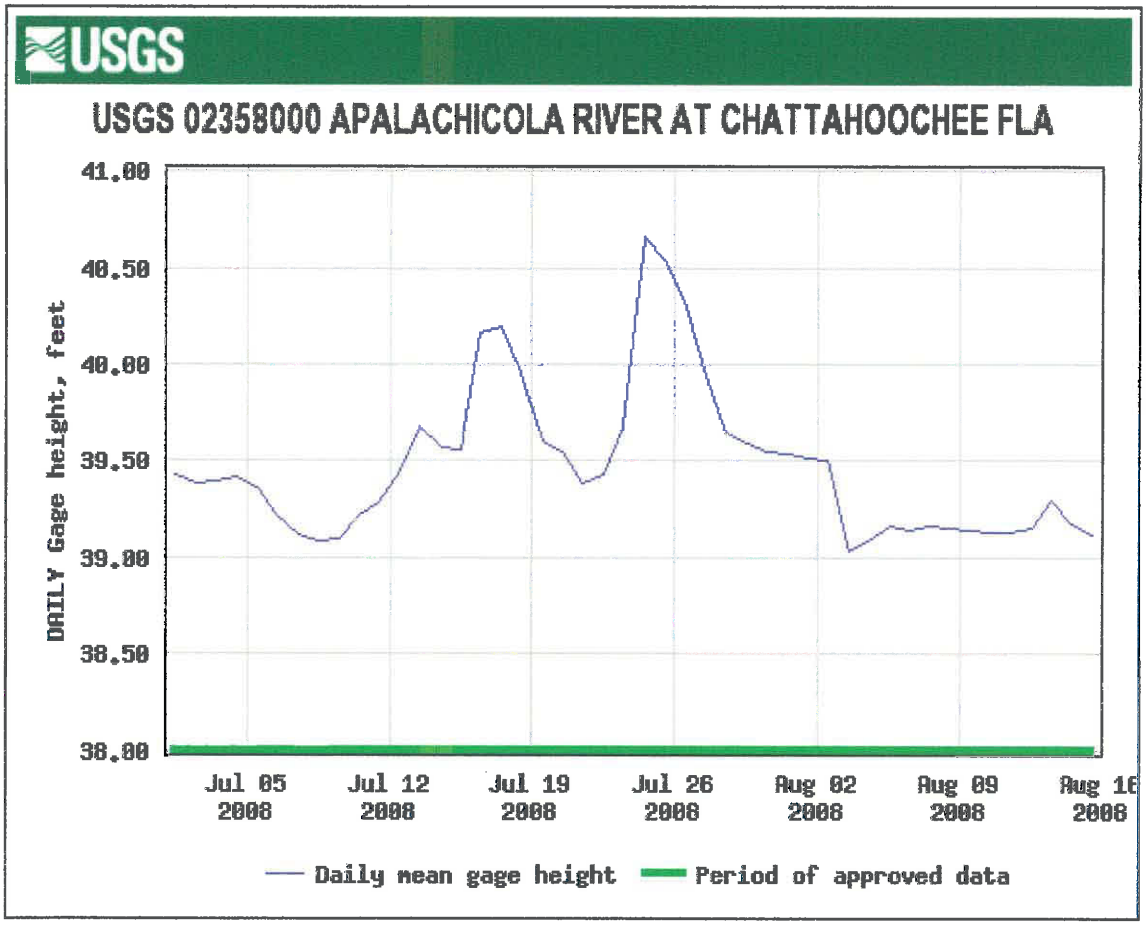


Figure 7. USGS Hydrograph for the Apalachicola River at Chattahoochee, FL July-August 2008



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.

Response: See Figure 5 for location of the sampling locations. Plant Scholz was not operational during the 2009 sampling and was operational during the 2008 sampling. Hester-Dendys deployed at AR5RA in 2008 had high numbers of individuals; however on average, the counts were lower than all other sampling locations for that study (Table 1). Water quality measurements for AR5RA in 2008 and 2009 (Table 2 and 3) do not indicate any water quality difference that would result in better habitat at AR5RA than other sampling locations. It appears this is a productive site, however, we do not know why.

Table 4 and 5 show taxa and taxa counts at each site in 2008 and 2009.

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

Response: Duly noted. It was anticipated, based on the 2008 sampling event that four Hester-Dendy replicates would be sufficient to collect 300 individuals per locations. River flow in the summer of 2009 was much greater than 2008. Increased velocity and turbidity associated with higher river flow may account for the reduced number of individuals per Hester-Dendy in 2009 compared to 2008. Future sampling will include additional samplers.

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.

Response: Vegetation in the Apalachicola River in the vicinity of Plant Scholz is limited. As depicted in the maps prepared during the Stream Condition Index (SCI) investigation, the only area in the vicinity of Plant Scholz to have macrophytes was the Intake Canal. The 2008 SCI investigation revealed the same vegetation distribution. Therefore, there is no impact of the Scholz thermal discharge on vegetation in the Apalachicola in the vicinity of the Plant.

Table. 4 Hester-Dendy Artificial Sampler Macroinvertebrate Identificaiton and Enumeration 2008

Plant Scholz
Apalachicola River (AR)
Hester-Dendy Artificial Sampler Macroinvertebrate Identification and Enumeration
Samples Collected Aug 5, 2008
Project #: 6063080124.03

PHYLUM	CLASS	ORDER	FAMILY	TRIBE	GENUS	SPECIES	Sample Sations				
							AR3R Total per sq m	AR4R Total per sq m	AR5R Total per sq m	AR5RA Total per sq m	AR5RB Total per sq m
Annelida	Clitellata	(Oligochaeta)					83			3	
Annelida	Clitellata	(Hirudinea)					61	8			44
Arthropoda	Insecta	Odondata	Corduliidae		*Epitheca*	*princeps*				3	
Arthropoda	Insecta	Odondata	Coenagrionidae		*Argia*						17
Arthropoda	Insecta	Ephemeroptera	Heptageniidae		*Maccaffertium*		111	342	208	49	189
Arthropoda	Insecta	Megaloptera	Corydalidae		*Corydalus*					6	
Arthropoda	Insecta	Megaloptera	Sialidae		*Sialis*		4				
Arthropoda	Insecta	Ephemeroptera	Baetidae				13				28
Arthropoda	Insecta	Ephemeroptera	Leptohyphidae		*Tricorythodes*	*albilineatus*	6	33			8
Arthropoda	Insecta	Ephemeroptera	Caenidae		*Caenis*		32	17	4		
Arthropoda	Insecta	Ephemeroptera	Metretopodidae		*Siphloplecton*					4	
Arthropoda	Insecta	Ephemeroptera					8				33
Arthropoda	Insecta	Coleoptera									17
Arthropoda	Insecta	Diptera	Chironomidae	Chironomini	*Chironomus*		8			6	11
Arthropoda	Insecta	Diptera	Chironomidae	Chironomini	*Dicrotendipes*		463	483	346	221	131
Arthropoda	Insecta	Diptera	Chironomidae	Chironomini	*Polypedilum*	*halterale*	29	225	46	78	600
Arthropoda	Insecta	Diptera	Chironomidae	Chironomini	*Polypedilum*	*illinoense*	60		100	33	25
Arthropoda	Insecta	Diptera	Chironomidae		*Cricotopus*		25	200	29	6	11
Arthropoda	Insecta	Diptera	Chironomidae	Pentaneurini	*Ablabesmyia*	*rhamphe*	197	375	308	105	92
Arthropoda	Insecta	Diptera	Chironomidae	Chironomini	*Tribelos*	*jucundus*	275	267	229	67	78
Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini	*Tanytarsus*		117	100	42	15	56
Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini				8			
Arthropoda	Insecta	Diptera	Chironomidae		*(Tanypodinae)*		19	83	163	182	114
Arthropoda	Insecta	Diptera	Chironomidae		*(Chironominae)*		108	117	275	31	150
Arthropoda	Insecta	Diptera					69	83	50	36	119
Arthropoda	Insecta	Trichoptera	Polycentropodidae				122	283	238	333	342
Arthropoda	Insecta	Trichoptera	Hydroptilidae						8		
Arthropoda	Insecta	Trichoptera	Hydropsychidae		*Macrostemum*	*carolina*					8
Arthropoda	Insecta	Trichoptera	Hydropsychidae	(Hydropsychicae)							8
Arthropoda	Insecta	Trichoptera	Hydropsychidae								633
Arthropoda	Malacostraca	Amphipoda	Hyalellidae		*Hyalella*	*azteca*			21		
Arthropoda	Malacostraca	Amphipoda	Gammaridae		*Gammarus*						11
Arthropoda	Malacostraca	Amphipoda							4		
Arthropoda	Maxillopoda	(Copepoda)					42				
						Total Individuals per sq m	1853	2625	2071	1175	2725
						Total Taxa per sq m	21	15	16	17	23

Prepared by: SEM
Checked by: RDD

Table 5. Hester-Dendy Artificial Sampler Macroinvertebrate Identification and Enumeration 2009

Plant Scholz
Apalachicola River (AR)
Hester-Dendy Artificial Sampler Macroinvertebrate Identification and Enumeration
Samples Received July 24, 2009
Project #: 6063090152

PHYLUM	CLASS	ORDER	FAMILY	TRIBE	GENUS	SPECIES	Sampling Station			
							AR3R Total per sq m	AR4R Total per sq m	AR5R Total per sq m	AR5RA Total per sq m
Annelida	Clitellata	(Oligochaeta)					4			
Arthropoda	Insecta	Coleoptera	Elmidae		*Stenelmis*			3	2	
Arthropoda	Insecta	Diptera	Ceratopogonidae	Ceratopogoninae (subfamily)				3	11	
Arthropoda	Insecta	Diptera	Chironomidae	Chironomini	*Asheum*			3		13
Arthropoda	Insecta	Diptera	Chironomidae	Chironomini	*Cryptochironomus*			6		
Arthropoda	Insecta	Diptera	Chironomidae	Chironomini	*Dicrotendipes*		2	11	2	4
Arthropoda	Insecta	Diptera	Chironomidae	Chironomini	*Polypedilum*	*halterale* grp	38	23	48	33
Arthropoda	Insecta	Diptera	Chironomidae	Chironomini	*Polypedilum*	*illinoense* grp	4	11		546
Arthropoda	Insecta	Diptera	Chironomidae	Chironomini	*Polypedilum*	*scalaenum* grp		2	23	
Arthropoda	Insecta	Diptera	Chironomidae	Chironomini	*Tribelos*			73	47	58
Arthropoda	Insecta	Diptera	Chironomidae	Chironomini						17
Arthropoda	Insecta	Diptera	Chironomidae	Pentaneurini	*Ablabesmyia*	*rhamphe* grp	21			
Arthropoda	Insecta	Diptera	Chironomidae	Pentaneurini	*Ablabesmyia*		21	70	66	100
Arthropoda	Insecta	Diptera	Chironomidae	Tanypodinae (subfamily)					2	
Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini	*Rheotanytarsus*					63
Arthropoda	Insecta	Diptera	Chironomidae	Tanytarsini	*Tanytarsus*			5	5	
Arthropoda	Insecta	Diptera	Chironomidae		*Nanocladius*		2			
Arthropoda	Insecta	Diptera	Chironomidae					6	3	
Arthropoda	Insecta	Diptera	Tipulidae							8
Arthropoda	Insecta	Diptera					21	17	22	96
Arthropoda	Insecta	Ephemeroptera	Caenidae		*Caenis*		40			8
Arthropoda	Insecta	Ephemeroptera	Heptageniidae		*Maccaffertium*	*exiguum*		20	5	108
Arthropoda	Insecta	Ephemeroptera	Isonychiidae		*Isonychia*	*sayi*				33
Arthropoda	Insecta	Ephemeroptera	Leptohyphidae		*Tricorythodes*	*albilineatus*		6	2	121
Arthropoda	Insecta	Ephemeroptera					529		3	
Arthropoda	Insecta	Megaloptera	Corydalidae		*Corydalus*	*cornutus*				33
Arthropoda	Insecta	Odondata	Corduliidae		*Epitheca*				2	
Arthropoda	Insecta	Odondata	Corduliidae		*Macromia*				2	
Arthropoda	Insecta	Trichoptera	Hydropsychidae		*Hydropsyche*			2	2	850
Arthropoda	Insecta	Trichoptera	Hydropsychidae		*Macrostemum*	*carolina*				467
Arthropoda	Insecta	Trichoptera	Hydropsychidae						2	83
Arthropoda	Insecta	Trichoptera	Leptoceridae							79
Arthropoda	Insecta	Trichoptera	Polycentropodidae		*Neureclipsis*		2	98	23	263
Arthropoda	Insecta	Trichoptera						3	3	67
Arthropoda	Malacostraca	Amphipoda	Hyalellidae		*Hyalella*	*azteca*	48	8	64	
Arthropoda	Malacostraca	Decapoda	Cambaridae					2		
Mollusca	Bivalvia	Veneroida	Tellinidae		*Tellina*				2	
Mollusca	Gastropoda								2	
Platyhelminthes	Turbellaria	Tricladida	Planariidae		*Planaria*		2	2		21
						Total Individuals per sq m	**733**	**375**	**339**	**3071**
						Total Taxa per sq m	**27**	**33**	**36**	**46**

Prepared by: SEM
Checked by: RDD

Response to FDEP Biology's Comments (March 5, 2010) of
Gulf Power Company Scholz Electric Generating Plant
"Scholz Stream Condition Index Report" (dated November 2009)
prepared by MACTEC (on behalf of Gulf Power)

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?

   Response: Gulf Power felt that the Apalachicola River in the vicinity of Plant Scholz provided very little habitat for macroinvertebrates, and therefore, decided to conduct a SCI survey to evaluate the habitat. Based on the results of the SCI it is clear that the area does not provide appropriate habitat to properly evaluate the ecosystem health using SCI.

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.

   Response: Shannon McMorrow participated in the FDEP training and passed an audit to perform SCI. During training, she asked the instructor if she must perform all sweeps or if she could have a team that she directed. The FDEP instructor advised Ms. McMorrow that she could provide instruction on sampling and oversee the sampling performed by others. Prior to sampling, David Dickens (individual seen in photograph), was trained by Ms.McMorrow on how to sample and all samples were overseen by Ms.McMorrow.

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.

   Response: None of the samplers are in pass status for FDEP Habitat Assessment. The Habitat Assessment must be performed as part of the SCI to determine the number of productive substrates and therefore, the appropriate number of sweeps to be performed in each substrate. The Habitat Assessments were included to support the SCI. The velocity scoring for SCI #2 is incorrect, duly noted. The intake and discharge canals at Plant Scholz are artificially channelized; however, they have some recovery. The scoring for Habitat Smothering and Artificial Channelization both consider the number of pools and the scoring does not complement each other, duly noted.

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?

   Response: Plant Scholz was not operational during this survey. During the July 2008 survey (when Plant Scholz was operational), water temperature in the intake canal was approximately 29.36 °C and in the discharge canal was approximately 32.25°C.

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.

Response: This study was not conducted to evaluate the impact of the thermal plume. Plant Scholz was not operational during this study; therefore, there was no thermal plume. This study was designed to evaluate the macroinvertebrate community in the vicinity of the plant to determine if SCI would be appropriate for future sampling. The upstream location was included as a reference to compare locations in the vicinity of the Plant.

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.

   Response: Plant Scholz was not operational during this survey.

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.

   Response: *Corbicula* was one of the dominant taxa in many of the samples; however the statement that they were dominant in most samples is incorrect, duly noted.

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".

   Response: It is understood that the proper identification of the Asian Clam that inhabits the Apalachicola River is *Corbicula fluminea,* duly noted.

ATTACHMENT 2

1. **The previous permit mentioned using hydrazine and ammonia in the boiler water system, while the RFI only stated calcium hypochlorite (Sanuril®). Will these chemicals also be used again this cycle?**

   Hydrazine and ammonia will continue to be used in the boiler water system as previously approved by the Department.

2. **Was the calcium hypochlorite (specifically the Sanuril®) previously approved by the Department in the previous cycle? (I'm assuming that to be the case, since the previous permit had residual chlorine monitoring requirements at D-001).**

   Chlorine was approved by the Department for use in the OTCW system for the last 2 permit cycles.

3. **The response to the RFI stated that calcium hypochlorite will be used at up to 40 mg/L. However, according to AQUIRE, calcium hypochlorite acute toxicity to the catfish is approximately 60 ug/L, to the carp 219 ug/L, fathead minor 840 ug/L, and Daphnia 4270 ug/L. Since the hypochlorite will be used in the OTCW system, and hence not much dilution from the rest of the water at the facility, is the 40 mg/L referring to the highest expected concentration in the OTCW or something else?**

   The 40 mg/L is the highest concentration that would be applied to the once-thorough cooling system. Per the permit, any concentration used (up to 40 mg/L) would be limited by the daily maximum requirement for TRC of 0.01 mg/L at D-001. Gulf Power anticipates that all concentrations added to the system (up to 40 mg/L) would be "used up" in the system, and measures the concentrations in the OTCW system to ensure compliance with the TRC daily maximum.

4. **How long does the treatment last?**

   The treatment time lasts 120 minutes per day or less.

5. **Does the facility use a neutralizer to reduce the toxicity of the excess product before it is discharged?**

   The facility does not use a neutralizer for excess product. Compliance with the TRC daily maximum is maintained by limiting the concentration of the product in the system.

6. **The previous permit cycle did not include toxicity monitoring requirements. Has the facility performed acute toxicity tests on the effluent, especially when using this product once per week?**

   Acute toxicity tests on the effluent were performed in 2009 and submitted with the permit application. They were not performed when using the product.