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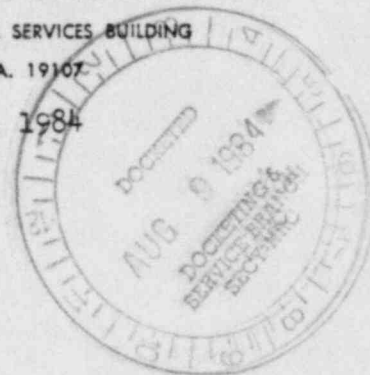
# CITY OF PHILADELPHIA

WILLIAM J. MARRAZZO  
COMMISSIONER

## WATER DEPARTMENT

1180 MUNICIPAL SERVICES BUILDING  
PHILADELPHIA, PA. 19107

April 23, 1984



Mr. Robert E. Martin  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Dear Mr. Martin:

Enclosed is a copy of the brochure entitled "How Water in Philadelphia is Treated and Distributed". To summarize the information contained in the brochure, Philadelphia has three water treatment plants - Samuel S. Baxter, Queen Lane and Belmont. The Baxter Plant (Torresdale in the brochure, due to a name change in 1983) takes about one-half the City's requirement from the Delaware River, and the other plants take the remainder from the Schuylkill River.

The normal average daily production for all three plants combined is approximately 330 million gallons. Of course, peak days during the summer due to fire hydrant usage and during the winter due to broken water mains can reach about 470 mgd with instantaneous peaks reaching 700 mgd.

The three plants have a similar treatment scheme: natural sedimentation, disinfection, chemical treatment, coagulation, settling, filtration, ammoniation, and fluoridation. The filters are mostly conventional rapid sand filters, however, there are 15 dual media filters at Baxter. As filters need replacement, the more efficient dual media mode is utilized. Powdered activated carbon and chlorine dioxide can be added to the water for the treatment of offensive tastes and odors and algae control.

An aspect of operations not described in the enclosed brochure is sludge generation and disposal.

The Baxter Plant utilizes a raw water basin in which natural sedimentation settles out heavy particles in the river water. Backwash water from the filters is also discharged into this basin. In the past, about every six years the basin was dredged and the sludge pumped to a 19 acres sludge lagoon which is on the premises. Commencing in the summer, a contractor will remove the approximately 25 years of accumulated thickened sludge from the sludge lagoon. When this is

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NUCLEAR REGULATORY COMMISSION

Docket No. 50-352/353 Official Exh. No. 169  
In the matter of PECO - Limerick 1 & 2

Staff \_\_\_\_\_ IDENTIFIED ✓

Applicant ✓ RECEIVED —

Intervenor \_\_\_\_\_ REJECTED —

Cont'g Off'r \_\_\_\_\_

Contractor \_\_\_\_\_ DATE 6/19/84

Other \_\_\_\_\_ Witness \_\_\_\_\_

Reporter Mary Simon

April 23, 1984

completed (by the Spring of 1985) the raw water basin will be dredged on an annual basis using a purchased dredge and plant forces. The sludge will still be discharged to the renovated sludge lagoon.

The coagulant, ferric chloride, generates a sludge which consists of mostly ferric hydroxide, river silt, and river clay. Most of this sludge is settled in the sedimentation basins and is pumped to the sludge lagoon. The remainder is filtered out and is removed during the backwash. As previously stated, this backwash is discharged into the raw water basin.

The Belmont Plant similarly utilized a raw water basin which collects heavy particles through natural sedimentation. However, a division wall permits half of the raw water basin to be taken out of service at Belmont. Each half of the basin is cleaned every three years. The accumulated sediment is discharged to a sewer which transports the material to the City's Southwest Wastewater Treatment Plant.

This plant uses alum as a coagulant which generates an aluminum hydroxide sludge. The sludge from the sedimentation basins and the filter backwash are also discharged to the sewer and are likewise conveyed to the Southwest Wastewater Treatment Plant.

The Queen Lane Plant also has a raw water basin which collects sediment through natural sedimentation. Every ten years this basin is dredged and the solids deposited in a lagoon which is located on the plant grounds. Ferric chloride and alum are alternated at this plant and the resulting sludge from the sedimentation basins and the backwash water are discharged to a sewer which is serviced by the City's Southeast Water Pollution Control Plant. In turn, sludge removed at the Southeast Plant is sent through a force main for further treatment at the Southwest Plant.

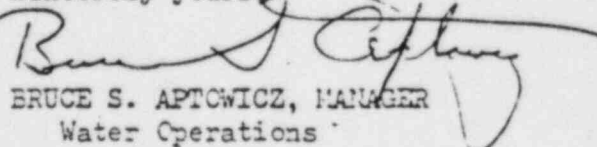
In general, under normal operations, water from the Baxter Plant services the area of Philadelphia which is east of Broad St. Water from the Queen Lane Plant services the area west of Broad St. to the Schuylkill River. Water from the Belmont Plant services the area west of the Schuylkill River.

However, in an emergency, assuming the Baxter plant is fully on line (no significant equipment out for maintenance), no critical water mains are out of service, and an average daily flow, Baxter can via valve changes in the Distribution System, supply the City's entire needs with the exception of the Belmont High Service District. This area borders City Line Ave. and represents approximately 12 mgd.

Also, please find a data report of water analyses of the raw and finished water.

If you need any additional information, or clarification of the enclosed material, please do not hesitate to call.

Sincerely yours,

  
BRUCE S. APTOWICZ, MANAGER  
Water Operations