One Energy Place
Pensacola, Florida 32520

Tel 850.444.6111

GULF POWER
A SOUTHERN COMPANY

August 26, 2005

Karrie-Jo Shell
USEPA Region IV
61 Forsyth St.
15th Floor
Atlanta, GA 30303

RE: Response to comments on Gulf Power PICs

Dear Ms. Shell:

Following are the responses to comments from the USEPA (received July 22, 2005) made on the Proposals for Information Collection (PICs) for the Scholz, Crist and Smith Plants (dated May 2005). I have also attached the Quality Assurance Program Plan (QAPP) and current and historic impingement data for Plant Crist. The majority of our response to comments from the USEPA can also be found in the QAPP in the sections referred to in the comments attached.

Please contact me at (850) 444-6429, if you have any questions or require additional information.

Sincerely,

Joe Neese
Project Manager
Gulf Power

CC: Allen Hubbard, DEP

Attachments: 2

Response to comments on Gulf Power
Proposals for Information Collection (PICs) for Scholz, Crist and Smith Plants

Comment No. 1:

Roles and Responsibilities of key plant personnel involved with the sampling

Response:

Organization and responsibilities are described on p. 4-5 of the QAPP. Mr. Joseph Neese has been identified as the Gulf Power Quality Control Program Manager for this project. Mr. Neese will have managerial authority on behalf of Gulf Power for the project. In this role, he will be the primary point of contact for Gulf Power. Dr. Ann Shortelle has been identified as the MACTEC Program Manager (PM) for this project. Dr. Shortelle will have managerial authority on behalf of MACTEC for the project. In this role, she will be the primary point of contact for MACTEC. She has overall responsibility for completing the project on time and within the budget. Dr. Shortelle has over 19 years of experience in aquatic ecological assessments in riverine, lake, and estuarine environments; ecotoxicology; and ecological modeling. Mr. Bill Elzinga will be the MACTEC Quality Assurance (QA) Manager. Mr. Elzinga reports directly to the MACTEC PM and also has a line of communication to Gulf Power. He will be responsible for ensuring that all the stated procedures for this project are being followed. Additional specific functions and duties include: reviewing and approving QA plans and procedures; providing QA technical assistance to project staff; reporting on the adequacy, status, and effectiveness of the QA program on a regular basis to the MACTEC PM; and reviewing field procedures as well as field and analytical data generated by the field team to ensure it meets the project requirements. Additional personnel who will be assigned to support the QA Manager shall include: Jaclyn Debicella, Judith Dudley and Stacy Rizzo. Ms. Jaclyn Debicella is a field biologist with 5 years of experience and will act as the field team leader on the project. Ms. Debicella has worked previously on rivers such as the Suwannee and St. John's, various lakes and reservoirs, and offshore reefs. As Field Team leader, Ms. Debicella will provide leadership in the execution of entrainment and impingement sampling.

Comment No. 2:

Data Quality Objectives – include a discussion on sampling error and measurement error.

Response:

According to the Clean Water Act §316(b) Phase II Rule for its NPDES permit, it is required that impingement mortality be reduced by 80 to 95 percent and that entrainment be reduced by 60 to

90 percent, compared to a baseline level specifically determined for the facility. To comply with this Rule, the proposed sampling plan will provide information required to complete an Impingement Mortality and Entrainment Characterization Study for submission with its NPDES permit application. Specific objectives for the impingement and entrainment study include:

- Taxonomic identification of the species and life stages of fish and shellfish in the vicinity of the CWIS that are most susceptible to impingement and entrainment
- A characterization of the species most susceptible to impingement and entrainment including the abundance and temporal/spatial characteristics
- A characterization of annual, seasonal, and diel variations in impingement and entrainment
- Documentation of historical data that are representative of the current operation and biological conditions
- Identification of threatened or endangered species protected under Federal, State or Tribal law

Sampling and measurement error are discussed below in Table 1. In terms of impingement mortality quantification, the USEPA has not set standards for precision of estimates, so the sampling design proposed in this Plan conforms to sampling effort and precision levels that currently are standard practice. If the USEPA publishes guidance on sampling methods in the future, including QA standards and desired or required levels of precision, the program design and methodology will address these standards. Measurement parameters for the impingement and entrainment will be collected with sampling error of +/- 10%. This level of precision is capable of supporting evaluation of the required reductions in impingement mortality and entrainment.

Comment No. 3:

Measurement and Performance Criteria (discuss how the data and measurements will be evaluated in terms of precision, accuracy, representatives, completeness and comparability).

Response:

Measurement Performance Criteria is presented in Table 1 (also found on p. 6 of the QAPP). This table includes measurement performance criteria for water quality parameters, impingement and entrainment data collection, and data processing.

Table 1. Measurement Performance Criteria

Measurement Parameter	Precision	Accuracy	Completeness
Water Quality			
-- temperature	+/- 0.5 °C	ASTM thermometer check	> 90%
-- dissolved oxygen	+/- 0.1 mg/l	saturated air	> 90%
Impingement			
-- fish count	+/- 10%	N/A	> 95%
--taxonomic identification	+/- 10%	voucher specimen or taxonomist	
-- total length (mm)	+/- 3%	N/A	
-- weight (g)	+/- 3%	N/A	
Entrainment			
-- egg & larval counts	+/- 10%	N/A	> 95%
-- pump volume	NA	flow meter calibration	
-- taxonomic identification	+/- 10%	voucher specimen or taxonomist	
-- total length (mm)	+/- 3%	N/A	
Data Processing			
-- correct fields	+/- 1%	Double keying and verification software	> 99%

Precision is a measure of the degree to which two or more measurements are in agreement. Field precision is assessed through the use of field and laboratory audits to verify proper taxonomic identification of collected specimens, accurate measurement of total length, accurate measurement of weight, and accurate counts of total number of each taxon collected. Precision of fish and larval counts and measurements will be assessed through replication. Some fish counts and measurements will be repeated to check if the difference of 2 counts divided by the average of the two counts is less than 10% for fish, egg, and larval counts and 3% for total length and weight measurements.

Accuracy is the degree of agreement between an observed value and an accepted reference value. Accuracy in the field is assessed through the adherence to all protocols and requirements for sample collection, handling, preservation, and labeling and storage.

Field and laboratory completeness is the number of valid measurements obtained from those measurements planned to be collected in the field or laboratory, respectively. Field completeness is a measure of the amount of valid measurements obtained from measurements planned to be collected in the field. Field completeness associated with the removal of fish from the collection basket (on occasions of heavy detritus loading) will be at least 90 percent (%.) Laboratory completeness is a measure of the amount of valid measurements obtained from measurements planned to be taken in the laboratory. Laboratory completeness will be at least 80 %.

Representativeness expresses the degree to which data accurately and precisely represent a characteristic of a population, parameter, and variations at a sampling point, a process condition, or an environmental condition. Representativeness is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the sampling procedures presented in the Sampling/Work Plan are followed and that proper sampling techniques are used.

Comparability is an expression of the confidence with which one data set can be compared with another. Comparability is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the procedures in the Sampling/Work Plan are followed and that proper sampling techniques are used. Comparability is also dependent on similar QA objectives.

Comment No. 4:

Documentation and Records.

Response:

Documentation and data management is discussed on p.19 of the QAPP in section 3.7. Quality control reports to management are discussed on p.21 under section 4.2. Subsequent to recording of field data on data sheets, data will be directly recorded into field computers consisting of specific project forms (Figure 3-1 in the QAPP) immediately after measurements are taken. The field data will be entered into a project developed Access database and will be reviewed for accuracy and completeness. Reports will be generated from the database and/or from database information exported into Excel for reporting or calculation/statistical purposes. All electronic files (data, database, reports, etc.) will be stored on the office local area network under the project number in an appropriately named subdirectory. Original field logbooks and any additional raw data will be maintained in the project files located in the office central files under the project number. In addition hard copies of reports generated will be filed in the project file. Project reports to management can be from the following sources: audits, QC issues, and data validation process. The reports will be submitted to the Project Manager in a timely manner and will contain all pertinent information as it relates to the integrity of the project data and overall project completion. The Project Manager will ensure that all report items are addressed and if applicable appropriate follow up actions taken. The Project Manager will review the reports and will at his discretion notify and discuss any significant issues with the Gulf Power Project Manger.

Comment No. 5:

Sampling Methods (expand discussion of chain of custody and analytical methods and equipment to be used)

Response:

In the QAPP, sampling methodology is discussed in detail in Section 3.1 beginning on p.11. Sample handling and custody is detailed in Section 3.2 on p.12-14 of the QAPP. Analytical methods are discussed in Section 3.3 on p.14 of the QAPP. Field data collection activities will be recorded using field computers or project specific field data sheets (Figure 3 -1 in the QAPP). Electronic data entry using field computers shall be accomplished using MACTEC's Biological Database Management System (BDMS). Data entered on data sheets will be subsequently entered into the project database. Entries will be made in ink, signed or initialed, and dated. No erasures will be made. If an incorrect entry is made, the information will be crossed out with a single strike mark that is signed or initialed and dated by the sampler. The photographs, if any are taken, will be numbered and a brief description regarding the photograph will be noted. Sample identification labels or numbers/locations will be assigned prior to sample collection. For samples that are collected for laboratory processing, the following sample and or specimen packaging and shipment procedures will ensure that the samples/specimens will arrive at the laboratory in good condition with the chain-of-custody intact.

a. The field team leaders will be personally responsible for the care and custody of the samples/specimens until they are transferred or properly dispatched.

b. Sample containers will be identified by use of sample labels with sample numbers, sampling locations, the date/time of collection, collectors, and if appropriate specimen identification.

c. Sample labels will be completed using waterproof ink unless prohibited by weather conditions.

d. If samples are handled outside of MACTEC custody, samples will be accompanied by a properly completed chain-of-custody form that contains the associated sample numbers and locations. When transferring the possession of samples, the individuals relinquishing and receiving will sign, date, and note the time on the form. This chain-of-custody form documents the custody transfer of samples from the field technician to another person, to the permanent laboratory, or to/from a storage area.

e. Sample/specimen containers will be placed in a box or cooler to ensure that the containers do not get broken. Additional insulation material such as Styrofoam peanuts or additional bubble pack may be used to ensure the sampling/specimen containers are secure or fill any remaining void space in the box or cooler.

Analysis of impingement and entrainment data will be conducted by tabulation and analysis of field impingement and entrainment data with plant flow information. Analysis will include data tabulations and transformations to produce the following for use in reporting:

√ A complete tabulation of taxa impinged at the plant site;
√ Overall impingement rates and trends (annual-total, seasonal, diel);

- √ Fish impingement rates (by species) per million gallons of intake water,
- √ Fish entrainment rates (by species) per 100 cubic meters of intake water;
- √ A description of fish species relative importance (forage/prey, commercial, sport, threatened and endangered, etc.)
- √ A characterization of impinged fish in terms of size and age distribution by species; and
- √ Fish condition (live, dead, moribund, etc).

Additional evaluation of the impingement data will be performed by conducting length frequency analyses of representative species.

Comment No. 6:

Instrument/Equipment Testing and Inspection (discuss maintenance and calibration).

Response:

Preventative maintenance of field equipment is performed by field personnel routinely and preceding each field sampling event; more extensive maintenance is performed by manufacturers on the basis of hours of equipment in use. Sampling technicians report performance of the equipment after each sampling event. Critical spare parts are kept in stock. At times, it is necessary to perform routine maintenance in the field; therefore, each field instrument is provided with an operating manual and any appropriate maintenance tools. The list of field instruments and their maintenance frequency are provided in Table 2.

Table 2. Field Equipment and Associated Preventative Maintenance

Instrument Probe	Activity	Frequency
Dissolved Oxygen (DO) Meter	Check battery Check to ensure that mechanical zero is set properly Check DO probe membrane Replace membrane	Daily and replace as needed Prior to each use As needed As needed
pH Meter	Battery replacement Probe replacement	As needed As needed
Conductivity Meter	Battery replacement Check loose connections Replatinization	As needed Daily As needed
Temperature Probe	Check connections Check against calibrated Thermometer	Daily Prior to field use
Flow Meter	Check battery Check loose connections	Prior to use As needed

Field instruments will be calibrated immediately prior to use in the field. The calibration procedures will follow standard manufacturers' instructions to ensure equipment is functioning with in tolerances established by the manufacturers. A copy of the instrument user manuals will be placed with the instrument and brought to the field. A record of the instrument calibration will be maintained in the field notebook or on the project specific data sheets by the Field Technician calibrating the equipment.

Comment No. 7:

Data Management (discuss types of forms to be used).

Response:

Data forms to be used can be found at the end of the QAPP in the Figures section. Forms include: 1) field data forms for project information, plant operational data, and water quality data; 2) field fisheries data; 3) quality assurance corrective action request and routing form; 4) 316(b) field audit form; and 5) field audit report.

Comment No. 8:

Handling of Endangered Species.

Response:

Threatened or endangered species that are collected during impingement sampling will be identified, measured, weighed and promptly returned to the source water body. These species will be processed prior to all other samples. Threatened or endangered species that are dead upon collection of impingement samples from the basket will be identified, measured, weighed and reported to the appropriate agency.

Comment No. 9:

Data Validation and Usability (discuss verification and validation methods).

Response:

Data verification and validation will be conducted by qualified biologists (e.g., QA manager or field/lab supervisors) during the course of the project to ensure that the resulting data will be suitable for use as intended. Project records, including field sampling logs, raw data sheets, sample chain-of-custody forms and instrument calibration logs, will be reviewed to verify that data were collected according to the QAPP. Data will be validated first by a review of datasheets and data files to find whether data are incomplete or appear to be inappropriate or out of a reasonable range of values. Data entry into the database also will undergo a 100 percent visual QC comparison to the data on the corresponding data sheets. Finally, data files will be subjected to error checking programs to detect outlying values either to investigate further or to eliminate if shown to be spurious. This investigation will require tracing the data to raw data sheets and consulting with field or lab personnel who recorded the data. All raw data sheets, log books and data files will be maintained for future reference. All computer files will be backed up on a daily basis while any data entry or editing procedures are ongoing. Data generated through field activities or by the laboratory operation will be reduced and validated prior to reporting.

Field Data Validation

Data validation, verification and usability are discussed on p.22-23 of the QAPP under section 5.0. Field data reduction procedures will be minimal in scope compared to those implemented in the laboratory setting. Only direct-read instrumentation will be employed in the field. The field instruments will generate measurements directly read from the meters following calibration per manufacturer's recommendations. Such data will be written into field log books immediately after measurements are taken. If errors are made, results will be legibly crossed out, signed or initialed and dated by the field member, and corrected in a space adjacent to the original (erroneous) entry. Later, when the results tables and figures required for this study are being completed, MACTEC will proof 100% of the tables and figures to determine whether any transcription errors have been made by the technical field staff. MACTEC tables and figures are

generated with a legend notation as to the following information: created by, date, reviewed by, and approved by. The MACTEC project personnel place their initials by the appropriate task that they have performed. Once created the tables and figures proceed to a peer reviewer who will then validate that the information on the tables and figures are correct. Once tables and figures are reviewed they are finalized for the reports by the approval of the Project Manager.

Data entry of the field data sheets into the project database will be reviewed in a similar nature in that all data entered into the data base will be reviewed for accuracy and completeness. The data reports generated from the data base will be checked at a 20% frequency to ensure that the programs are performing correctly. Similarly statistical analysis performed on the data from the database will be check by verification of calculations to ensure validity of the analysis findings.

Comment No. 10:

Methods for determining moribund fish. (I think this should be nailed down b/c it will make a big difference in determining compliance).

Response:

Discussion of fish condition (live, dead, moribund) can be found on p. 9 of the QAPP in subsection 3.1.1 within item #11. Fish will be recorded as live if the fish is able to maintain equilibrium in the aerated live well. Fish will be recorded as moribund or stunned if they are unable to maintain equilibrium, cannot swim down, are lying on the bottom of the live well or have extruded the swim bladder. Moribund or stunned fish will still move their fins and operculum (gills flaps) occasionally. Signs that a fish is dead include unmoving gill flaps, no body movement and clouded eyes. Fish will be recorded as previously dead if they show any signs of decomposition or extensive fungus growth. Fish parts that have become detached from the body (head only, tail only) will be described, identified (if possible), measured, and weighed.

Comment No. 11:

List of water quality parameters that will be measured during sampling such as D.O conc., water temperature, salinity, pH, etc.

Response:

In the QAPP, p.13 lists all the parameters, including water quality parameters that will be measured during sampling. This is found under heading 3.2.

Parameters that will be measured during sampling include:

<u>General Sample Identification</u>

Date, Start time, Stop time, weather, field team members, Plant name, Sample collection method, Sample location, Sample identification, Sample collectors

Operational Data

Number of pumps operating, screen type, Screen operational characteristics

Water Quality

Source water body, temperature, Dissolved oxygen, pH, Conductivity, Salinity

Biological Data

Species common name, Length, Weight, Status/condition (live, dead, moribund), DELT (disease, erosion, lesions, tumors), Voucher specimen, Batched fish (length category, count, and weight)

Comment No. 12:

The PICs should require more frequent sampling. One sample a month for one year will not seem to generate enough samples to do any meaningful statistics. Maybe the applicant's consultant can explain how 12 samples will be enough to generate good, usable data.

Response:

Impingement sampling for Plants Scholz and Smith is currently being conducted biweekly. Entrainment sampling at Plant Smith is also being conducted biweekly. Impingement sampling at Plant Crist is currently being conducted monthly. Impingement data collected from the past 3 months at Plant Crist indicates that impingement rates are extremely low. Table 3 shows historic (1974) and current (2005) impingement data for comparable dates and sampling periods (24 hours). According to historical impingement data from Baseline Inc. (1974), impingement rates were extremely seasonal, with over 90% (by weight) occurring in the three summer months. Current sampling shows impingement rates are negligible (see Figure 1 for fish impingement and Figure 2 for invertebrate impingement). These data support the conclusion that monthly sampling consistently shows levels of impingement that are below historic levels, and that additional sampling is not necessary.

Table 3. Historic and current impingement data summary for Plant Crist. All numbers (for both 1974[1] and 2005[2] data) were sampled over a 24 hour period beginning on the given date

Date	No. of fish impinged	No. of invertebrates impinged	# of species of fish impinged	# of species of invertebrates impinged
5/15/1974	898	51	7	4
5/18/2005	11	2	2	2
6/17/1974	4902	19	12	4
6/16/2005	7	6	2	1
7/15/1974	5348	93	7	4
7/22/2005	0	3	0	1

[1] Baseline, Inc. 1974; Intake velocity for historic data was 274 mgd.

[2] MACTEC 2005; Intake velocity for current data is 155 mgd.

Figure 1. Number of fish impinged (ln) in 1974 and 2005 at Plant Crist at current intake velocity of 155 mgd. See Table 3 for dates.

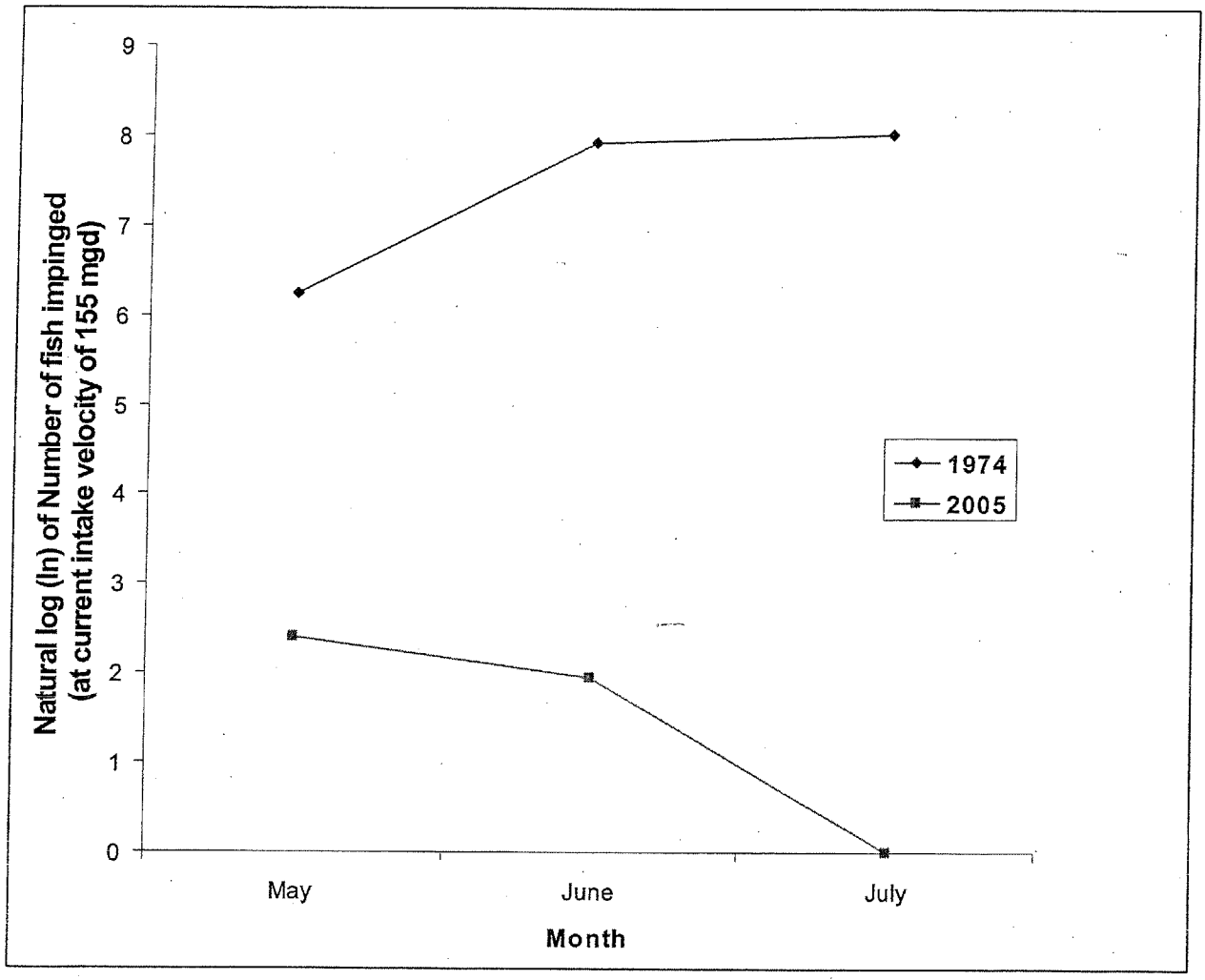

Figure 2. Number of invertebrates impinged in 1974 and 2005 at Plant Crist at the current intake velocity of 155 mgd. See Table 3 for dates.