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September 1, 2011



Ms. Sarah Clem
Water Division
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118-5317

Reference: Georgia-Pacific LLC: Crossett Paper Operations
NPDES Permit # **AR0001210**

Dear Ms. Clem:

Georgia-Pacific has reviewed the Technical Comments submitted by Mr. Matt Hubner of EPA Region 6 related to the draft document titled *Work Plan for Use and Attainability Analysis of Coffee Creek and Mossy Lake*. Please find attached Georgia-Pacific's responses for your consideration in responding to these comments.

If you have any questions or need additional information, please feel free to contact me at (870) 567-8144 or by email at james.cutbirth@gapac.com.

Sincerely,

A handwritten signature in black ink that reads 'James W. Cutbirth'.

James W. Cutbirth
Environmental Services Superintendent

**Responses to EPA Technical Comments
Use Attainability Draft Work Plan
Coffee Creek and Mossy Lake
Crossett, Arkansas (dated June 15, 2011)**

**Prepared for the consideration of the
Arkansas Department of Environmental Quality**

**Prepared by
Georgia-Pacific (GP), Crossett Paper Operations
AquAeTer, Inc - Brentwood, Tennessee**

These comments are being provided to the Arkansas Department of Environmental Quality (ADEQ) for consideration in responding to the comments submitted by Matt Hubner of EPA Region 6 on the draft document titled *Work Plan for Use and Attainability Analysis of Coffee Creek and Mossy Lake*.

Specific EPA Comments with responses to EPA comments shown below each item

Comment 1:

1.1 The draft work plan states that the goal of the investigation “is to determine if the current designated use for Coffee Creek and Mossy Lake is appropriate and if any revisions to the designated use for these water bodies should be made.”

This purpose statement is unclear because currently there are no aquatic life beneficial use designations for Coffee Creek and Mossy Lake. If this statement is taken to mean that this study will investigate whether the lack of aquatic life beneficial uses on these waterbodies is appropriate, then it would indicate that the goal is to simply re-evaluate the findings of Environmental Protection Agency’s (EPA) 2007 Parsons study? The Parsons report conclusions indicate that there is an aquatic life use present for these waterbodies. EPA was under the impression that the purpose of this study was to evaluate the Parsons report findings and assess the appropriate aquatic life use designations for these waterbodies; whether they be a full Gulf Coast ecoregion (GCER) aquatic life use or a subcategory of aquatic life use?

Response 1:

The first sentence in 1.1 has been revised as follows:

“The purpose of this investigation is to collect the necessary data to allow the Arkansas Department of Environmental Quality (ADEQ) to determine the appropriate designated use classifications for Coffee Creek and Mossy Lake.”

Comment 2:

1.1 Paragraph 3, last sentence. There is discussion of “true reference locations.” By true, is this meaning least impacted reference locations?

Response 2:

The last sentence has been modified to read as follows:

“In response to the review, an additional study is needed to address the data gaps and to assess the appropriate designate use classification of Coffee Creek and Mossy Lake. A new reference location for Coffee Creek will be used upstream that will not have any external influences from permitted dischargers. A reference location for Mossy Lake will also be included in an upstream location that will be similar in morphology, bathymetry and habitat/drainage area to Mossy Lake. The location of each of these reference locations was previously provided in Section 1.3.7, 1.3.8 and in Figures 3, 10 and 11 of the Work Plan.

Comment 3:

1.2 The following sentence is similar to the statement of purpose in section 1.1:

“This study is to determine if the current designated use and use variation for Coffee Creek and Mossy Lake are appropriate and if any revisions to the designated use for these water bodies should be made.”

See comments in 1.1.

Response 3:

This sentence will also be revised as follows:

“The purpose of this investigation is to collect the necessary data to allow the Arkansas Department of Environmental Quality (ADEQ) to determine the appropriate designated use classifications for Coffee Creek and Mossy Lake.”

Comment 4:

1.3. Will there be any concurrent sampling of outfall 001 for comparison to the other sampled sites?

Response 4:

Samples will be collected from the Georgia-Pacific Outfall 001 concurrently with sampling of other designated sites. An additional sentence will be added to the end of Section 1.4 –Additional Comments to address this:

The Georgia-Pacific Outfall 001 will be sampled concurrently with the sampling of other designated sites.

Comment 5:

1.3.1. Beyond the stormwater discharges, are there any other impacts that could affect Coffee Creek Site 1 due to its close proximity to the city?

Response 5:

Coffee Creek begins in an area near the City Park that receives stormwater from the urban and residential areas of Crossett. Urban areas are known to contribute petroleum byproducts from automobile and truck traffic, such as PAHs and nutrients. Some metals may also be associated with urban areas as well.

Comment 6:

1.3.2. The Parsons study found that this location was occasionally inundated by the Ouachita and likely allowed GP discharge to impact the location. It is valuable to note the impacts of these occurrences on the current state of Coffee Creek, but this location would not be preferential for use as a reference location or developing a clear picture of Coffee Creek in its natural state. Additionally, it was noted in the previous study that there were likely non point sources (trash dumping, etc) that impacted the location.

Response 6:

An additional upstream reference stream has been selected that is not affected by permitted dischargers. We agree with your statement that the Parsons Reference Station was not really a Reference Station. The new reference sites are located in an upstream Felsenthal National Wildlife Refuge area and are in a similar physical setting as Coffee Creek and Mossy Lake.

Comment 7:

1.4. The second paragraph discusses that Coffee Creek below Mossy Lake is not to be sampled due to the influence of the GP discharge on these segment as well as the influence of the Ouachita River. Due to flooding, it is likely that a number of other sites on Coffee Creek proposed for this study are likely impacted from the GP discharge from time to time. As noted in the work plan, the Parsons study conducted biological sampling in this location. Continued biological sampling in this location could serve as a beneficial comparison to the Mossy Lake reference site, since it was noted in this work plan that the reference locations were more heavily influenced by the Ouachita than Mossy Lake.

Response 7:

The Parsons study stated that the station on Coffee Creek downstream from the Mossy Lake discharge weir was a reflection of the Ouachita River. This site will not be sampled during a flooding event since the Ouachita River waters dominate the total flow in the floodplain and natural conditions reflective of the swamp/wooded wetland areas will not be represented. We will modify the Work Plan to include sampling of this site during certain low flow events. A Section 1.3.9 will be added to the Work Plan:

1.3.9 Coffee Creek Downstream of Mossy Lake – Site 9.

The section of Coffee Creek downstream of Mossy Lake will be sampled. This location will be within 500 meters from the Mossy Lake weir.

The primary reference lake for Mossy Lake found in Felsenthal National Wildlife Refuge is not normally directly connected to the Ouachita River during low flow periods, as shown in Figure 11. This site will provide the best reference location for Mossy Lake rather than any other waterbody around Mossy Lake or its immediate vicinity. If the primary reference lake cannot be reached, second and third reference locations are also shown in Figure 11. These may have a direct connection to the Ouachita River, but they are of similar characteristics to Mossy Lake with cypress trees and shallow depths. These secondary reference lakes do receive inflows from the swamp/forested wetland streams located in this area.

Comment 8:

2.1.3. Dissolved oxygen (DO) has been a major issue for these waterbodies in relationship to the maintenance of aquatic life. Will there be any diurnal evaluations of in-stream DO data collected? Such data will be beneficial to the development of an appropriate aquatic life use designation.

Response 8:

We agree that DO is a major issue that was identified during the Parsons' study. Parsons data showed that the Coffee Creek location they labeled as their Reference Station failed to meet the Gulf Coast Ecoregion water quality standards.

As previously discussed in Section 3.3 of the Work Plan, Hydrolab mini-sondes, or equivalent, will be deployed at each station during each sampling round for at least two days. In situ water quality parameters for water temperature, dissolved oxygen (DO), pH and specific conductance at 25°C (conductivity) will be collected on 15-minute intervals.

Comment 9:

2.1.3 Additionally, EPA's study evaluated chemistry in sediment as well as toxicity. If this study is geared to be a comparative study to the Parsons report, will these parameters be tested for as well?

Response 9:

Sediments were not included in the Work Plan, since the Parsons sediment toxicity data were inconclusive. The Parsons study showed sediment toxicity in the upstream Ouachita River sample showed sediment toxicity. The only station that showed abnormal chemical data was the station just downstream from the burned out creosote-treated timbers railroad bridge where PAHs were detected, which is a very obvious cause and effect., Sediment toxicity testing is not a specified biological or chemical testing evaluation, as evidenced in Table IV-1 of EPA's *Technical Support Manual: Waterbody*

Survey and Assessments for Conducting Use Attainability Analyses (1983). Sediment toxicity and sediment chemistry are not given as parameters of interest in the Rapid Bioassessment Protocols For Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates, and Fish Second Edition (1999).

General Comments

Comment 10:

1. A use attainability analysis (UAA) examines the suitability of a water body for attaining a given use. For this study, the particular use being examined is the aquatic life use (i.e., a Gulf Coastal Ecoregion (GCER) fishery). EPA's *Technical Support Manual: Waterbody Survey and Assessments for Conducting Use Attainability Analyses* (1983) describes three central questions to be examined when conducting a UAA, including:

1. What are the aquatic protection uses currently being achieved in the water body?
2. What are the potential uses that can be attained based on the physical, chemical and biological characteristics of the water body; and,
3. What are the causes of any impairment of the uses?

This work plan focuses primarily on answering item 1. Using data from the Parsons report and other sources can assist in question 3, but this plan does not provide much detail into how number 2 will be answered. The submitted work plan and QAPP indicate that this study will be used solely as a comparison to evaluate the findings of EPA's 2007 report. EPA finds it troubling that the QAPP contains no data quality objectives (DQOs) geared towards the utilization of gathered data to be used in the development of an appropriate aquatic life beneficial use for Coffee Creek and Mossy Lake.

Response 10:

The Work Plan is designed to collect the data necessary for the ADEQ to address these questions. The potential uses that can be attained based on the physical, chemical and biological characteristics of the water body will be assessed based on the collected data, and the assessment of the designated uses will be done in an objective manner. This is an ecosystem with complexities and it will not lend itself to a simple evaluation. EPA itself states this:

*Since the complexity of an aquatic ecosystem does not lend itself to simple evaluations, there is no single formula or model that will provide all the answers. Thus, the professional judgment of the evaluator is key to the interpretation of data which is gathered.*¹

Thus, the ADEQ will make the designated use determinations as allowed by its authority under the Water Quality Standards program for Arkansas.

¹ Page I-1, EPA *Technical Support Manual: Waterbody Survey and Assessments for Conducting Use Attainability Analyses* (1983).

Data Quality Objectives were inadvertently omitted. These have been included and are attached. We have included data quality objectives for the fisheries and macrobenthos sampling, although there is no specific guidance for these. We have included in the data quality objectives for the fisheries, measuring length and weight of the fish samples collected and having a voucher sample which includes 10% of the species identified, unidentified species, and a subset of the GCER indicator species found will be sent to an independent taxonomist for verification/identification. For macrobenthos samples, there will be a field verification by a second person that all sampling techniques were performed correctly and that all species found were collected and counted correctly. Ten percent of the identified species and any unidentified species will be sent as a voucher collection for verification.

Comment 11:

EPA maintains that the 2007 Parson's study supports the existence of an aquatic life use in Coffee Creek and Mossy Lake. EPA suggests that this study incorporate the necessary mechanisms to develop the appropriate uses for these waterbodies.

Response 11:

1. The collected data will allow the ADEQ to form an objective analysis of what appropriate use these swamp/forested wetland water bodies can meet. A fundamental part of this analysis will be the comparison of Coffee Creek and Mossy Lake with a Reference Stream and Reference Lake located in the Felsenthal National Wildlife Refuge area that is on the Ouachita River upstream from any potential interaction with the Georgia-Pacific effluent. Contrary to EPA's assertion that the Parsons study supports the existence of an aquatic life use, the Parsons report only identified that the Coffee Creek/Mossy Lake system has the *potential* to support an aquatic life use:

The waters of Coffee Creek and Mossy Lake have the potential to support aquatic life indicative of streams in the ecoregion. (Page ES-2, Parsons Report, 2007)

The Parsons report also makes the following statement about a potential aquatic life use being limited:

Without the GP discharge, Coffee Creek and Mossy Lake may be able to sustain a diverse aquatic community during and after inundation by the Ouachita River and a limited aquatic community during the annual dry seasons. (Page ES-2 and 3, Parsons Report, 2007)

The Parsons report also goes on to say that "*the assessment of potential (i.e., attainable) uses may require additional study beyond these physical, chemical, or biological sampling results*" (Page ES-3, Parsons Report, 2007).

Based on the additional data and study conducted as part of this Work Plan, the ADEQ will make the appropriate designated use determinations as allowed by its authority under the Water Quality Standards program for Arkansas.

Comment 12:

2. There is no mention of an assessment of primary contact for the waterbodies in the current work plan. Is this to be addressed? What are the DQOs for determining the appropriate level of contact?

Response 12:

These water systems to be studied are swamp and forested wetlands with little if any potential for primary contact recreation. Data will be collected on stream width, depth, presence of water, flow, water quality, morphology and accessibility. The data collected on these waters, which are swamps and forested wetlands with water depths typically less than 2 feet and most times with no flow, can be used by the ADEQ to determine the appropriate designated use.

ATTACHMENT
DATA QUALITY OBJECTIVES

QUALITY OBJECTIVES AND CRITERIA FOR MEASUREMENT OF DATA

This attachment is to supplement the information previously provided in the Work Plan for Use and Attainability Analysis of Coffee Creek and Mossy Lake (the Work Plan). The tasks and sampling methods are described in the Work Plan or in the QAPP, which was provided as an attachment to the Work Plan.

The water quality assessment tasks of this investigation will include collection of water quality measurements and samples for analysis. Results will be provided to the Arkansas Department of Environmental Quality. The water quality measurement performance criteria and definitions of performance limits for laboratory duplicates are included in Attachment Table 1.

AquAeTer is responsible for all analyses performed in the field. **AquAeTer** will use a qualified laboratory for analyses of conventional parameters. The laboratory expected to complete all analyses of the conventional parameters is American Interplex in Little Rock, Arkansas. American Interplex has provided the data quality objectives for the conventional parameters.

ATTACHMENT TABLE 1. DATA QUALITY OBJECTIVES FOR FIELD AND SPECIAL PARAMETERS

PARAMETERS	UNITS	MATRIX	METHOD	REPORTING LIMIT (RL)	PRECISION OF LAB DUPLICATES (RPD)	ACCURACY OF LAB MATRIX SPIKES %Rec.	COMPLETE %	RESPONSIBLE PARTY
<i>Field Parameters (Water)</i>								
pH	Standard Units (SU)	water	EPA 150.1	0.2	N/A	N/A	90	AquAeTer
DO	mg/l	water	EPA 360.1	0.2	N/A	N/A	90	AquAeTer
Turbidity	NTU	water	SM2130B	0.5	N/A	N/A	90	AquAeTer
Conductivity	uS/cm	water	EPA 120.1	1	N/A	N/A	90	AquAeTer
Temperature	°C	water	EPA 170.1	0.2	N/A	N/A	90	AquAeTer
<i>Laboratory Parameters; Conventional Parameters (Water)</i>								
PARAMETERS	UNITS	MATRIX	METHOD	REPORTING LIMIT (RL)	PRECISION OF LAB DUPLICATES (RPD)	ACCURACY OF LAB MATRIX SPIKES %Rec.	COMPLETE %	RESPONSIBLE PARTY
Chloride	mg/L	water	EPA 300.1	<0.2	0% - 20%	80% - 120%	90	American Interplex
Sulfate	mg/L	water	EPA 300.1	<0.2	0% - 20%	80% - 120%	90	American Interplex
Nitrate-N	mg/L	water	EPA 300.0	<0.05	0% - 20%	80% - 120%	90	American Interplex
Total P (TPO4)	mg/L	water	SM 4500-P	<0.02	0% - 10%	80% - 120%	90	American Interplex
BOD	mg/L	water	SM 5210 B	<2	0% - 20%	N/A	90	American Interplex
Orthosphosphate - P	mg/L	water	SM 4500-P	<0.02	0% - 10%	80% - 120%	90	American Interplex
Total Solids	mg/L	water	SM 2540 B	<10	0% - 10%	N/A	90	American Interplex
TDS	mg/L	water	SM 2540 C	<10	0% - 10%	N/A	90	American Interplex
TSS	mg/L	water	USGS 3765	<4	0% - 20%	N/A	90	American Interplex
Chloride	mg/L	water	EPA 300.0	<0.2	0% - 20%	80% - 120%	90	American Interplex
Sulfate	mg/L	water	EPA 300.0	<0.2	0% - 20%	80% - 120%	90	American Interplex
Color	mg/L	water	SM 2120 B	<10	0% - 20%	N/A	90	American Interplex
Dieldrin	ug/L	water	EPA 608	<0.002	0% - 30%	60% - 130%	90	American Interplex
Copper	mg/L	water	EPA 200.8	<0.001	0% - 20%	75% - 125%	90	American Interplex
Zinc	mg/L	water	EPA 200.8	<0.002	0% - 20%	75% - 125%	90	American Interplex
Fecal Coliform	CFU/ml	water	SM 9222 D	<1/100ml	N/A	N/A	90	American Interplex

Precision

The precision of a measurement, also called the reproducibility, is the degree to which repeated measurements show the same results under unchanged conditions. It is strictly defined as the degree of mutual agreement among independent measurements as the result of repeated application of the same process under similar conditions. Data collection in biological systems comes with inherent limitations to precision due to the variability of natural systems.

Precision of all data collection will be aided by consistency in employee training and equipment operation, and by following the detailed guidelines and methodologies provided in Section 3: Scope of Work of the UAA Work Plan. Protocols outlined in these sections were chosen for their ability to provide maximum precision in all aspects of the data collection process. Sample analyses and reporting for water quality parameters will be done in accordance with the method-specific protocol provided in Attachment Table 1. Performance limits for laboratory duplicates are also defined in Attachment Table 1.

Accuracy

Accuracy of a measurement is the degree of closeness or correctness of the measurements of a quantity to that quantity's actual (true) value and includes components of systemic error. Accuracy of all data collection will be aided by following detailed guidelines and methodologies provided in Section 3: Scope of Work of the UAA Work Plan. The accuracy of the conventional water quality parameter analyses will be confirmed through the use of laboratory spikes and blank samples. The anticipated range for each parameter is presented in Attachment Table 1.

Data accuracy for fish and macrobenthos sampling will be ensured by following the protocol outlined in sections 3.4.1 and 3.4.2 of the work plan. In order to provide data quality for biological collections a system of checks will be included. Primary field identifications of fish, to species level, will be conducted by staff biologists qualified/trained in fish taxonomy and will include measurements of fish length and weight. The secondary accuracy check will be provided through the use of a voucher collection. The voucher collection, which includes 10% of the species identified, unidentified species, and a subset of the GCER indicator species found, will be sent to an independent laboratory for verification/ identification. The staff biologists may receive assistance from an Arkansas state biologist familiar with local and regional ichthyofauna if/when this individuals schedule permits.

Macrobenthos sampling, processing, and specimen identification will be guided and verified by a staff biologist trained and specialized in bioassessments utilizing benthic macroinvertebrate collections. Questionable specimens and a voucher collection

containing 10% of identified species and any unidentified species will be verified/identified by an independent lab. Data analyses and reporting for biological specimens will be conducted in accordance with guidelines provided in the EPA Rapid Bioassessment Protocol for Use in Streams and Wadeable Rivers.

Representativeness

The representativeness of data from biological collections is dependent on the sampling locations and the sampling procedures used in those collections. The field site sampling design has been chosen based on recommendations from the EPA Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers. The site selection methodology, in conjunction with the use of EPA-approved analytical methods will assure that the measurement data is representative of site conditions.

Comparability

The comparability of the data produced is predetermined by the selection of universally acceptable methodology and the commitment of staff to following outlined protocols and procedures. Methodology to be utilized in this UAA follows EPA guidelines for data collection and analyses (unless otherwise specified) and will be reported in standard units and by using accepted rules for rounding figures. Detailed explanations for selected methodologies and their implementation protocol can be found in Section 3: Scope of Work of the UAA Work Plan.

The collection of the data laid out in the Work Plan is intended to allow for comparison of results between the two studies. That is, the fisheries study results in 2011 will be able to be compared to the fisheries study results in 2012. The macrobenthos study results in the Fall of 2011 will be compared to the results in Spring of 2012. This will allow ADEQ to compare the results of the studies.

Completeness

Data completeness can be expressed as the relationship of how much of the data is available for use compared to the potential data. Ideally, 100% of the data collected should be available for analyses and reporting. However, the possibility exists that some data may be unavailable due to accidents or damage that may occur to samples during the transport process. Therefore, it will be a general goal of the project to achieve 90% data completeness.