



PECO ENERGY

Robert W. Boyce  
Plant Manager  
Limerick Generating Station

PECO Energy Company  
Limerick Generating Station  
PO Box 2300  
Sanatoga, PA 19464-0920  
215 327 1200 Ext. 2000

February 28, 1996

Robert Bauer, Jr.  
Department of Environmental Resources  
Bureau of Water Quality Management  
Suite 6010, Lee Park  
555 North Lane  
Conshohocken, PA 19428

SUBJECT: Limerick Generating Station, Units 1 and 2  
Non-Compliance with NPDES Permit No. PA 0051926  
Discharge 001 Net Total Suspended Solids  
in Excess of the Maximum Daily Limit

Dear Mr. Bauer:

#### DESCRIPTION OF THE EVENT

On November 8, 1995, a non-compliance of the National Pollutant Discharge Elimination System (NPDES) permit for the Limerick Generating Station occurred. Composite samples for both the Discharge 001 (i.e., cooling tower blowdown) and river water input (cooling tower makeup) were analyzed for Total Suspended Solids (TSS) and compared. The resulting net TSS value was 70.1 mg/l which exceeded the maximum daily limit of 60 mg/l.

During the time frame that the composite samples were taken, and for the preceding week, both units were operating at a nominal 100% power and the cooling towers were operating at normal cycles of concentration.

#### CAUSE OF THE NON-COMPLIANCE

The cause of this non-compliance is a flaw in the methodology to calculate the net TSS concentration contained in the NPDES permit. This method does not take into account the effects of rapid and significant changes in river water TSS associated with storm related high run-off conditions. The method subtracts the TSS concentrations of a composite of four (4) daily river water grab samples from that of a 24 hour continuous composite sample collected from the 001 plant discharge. One of the four (4) daily grab samples is collected during the 24 hour composite sample period. The other three (3) samples are collected on the three (3) consecutive previous days. These grab samples are also analyzed for silica concentration and compared with the 001 plant discharge

9603110278 960228  
PDR ADOCK 05000352  
S PDR

JE23 1/0

February 28, 1996

silica concentration to determine a concentration factor associated with cooling tower operation. This methodology was developed with the intent to subtract out natural river water TSS concentrations and the effect of the cooling tower operation which concentrates TSS in the cooling tower basin per design.

On November 7, excessive storm water runoff caused a large increase in river water suspended solids. This caused the cooling tower makeup and blowdown TSS concentrations to also rapidly increase. The three (3) cooling tower makeup grab samples collected prior to the storm were low in TSS. After averaging with the fourth makeup grab sample collected on November 8, 1995, the TSS concentration of the composite makeup sample was artificially low. As a result, the net TSS value obtained, after subtracting out this artificially low background value, was inappropriately high.

The flaw in this methodology which led to the non-compliance is that the makeup water composite is comprised of four (4) equal volumes of grab samples collected over a four (4) day period. The actual ratio of water in the cooling tower basin on the fourth day, based on a mass balance approximation, is 7% from day 1, 15% from day 2, 27% from day 3, and 51% from day 4. On November 8, 1995, using the NPDES permit calculation method, 75% of the makeup water composite sample was comprised of water with low TSS concentrations from the three (3) days prior to the storm. A more representative composite grab sample would contain just 49% of the pre-storm makeup water.

#### CORRECTIVE ACTIONS TAKEN

Follow-up 24 hour composite samples for the cooling tower makeup and blowdown were started on November 8, 1995. These samples were analyzed on November 9, 1995, and yielded a net TSS result of 1.9 mg/l. This indicates that the expected cooling tower basin TSS concentration is highly dependent on the TSS concentration of the makeup water over the past 24 hours and that there were no harmful effects from the permit non-compliance.

Robert Bauer, Jr.  
Dept. of Environmental Resources  
Bureau of Water Quality Management  
Page 3 of 3

February 28, 1996

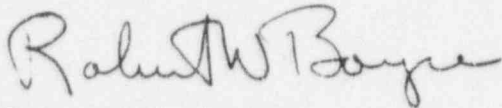
ACTIONS TO PREVENT RECURRENCE

This event was not caused by the operation of the plant or any other activity controllable by the plant operators. To prevent future permit violations, we plan to review our approach to determining net TSS. Based on this event, a more appropriate approach will be proposed to the Department of Environmental Protection (DEP) which will take into account appropriate grab sample volume ratios. These sample ratios will better represent the cycling effects of the cooling towers.

We apologize for the delay in submitting this report but per our latest discussion with Mr. Garg of the DEP on February 20, 1996, we wanted to ensure that the appropriate cause had been identified.

If you have any questions, please contact Jim Kantner at (610) 718-3400.

Sincerely,



Robert W. Boyce  
Plant Manager

DBN:dbn

cc: U. S. Nuclear Regulatory Commission  
Document Control Desk  
Docket Nos. 50-352/353  
Washington, D.C. 20555

T. T. Martin  
Administrator, Region I, USNRC  
Docket Nos. 50-352/353

N. S. Perry  
USNRC Senior Resident Inspector, LGS  
Docket Nos. 50-352/353

Program Management Section (3WM52)  
Permits Enforcement Branch  
Environmental Protection Agency  
Water Management Division  
Environmental Protection Agency  
Water Permits Section  
Region III  
841 Chestnut Building  
Philadelphia, PA 19107