

Comments on Georgia-Pacific Response to DEP RAI 12/10/2010

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General comments - Little additional information was provided in the January 10, 2011 response to the second RAI issued by the FDEP, particularly with respect to chronic toxicity. No data were provided that definitively shows that current effluent fails chronic toxicity test due to ionic imbalance/interference or the interaction of ionic constituents with aluminum. No information was provided to indicate that aluminum, and presumably chronic toxicity, will be affected by upgrades in the WTP. Aluminum levels in the sludge pond supernatants have never been reported and other potential sources of aluminum in the mill have never been described. It is my opinion that the source of chronic toxicity in the effluent today is still not very well understood and that good management of industrial waste requires a sound knowledge of the toxicants that are discharged.

CL 2 Response: G-P observed that high polymer doses associated with high-color process water will be necessary to determine the impact of WTP upgrades on chronic toxicity. This statement suggests that the new polymer also contains aluminum or a potential toxicant that could be released from sludge; is this the case? What polymer is being used? Is it a polyamine? Is there any potential for leaching of unknown polymer constituents as occurred with aluminum? Will aluminum in the effluent continue to be monitored along w/ chronic toxicity to evaluate WTP upgrade effects? Heavy rainfall in the early spring should have provided enough color for WTP trials to be fully assessed.

CL 4 Is isolation of Pond 1 solids being considered?

TM 4 Response: G-P did not answer the questions about the "Focused TIE" document.

In response to the question: Is the chemistry in pond 1 representative of the effluent for all constituents? G-P simply stated conductivity is conservative, did not address alkalinity or NOEC.

In response to the question: With alk/hardness ratio now under 2 (as opposed to 4.6 referred to in the Focused TIE document) is ionic imbalance still a problem? G-P simply stated that ionic interference and ionic imbalance continue to contribute to the chronic toxicity problems and that even if conductivity was reduced, the effluent would not pass. There were no data provided to support either statement.

In response to the question: Will differences in effluent characteristics necessitate a new TIE? G-P simply stated that they have conducted "additional studies focused on evaluating treatment alternatives and chemical substitutes," and did not address the significant changes in effluent characteristics that have occurred since they determined that ionic imbalances/interferences affected the chronic toxicity test results.

TM 5 Response: In response to questions about the methods of color analysis by the mill and an outside lab and the discrepancy in results, G-P explained again the methods differences (as they did in the

response to RAI 1), but it is still unclear to me whether cost estimates for color removal were based on higher (by ~ 28%) and more inaccurate mill color analyses.

TM 5 Response: In response to a question about whether using receiving water as toxicity testing dilution water would be useful, G-P noted that upstream conductivity values of Rice Creek at R7 are very low and at M1 the effluent it is 1775 umho. They correctly note that conductivity in Rice Creek without the effluent cannot be predicted. There was no discussion of SJR as the receiving water to be used for dilution water.

In the following two question/responses, it is clear that the cause for chronic toxicity failures is not well understood.

TM5 Response: G-P stated that adjusting hardness, alkalinity or conductivity of the control water is not useful because there would be interference problems resulting in fewer than 15 offspring under test protocols. There are no data provided with the statement thus the question remains about the actual impact of ionic interference or imbalance pm chronic toxicity tests, particularly with today's effluent.

TM 5 Response: In G-P's response to RAI 1, it was stated that ionic imbalance/interference delays third broods in experimental samples with the implication that these are the reasons that chronic tox tests will never achieve 72% NOEC. FDEP commented that even with extending chronic tox test periods to accommodate acclimation to drastically different matrices, chronic toxicity would still be exhibited because of the low number of neonates, thereby suggesting that imbalances/interferences are not the sole causes of test failure. G-P essentially stated that maybe that was true in some cases, and maybe not, but test protocols will not allow it. They did not address the FDEP suggestion: ions are not the sole cause of chronic tox failure.

TM 12: In response to FDEP's question about whether G-P still considers ionic imbalance/interference a reason for chronic tox failure because of much lower alkalinity/hardness ratios in today's effluents, they essentially state that they do not know and that it is "difficult to parse out the precise level of biological stress contributed by each element in the ionic composition." This response appears to support the view that a new TIE is necessary to determine what is causing chronic toxicity in the effluent.