UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

September 14, 2001

4APT-APB

Barry R. Stephens, P.E.
Tennessee Department of Environment and Conservation
Division of Air Pollution Control
9th Floor L&C Annex
401 Church Street
Nashville, Tennessee 37243-1531

Dear Mr. Stephens:

Thank you for the letter from the Tennessee Department of Environment and Conservation (TDEC) to the Region 4 office of the U.S. Environmental Protection Agency (EPA) dated July 17, 2001. In this letter, you requested EPA's views on a proposed determination made by TDEC concerning a pulp and paper mill in Counce, Tennessee. The proposed determination was that a planned project at the Packaging Corporation of America (PCA) pulp and paper mill could be considered routine maintenance, repair or replacement and therefore exempted from the prevention of significant deterioration (PSD) definition of major modification as allowed by the applicable PSD regulations in Tennessee Rule 1200-3-9-.01(4)(b)2.(i)(I).

It remains Tennessee's responsibility to determine whether PCA's project is routine maintenance, repair or replacement. However, based on the information made available to us and as more fully explained below, EPA's opinion is that the planned project should not be considered routine maintenance, repair or replacement under Tennessee regulations and EPA guiding policies.

Project Background

The PCA mill project in question focuses on Recovery Boiler #1 (R-1). The proposed project primarily consists of replacing all of the tubes in the R-1 generating bank. In addition, according to PCA's Executive Summary for the project's appropriation request, the project will also include replacement of 44 tubes on the center front side of the R-1 economizer. Based on information provided by PCA, relevant characteristics of the generating bank tubes and the entire boiler before and after the proposed project are as follows:

	Before Project	After Project
Number of Generator Bank Tubes	1,273	1,173
Volume of Generator Bank Tubes (ft^3)	519	477
Generator Bank Tubes as a Percentage of all R-1 Water Tubes (%)	20.4	19.0
Generator Bank Tube Wall Thickness (inches)	0.105	0.165
Steam Generating Capacity of Entire Boiler (lb/hr steam)	181,500	177,870
Permitted Maximum Black Liquor Solids Firing Rate (lb/hr)	114,000	114,000

The following additional background facts also were taken into account as part of our assessment:

- R-1 began operation in 1961, 40 years ago.

- So far as is known, the generator bank tubes were not replaced in their entirety until 1991 when an entire replacement was accomplished. In 1997, the generating bank left sidewall tubes were replaced, a project that we understand consisted of replacing 25 tubes. Complete tube replacement is required now because of "near drum thinning," a condition that can occur where the generator bank tubes join the generator bank mud drum. We further understand that PCA has determined tube replacement to be more practical than tube repair, in part because of the current close spacing of tubes at the point where corrosion has occurred.

Basis for Opinion

When assessing whether changes can be considered "routine" under PSD regulations, permitting authorities consider the following key factors: nature and extent, purpose, frequency, and cost. None of these factors on its own conclusively determines a project to be routine or not. Rather, the interrelationship of all factors should be examined together. As we have mentioned to you previously, an example of this procedure is provided in the letter from EPA Region 5 concerning changes at a Detroit Edison power plant.

For your consideration and based on the evaluation factors just listed, our assessment of the proposed R-1 generator bank and economizer tube replacement project is as follows:

- Nature and Extent - As indicated above, the R-1 project will include replacing the entirety of the existing 1,273 generating bank tubes with 1,173 new tubes. This replacement differs from the more typical maintenance activities that are performed annually in that it involves complete replacement of all the tubes in a major component of the boiler, as opposed to replacement of just a few worn or damaged tubes on an as-needed basis. In addition, the expected duration of the tube replacement project is approximately 20 days. Although the project is proposed for a period of scheduled mill outage, the amount of time required for the project is significant.

  Using information provided by PCA, we compared the proposed project to other tube replacement and repair activities at the recovery boiler in question. From 1996 to 2000, PCA conducted various replacements of tubes on an annual basis, as well as some emergency repairs. None of the past tube replacement activities at the facility during this time period have been as extensive as the proposed project. Given the fact that the proposed project will consist of changing all of the generating bank tubes with an improved design that is intended to substantially increase the life of the tubes, the nature and extent of the project is not routine in nature and differs in scale from the less extensive and incremental maintenance projects more typical for this boiler.

- Purpose - In different documents, PCA has explained the purpose of the proposed project as follows:

  < "The project is necessary to reduce risk of unplanned extended downtime due to failure in the generating bank or economizer." [from PCA's Executive Summary for the project's appropriation request]

  < "The project will allow the boiler to operate safely and will have no effect on the firing rate capacity of the unit." [from PCA letter dated July 9, 2001]

  < "[T]he goal of this project is to allow continued safe operation of this boiler by replacing tubes which have become thin due to corrosion of the metal." [from PCA letter dated August 14, 2001]

  Although EPA acknowledges the need to perform safety-related repairs to equipment, the fact that there are safety reasons for a project does not automatically render it routine maintenance, repair or replacement. Moreover, we are concerned that the project also serves as a life extension of the boiler. This concern is prompted by the age of the boiler (40 years) combined with the magnitude of the project (replacement of all tubes in a major component of the boiler) and the intent to install more widely spaced tubes with thicker walls that should promote a longer tube lifetime. Related to boiler age, PCA submitted a report from the National Council for Air and Stream Improvement (NCASI) containing

information on the ages of recovery boilers used in the pulp and paper industry. (NCASI, June 1999, *Estimated Costs for the U.S. Forest Products Industry to Meet the Greenhouse Gas Reduction Target in the Kyoto Protocol*, Special Report No. 99-02.) According to this report, as of 1995 (six years ago) the median age of recovery boilers then used in the U.S. pulp and paper industry was more than 25 years and about 15 percent of U.S. recovery boilers then in use (30 out of 192) were installed before 1960 (that is, were greater than or equal to 35 years in age at that time). We take from this that older recovery boilers are not unique to the PCA Counce mill, but that boilers of the age of R-1 are definitely in the minority. The proposed project therefore can be viewed as a significant repair of a major boiler component, and hence a project that will serve as a life extension of a recovery boiler that is older than the majority of existing recovery boilers in the industry. Life extension is an important factor in assessing whether the purpose of a project supports a conclusion that a project is routine or not.

< Frequency - R-1 began service in 1961. Thirty years later, in 1991, the original generating bank tubes were replaced in their entirety due to near drum thinning. (The left sidewall tube replacement project in 1997 was much less extensive than the 1991 replacement project or the currently proposed project.) Therefore, during the entire 40-year operating history of R-1, a generating bank tube replacement project of the magnitude now proposed has occurred only once. Although we recognize that replacement of tubes other than generator bank tubes has occurred, our view is that an entire replacement of generating bank tubes is not a frequent occurrence. Consideration of the frequency factor, therefore, supports a conclusion that the proposed project is not routine.

< Cost - The estimated cost of the proposed project is $924,500. We understand this cost is in addition to normal R-1 annual maintenance costs that have ranged from $629,968 to $979,968 in the years 1997 through 2000 based on information supplied by PCA. Although we have taken note of PCA's estimate that the project cost is less than one percent of the cost of a new comparable recovery boiler, an added cost of nearly one million dollars is high enough to be within the range of costs for projects that have been considered non-routine by EPA in other contexts.

We believe that when all of the factors used to assess whether a project can be considered routine maintenance, repair or replacement are considered together, a finding that the proposed project is not routine should be made by the permitting authority.

If you have any questions concerning this letter, please contact Jim Little at (404) 562-9118.

Sincerely,

Gregg M. Worley
Chief
Air Permits Section
Air Planning Branch

cc: Richard Holland, PCA