



PECO NUCLEAR

A Unit of PECO Energy

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November 27, 1996

Mr. Steven J. O'Neil,
Chief, Operations Section
Pa. Department of Environmental Protection
Bureau of Water Quality Management
Suite 6010, Lee Park
555 North Lane
Conshohocken, PA. 19428

SUBJECT: Limerick Generating Station, Bradshaw Reservoir NPDES
Permit PA0052221, Follow-up Letter Addressing Root
Cause Analysis for July, August, and September 1996,
Bradshaw Reservoir Fecal Coliform Non-Compliance
Reports

Dear Mr. O'Neil:

During the months of July, August, and September 1996, the NPDES limit for fecal coliform concentration at the discharge of the Bradshaw Reservoir pumps into the East Branch of the Perkiomen Creek was not met. The non-compliances were reported to the Pa. DEP in letters dated August 23, 1996, September 27, 1996, and October 28, 1996, respectively. The permit requires five consecutive grab samples, each collected on different days, and the geometric mean of the five samples must be less than or equal to 200 colonies per 100 ml. An Ozone Disinfection System is utilized for treatment at the Bradshaw Reservoir Water Processing Facility.

The non-compliance letter dated October 28, 1996, stated that Limerick Generating Station (LGS) would submit the results of the root cause analysis for these non-compliances by November 27, 1996. This follow-up letter is intended to fulfill that commitment.

During the root cause investigation three (3) instances of permit non-compliance were identified involving the methodology for reporting fecal coliform concentrations. Specifically, during the months of August 1990, June 1994, and July 1995, the geometric mean of the five samples exceeded the permit limit and all samples were not reported in the associated DMR. Additional

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samples were collected during these months until an average was obtained which was below the permit limit. This reporting methodology was the result of a misinterpretation of the sampling and reporting requirements of the permit. The individuals involved in the reporting of this data have been instructed to report all fecal coliform concentrations and to determine permit compliance based on this data. Procedure CH-1069, "Sampling for NPDES Requirements," will be revised to specify the correct method for reporting this data. The causes and corrective actions for the elevated fecal coliform concentrations are discussed below.

CAUSES OF THE NON-COMPLIANCES:

The root cause of the fecal coliform non-compliances was inadequate installation of gaskets on the ozone gas diffusers during original construction of the facility in 1990, and an inadequate startup test to identify the problem. Specifically, the startup test failed to demonstrate the integrity of the gaskets. Based on the as-found condition of the diffuser assemblies in September 1996, it has been concluded that one of the three gaskets on each diffuser was not compressed tightly since original construction. With two ozonators in operation, this undetected condition resulted in high ambient ozone gas concentrations outside and inside portions of the facility following startup. This condition was, at times, a personnel safety hazard. The original design of the system called for two ozonator operation. However, in 1990 LGS personnel decided to make one ozonator operation the normal mode to avoid the high ambient ozone gas concentration problem. In late September 1996, it was determined that two ozonator operation was necessary to consistently satisfy the fecal coliform limitation.

The late recognition of this situation is due to the misinterpretation of the permit. One ozonator was considered an acceptable permanent mode of operation because LGS personnel had adopted what was thought to be an acceptable practice of occasionally taking additional grab samples in order to obtain a geometric mean of less than 200 colonies per 100 ml. LGS personnel failed to recognize that when this occurred, it constituted a reportable non-compliance. As a result, one ozonator operation was considered acceptable to comply with the NPDES Permit.

In addition, since LGS personnel decided shortly after facility startup to make one ozonator operation the normal mode, a significant equipment limitation associated with the two ozonator operational mode identified during startup testing was not

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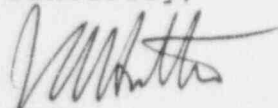
corrected. Specifically, the ambient vaporizer for the liquid oxygen supply to the ozonators does not provide the heat transfer capacity necessary for the continuous oxygen flow of two ozonators (contrary to the design specification). Failure to implement corrective actions for the two ozonator mode problems is a causal factor for these non-compliances.

CORRECTIVE ACTIONS TO PREVENT RECURRENCE:

- Beginning with the 1997 swimming season, two ozonator operation will be the normal mode. A larger vaporizer or an additional vaporizer will be installed for the liquid oxygen supply to the ozonators. The design and configuration of the Ozone Disinfection System will be reviewed to reassure that it is sufficient to comply with the NPDES Permit.
- Before the 1997 swimming season commences, the ozonators will be overhauled to ensure peak performance.
- Actions will be taken to improve the level of personnel expertise applied to the day to day operation and performance monitoring of the Ozone Disinfection System. This will be a cooperative effort involving the Plant Engineering and Chemistry divisions.
- A review of the Bradshaw Reservoir and LGS NPDES Permits was performed to identify any other areas where misinterpretation of NPDES Permit requirements could result in inaccurate reporting results. Based on this review, LGS is now meeting the administrative monitoring requirements of the Bradshaw Reservoir and LGS NPDES Permits.

If you have any questions please do not hesitate to contact Mr. James L. Kantner at (610) 718-3400.

Sincerely,



for R. W. Boyce

FDL/DMS

cc: U. S. Nuclear Regulatory Commission
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