No. 3 Recovery Furnace NO_X CEM averaging period

30-day Averaging Period

The selection of a 30-day averaging period is consistent with the applicability test under the New Source Review (NSR) regulations. The NSR applicability test is based on the monthly black liquor solids the No. 3 recovery furnace is currently capable of firing, consistent with a 30-day averaging period.

Since the NSR applicability test is not based on the daily black liquor solids the No. 3 recovery furnace is currently capable of firing, the establishment of an averaging period of less than 30-days would be inconsistent with the underlying NSR regulations.

12-hour Averaging Period - RBLC Determination CA-0866

RBLC determination CA-0866 establishes a recovery furnace NO_X emission limit of 78 ppm, based on a 12-hour average. This emission limit was established as the result of an EPA enforcement action related to the failure of the source to obtain a pre-construction NSR permit. Historical emissions data, none of which exceeded 65 ppm, with an additional twenty percent margin of safety (compliance margin) form the basis of the 78 ppm NO_X emission limit. Therefore, evaluating compliance at the California pulp mill using a 12-hour average still allows the NO_X emissions to be 20 percent higher than historically observed.

Analysis

Recovery furnace NO_X emissions can vary significantly during the course of normal operations for many reasons. One major factor is nitrogen content of the black liquor, which varies depending on the age and species of wood being pulped. Pulp wood is procured from numerous suppliers with a diverse fiber supply. The constantly changing mix of ages, species, and origins of the pulp wood can result in fluctuations in liquor nitrogen content, and consequently the NO_X emissions.

The equipment vendor providing the quaternary air system for the No. 3 recovery furnace has guaranteed NO_X emissions will average 80 ppm, based on a black liquor nitrogen content of 0.08%. Although the long-term average black liquor nitrogen content is expected to remain at or below this level, the possibility exists that during short-term periods when the black liquor nitrogen content is elevated, the NO_X emissions may also be higher. The highest measured NO_X emission level from the No. 3 recovery furnace is 78 ppm, leaving no margin of compliance.

Conclusion

Without any margin of compliance built into the NO_X emission limit, variations in fiber supply could result in short periods when NO_X emissions are greater than previously measured NO_X emissions from the No. 3 recovery furnace. The only means to accommodate the natural variations in nitrogen content of the pulp wood is the use of a long-term averaging period. A 30-day average is consistent with the NSR applicability test, and also accounts for the natural short-term variations in black liquor nitrogen content.