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Consumer Products  
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January 21, 2011

Mr. Greg Strong, District Director  
State of Florida  
Department of Environmental Protection  
7825 Baymeadows Way Suite B200  
Jacksonville, FL 32256-7590

Dear Mr. Strong:

Please find attached Georgia-Pacific's response to the Florida Department of Environmental Protection's (the "Department's") Second Request for Additional Information dated December 10<sup>th</sup>, 2010, (the "2<sup>nd</sup> RAI") requesting clarification to certain responses in Georgia-Pacific's Oct 4<sup>th</sup>, 2010, submittal.

For ease of review, we have reproduced the Department's questions, which are in italics, and provided our response immediately following each question. Georgia-Pacific engaged independent third party experts Brown and Caldwell, Risk Sciences and Advent-Environ to complete the Technical Memo No. 3 sections of the response.

This 2<sup>nd</sup> RAI Response, coupled with Georgia-Pacific's previous submittals, completes the company's obligations under the Department's June 1, 2009, letter and should address all of the Department's questions concerning Brown and Caldwell's Technical Memo No. 3, submitted on July 15. As set forth in the attached response, Georgia-Pacific is awaiting further guidance from the Department regarding the Rice Creek Water Quality Report based on the Department's recent assessment of Rice Creek. We appreciate the Department's continued input and involvement in this process.

Should you have any questions or comments, please do not hesitate to contact me at (386) 329-0063.

Sincerely,

A handwritten signature in black ink, appearing to read 'Gary L. Frost', with a long horizontal line extending to the right.

Gary L. Frost  
Vice President

Attachment

**Cover Letter (CL)**

***CL 2:*** *Response is adequate. However, is there an anticipated date for completion and evaluation of the trials for reducing aluminum?*

**Response:**

Preliminary results from the trials indicate that the results are heavily influenced by the color in the raw water being treated. The raw water color during the trials has been well below historic peak values. Therefore, we will finalize the trial when we can test under extended peak influent color conditions, which typically occur during heavy rains.

**Technical Memorandum (TM) No. 3** – Responses to questions regarding toxicity were primarily prepared by Risk Sciences and Advent Environ. Brown and Caldwell also assisted with answering questions regarding TM No. 3.

***TM1:*** *The response is adequate; however, there appears to be a typographical error in Table 1 for the final effluent result for hardness. The hardness is reported as 1.7 mg/L. Can you please clarify the appropriate hardness number? Also, are alkalinity and hardness values expressed as mg/L of CaCO<sub>3</sub>?*

**Response:** We contacted the lab and they have determined that the original result it reported was an error and 1.7 mg/l should be replaced with 153 mg/l. We have attached the corrected lab report. Alkalinity and hardness values are expressed as mg/L of CaCO<sub>3</sub>.

***TM4:*** *The attachment "Focused Toxicity Identification Evaluation" includes a table of comparative chemistry and chronic toxicity test results from four GP mills. The table refers to Palatka Pond 1 rather than the final effluent. Is the chemistry in pond 1 representative of the effluent for all constituents in the table? Also, the levels in the table for Palatka Pond 1 appear to be different from current levels at the facility. Ionic imbalance was cited in the July 2010 Technical Memorandum prepared by Brown and Caldwell as one of the possible factors contributing to the chronic toxicity failures of Ceriodaphnia dubia. Based on results in Table 1 of your response to question TM1, the alkalinity/hardness ratio now averages less than 2.0 mg/L of CaCO<sub>3</sub>. Is ionic imbalance still considered a factor contributing to the chronic test failures? The differences in effluent from 2006 to present appear to support the need for a new TIE.*

**Response:**

The chemistry in Pond 1 is generally representative of the final effluent's ionic composition. While some treatment continues to occur as effluent moves from Pond 1 to Pond 4, the net salinity does not change significantly. While the effluent chemistry varies with time, ionic interference (caused by elevated conductivity) and ionic imbalance (caused by an unusual distribution of anions and cations) continue to contribute to the chronic toxicity test failures. However, regardless of ionic interference, it is unlikely that the final effluent would ever be able to pass the chronic reproduction

test consistently at the specified instream waste concentration of 72%. There is no need to initiate a "new TIE" at the Palatka mill because GP has continued to supplement the previous work with additional studies focused on evaluating various treatment alternatives and chemical substitutes.

***TM5:*** *Please clarify how lab analytical procedures for color analysis and/or sampling location at the mill differed from samples collected and sent to the outside lab for compliance monitoring.*

**Response:** The mill collects a grab sample of the final effluent once per month and sends it to an outside lab that is certified to run EPA Method 110.2 as required by the AO. The outside lab is also certified to run NCASI Method 71.01 as required by the NPDES permit and that value is reported on the DMR. Additionally, the mill collects grab samples three times per week from the discharge of Ponds 1,2,3 and 4 (final effluent) to be analyzed by the internal mill lab. The mill lab is not certified for color analysis, and these samples are analyzed for internal informational purposes. The mill's Standard Operating Procedures are based on NCASI Method 71.01. As set forth in Table 2 of RAI response of October 4th, the values detected by the mill lab are consistently higher than the values detected by the outside, certified lab.

***TM5:*** *In Table 1-1, the average of effluent daily specific conductance values was 1,900 umhos/cm based on 173 observations. The daily maximum was 2,280 umhos/cm. In the revised Table 1-1 in Appendix A, the average of effluent daily specific conductance values was 1,822 based on 8 observations. The daily maximum was 2,078. Please explain why there were 173 observations over a nine-month period in Table 1-1, and only 8 in the revised Table 1-1 for an eight-month period.*

**Response:** The 173 observations presented in Table 1-1 were the daily operational measurements (grab samples) taken by the mill from January through September 2009 and used internally to monitor the operation of the treatment system. The eight values used in the revised table were the values from the composite samples taken for the monthly DMR.

***TM 5:*** *On page 13, in the last paragraph, you state "When elevated conductivity merely delays, rather than precludes, reproduction it is evidence of test interference rather than effluent toxicity." There were eight chronic definitive tests submitted in 2010. Of those, five had distinct third broods by the end of the test, whether on day 6 or 7. We believe these reports do show more than test interference. You also go onto say "Instantaneously moving test organisms from one matrix to another creates an artificial stress in the test." While this may be true, EPA guidance says that the dilution water can be adjusted to match the receiving water. However, if the dilution water is similar to the receiving water in conductivity, then the "rapid changes in conductivity" would be a factor in the effluent's high conductivity. Please verify the receiving water conductivity and if that might justify a modification to the dilution water.*

**Response:** The 2010 ECT "Rice Creek Water Quality Report" shows that the average conductivity at the background station R7 was 170  $\mu\text{mhos/cm}$  with a standard deviation of 51. The effluent station M1 had an average conductivity of 1775  $\mu\text{mhos/cm}$  with a standard deviation of 160. The creek is tidally influenced and it is difficult to predict salinity if the effluent were not present.

While EPA guidance allows the conductivity of the dilution water to be adjusted to match the receiving water, based on Risk Sciences' experience, there is no value to adjusting hardness, alkalinity or conductivity of the control water because, by doing so, the test would not pass acceptance criteria (at least 15 offspring per female) in accordance with the mandatory protocol. The control water would have the same problems with ionic interference that the effluent experiences.

**TM5 Comment:** *Also, on page 14 you state "If the test were extended for one additional day... there would no longer be a statistically significant difference...." In all 8 data sets for 2010, the dilutions which struggled to produce 2 or 3 broods by the end of day 6 or 7 were only achieving 1 to 4 neonates which would not have significantly improved the overall test results. For instance, even if you doubled or quadrupled the total neonates in 100 % effluent for the test results performed on February 9, 2010, then the number of neonates might have been 6 to 12, which is still significantly less than the average of 31 for the controls. Therefore, even with an additional day, we believe the tests would still show a statistically significant difference.*

**Response:** FDEP's discussion of the results for the test performed on February 9, 2010 are illustrative of the careful consideration that must be given to interpreting WET data. FDEP states that the results from 2010 seem to "show more than test interference." That may be true in some cases but not in others, however test protocol does not allow extending the test.

**TM 12:** *It is unclear from the response whether ionic imbalances are still considered a significant factor in chronic toxicity failures. As noted earlier (in question 4 above), since 2006 there appears to be a significant reduction in the alkalinity/hardness ratio of the effluent.*

**Response:** The alkalinity/hardness ratio is believed to mitigate or aggravate the potential toxicity of aluminum in freshwater. However, this relationship has not been well defined under controlled experimental conditions. So, while the ratio may have changed in Palatka's effluent over time, it is not possible to accurately predict how such changes would affect the bioavailability of alum and the resulting impact on WET. Moreover, interaction with other factors (such as overall conductivity) make it difficult to parse out the precise level of biological stress contributed by each element in the ionic composition.

**TM 17:** *Do the aluminum concentrations in Table 8 represent total aluminum or soluble aluminum? Is soluble aluminum a better indicator of possible toxicity than total aluminum? If so, why?*

**Response:** There are no aluminum values in Table 8. Follow-up phone conversions between Georgia-Pacific and FDEP clarify that FDEP was referring to Table 6. Georgia-Pacific has confirmed that the values in Table 6 represent total aluminum. In general, as with most metals, the concentration of dissolved aluminum is a better predictor of potential toxicity than is the concentration of total aluminum. Only the dissolved fraction is bioavailable and able to pass through the gill interface. And, even then, the actual toxicity of dissolved aluminum is influenced by other water quality factors such as alkalinity and hardness.

### **Rice Creek Water (RC) Quality Report**

***RC2:** The response, subsequently submitted field sheets, and conference calls held between GP and the Department draw concerns over the validity of the SCI data submitted; therefore, the SCI portion of the Rice Creek Water Quality Study needs to be supplemented and conducted again. DEP scientists are willing to assist GP in developing an appropriate monitoring plan, to conduct site evaluations to determine appropriate control sites and the proper applicability of the Stream Condition Index. While not required, GP may want to consider conducting additional Hester-Dendy sampling in conjunction with the additional SCIs. Please let me know if you would like to arrange a meeting to discuss the development of the plan and monitoring sites or, if you prefer, submit a modified monitoring plan to the Department for review.*

**Response:** The Department conducted a biological assessment of Rice Creek on January 12 and 13. Georgia-Pacific is awaiting further guidance from the Department on how to address this portion of the 2<sup>nd</sup> RAI based on this recent assessment.