

Steven Storms

FYI - I am a retired Chemical Engineer and PE with more than 40 years experience in the pulp and paper industry, the majority involving environmental work. I would like to make several comments about the proposed Westrock chip expansion proposal in Tacoma.

- First, the description seems to contradict itself. It initially says that more efficient pollution equipment is being installed, but it also says that the emissions will increase. I find this both confusing and misleading.
- Second, this does not seem to be an environmental project at all. It appears to be an expansion project written to make it appear as an environmental project. The additional 91 dry tons per day of chips will produce about 40 additional tons per day of brown paper. As an incremental capacity increase project, I would assume that the Best Available Control Technology (BACT) would be required. If the emissions are increasing, that does not appear to be the case.
- Additionally, the impact of the incremental capacity on the rest of the mill has not been included or even mentioned. Besides the increase in chips, there are several other areas that could have substantial impacts. The chips could replace recycled paper, which would change the operation of much of the mill. The most likely case would be that it will increase the total production of the mill. The impact will be felt throughout the mill. Depending on the recycled content, which I assume is about 50 percent, the recovery boiler would be required to increase by an additional 5 or 6 percent with probably an even higher increase in emissions. The power boilers will also see an increase in fuel being burned. Both of these sources of emissions have been overlooked in the proposal.
- Another significant change might also occur if additional electrical power is required for this 3 percent increase in capacity. In summary, the project appears to present itself as an environmental project. In reality, it is a capacity increase that does not use BACT and actually increases emissions. By only analyzing only a small portion of the mill, it tries to avoid the net impact of the rest of the mill.

It is also find it hard to follow the logic of the project description. They claim that chip production will increase by 91 tons per day (from 2,278 to 2,360 tons per day) by removing more knots, pins and fines. Normally when you remove material, the amount gets lower. I do not know the amount of material that is planned on being removed, but if it is enough to impact the Kamyr digester yield, it would have to be several percent to be measurable. This could increase the total chip capacity to 150 or 200 tons per day. It would also increase the waste hog fuel to be burned or sent to a landfill. The improved Kamyr digester yield might also increase the pulp or paper production by more than just the 91 tons per day of increased chip capacity would be indicated.

I think this project requires an independent analysis by someone with a background in pulp and paper, That is the only way the whole impact on the back liquor cycle can be compared. Currently, it does not include all the other changes that would be required to utilize the additional chips. (Typically, air emissions always increase as pulping capacity increases. The most significant increases will be found in the increase in black liquor burned in the recovery boiler, increases in the emissions from increased power boiler demand or electrical generation, increases from the lime kiln stack, increases in bark, hog fuel, fossil fuel or other boiler fuels such as plastics.) I think you will find these changes will be even more significant than the emissions from only the chipping system that is described. This is definitely not an environmental improvement project. It can only contribute more air emissions into our already minimal air quality region. If this project to increase capacity is absolutely necessary, it should actually require enough air pollution equipment that it would

improve the quality of air not further diminish it.

I hope this information is helpful in your evaluation. I also hope your analysis of this project includes all the impacts of the additional 91 tons per day of chips for the total plant, not just the insignificant chip handling area.

Thanks for your attention.

Steven Storms.
253 202-9925