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PHILIP MORRIS, U. S. A.

I N T E R - O F F I C E C O R R E S P O N D E N C E

Richmond, Virginia

TO: S. C. Darrah DATE: April 25, 1990

FROM: A. Dixon

SUBJECT: APPROPRIATION REQUEST - PARK 500 BIOLOGICAL
PHOSPHOROUS REMOVAL PILOT TANK
PROJECT NO. BC07-0100

Attached is an Appropriation Request for \$603,600 in capital and \$12,000 expense to provide a concrete pilot tank and modifications to Aeration Basin #1 at Park 500. This work will establish a pilot processing system for biological removal of phosphorous from the plant effluent. If successful, an Appropriation Request for a full scale system will be submitted for construction in 1992.

The limit for phosphorous going into the James River, established by the Virginia Water Control Board, is 2 Parts Per Million (PPM). Current Park 500 discharge levels are 15 PPM. A new permit addressing the limit reduction is presently being negotiated by Philip Morris. It is expected that the new permit will be granted in the second quarter of 1990 and will mandate compliance at or below 2 PPM no later than three years from the date of permit issuance.

To meet the new limit within this time period, chemical and biological removal methods have been and will be tested. Chemical treatment of effluent was tested from November 1988 through February 1989 in a contracted pilot project. This test successfully reduced phosphorous levels to 1 PPM.

The phosphorous pilot tank and the erection of a baffle wall inside Aeration Basin #1 will provide adequate dwell time to remove phosphorous biologically. Performance of this pilot test will be monitored for a year before full scale conversion of the remaining aeration basins is initiated. A bench scale study conducted by engineering consultants provided promising results for biological removal methods. Specifically, the phosphorous content was maintained at levels below 2 PPM. Regulations for nitrogen discharge levels will be issued at some future date. This pilot study will also address potential methods to control nitrogen and allow for further development as needed.

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Our intent is to proceed with the installation of a chemical treatment phosphorous removal system which will ensure Park 500 meets the 2 PPM phosphorous discharge requirement within the required discharge permit time frame. The Appropriation Request for the chemical system is expected to be submitted later in 1990.

The testing of the pilot biological phosphorous system will occur concurrent to the design and installation of the chemical removal system.

A biological phosphorous removal system needs to be evaluated due to the high operating costs of the chemical system along with the possible environmental difficulties of future disposal requirements for the chemical waste sludge.

This project was included in the 1990 First Revised Capital Forecast and the 1990-1994 Five Year Plan for \$500,000. Expense money has been set aside to complete this project in the Park 500 Operating Budget.

/pk

cc:

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PROJECT FILE BC07-0100, PR154:C15
CENTRAL FILE BC07-0100, PR154:C15

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