

PHILADELPHIA ELECTRIC COMPANY

NUCLEAR GROUP HEADQUARTERS

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December 10, 1990

Docket Nos. 50-277
50-278

License Nos. DPR-44
DPR-56

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: Peach Bottom Atomic Power Station, Units 2 and 3
Inservice Testing Program

- REFERENCE: (1) Letter from J. W. Gallagher (PECo) to
W. R. Butler (NRC) dated June 29, 1988
- (2) Letter from G. A. Hunger, Jr. (PECo) to
U.S. Nuclear Regulatory Commission
dated September 11, 1990

Dear Sir:

Enclosed for your review and approval is Relief Request GPRR-3 and the associated pump table changes. This is an update to the Inservice Testing (IST) Program previously submitted in Reference (1). GPRR-3 requests relief from the ASME Code requirement for flow instrument accuracy to be $\pm 2\%$ of full scale for selected pumps. This Relief Request applies to the Diesel Fuel Oil Transfer pumps, the Emergency Service Water (ESW) pumps, the ESW booster pumps and the Emergency Cooling Water (ECW) pump. Philadelphia Electric Company (PECo) plans to use ultrasonic flow instrumentation for these pumps.

This letter also withdraws Relief Request 50-PRR-1, upon approval of Relief Request GPRR-3. Relief Request 50-PRR-1 applies to the Diesel Fuel Oil Transfer pumps. This Relief Request was

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included in Reference (1), and allows flowrate to be measured by changing tank level per unit time. Once GPRR-3 is approved and ultrasonic flow measurement is an acceptable technique, the alternate testing method requested in 50-PRR-1 will no longer be needed.

In Reference (1), PECO submitted Relief Requests 33-PRR-1 and 48-PRR-1. These requested relief from the flow measurement requirements for the ESW pumps, the ESW booster pumps and the ECW pump until modifications could be completed to allow flowrates to be measured. In Reference (2), PECO committed to completing the modification during the next Unit 2 refueling outage which is currently scheduled to start in January 1991. The proposed modification is designed to allow the use of ultrasonic flow instrumentation; however, relief is still necessary for the +2% accuracy requirement. Accordingly, PECO requests that the enclosed GPRR-3 be approved by February 22, 1991. This will ensure that startup from the next refueling outage will not be impacted.

If you have any questions, please do not hesitate to contact us.

Very truly yours,

James A. Basilio / for
Manager, Licensing
Nuclear Engineering & Services

Enclosure

cc: T. T. Martin, Administrator, Region I, USNRC
J. J. Lyash, USNRC Senior Resident Inspector
C. Ransom, EG&G Idaho

RELIEF REQUEST NO. GPRR-3

PUMP(S):	Diesel Fuel Oil Transfer	OAP060
		OBP060
		OCP060
		ODP060
	Emergency Service Water	OAP057
		OBP057
	Emergency Service Water (Booster Pumps)	OAP163
		OBP163
	Emergency Cooling Water	OOP186

TESTING REQUIREMENT(S): Pump instrumentation accuracy shall be within the limits specified in ASME Section XI Subsection IWP Articles IWP-4110 and IWP-4120.

BASIS FOR RELIEF:

PECo proposes to measure flow using ultrasonic flow instrumentation that is calibrated to an accuracy within $\pm 5\%$ of-reading instead of the Code required $\pm 2\%$ of full-scale. Although this equipment does not meet the Code requirements exactly, it meets the intent of the Code by ensuring that data collected during inservice testing is measured to the degree of accuracy specified in Articles IWP-4110 and IWP-4120. Because the Code does not address digital instruments and of-reading accuracy limits, a conversion from full-scale accuracy to of-reading accuracy is necessary to compare the ultrasonic instrument accuracy to the accuracy specified in the Code. Also, because the ultrasonic flow transducers are capable of measuring flow over the entire range of the instrument (0 to 40 feet/second), a percentage of full-scale accuracy would be meaningless when measuring low flow rates associated with small diameter pipes. To ensure that the most accurate data is collected during inservice testing, the technicians are provided guidance through the vendor manuals to select the transducer that is best suited for the pipe where flow is being measured.

For instruments to be in compliance with ASME Section XI Subsection IWP, two requirements must be satisfied. The first requirement (specified in IWP-4110, Table IWP-4110-1) states that flow instrumentation must be accurate to within $\pm 2\%$ of the full-scale value; the second requirement (specified in IWP-4120) states that "the full-scale range of each instrument shall be three times the reference value or less." PECO's interpretation of these requirements allows for establishing a maximum of-reading error of $\pm 6\%$ that would be acceptable per the Code.

Magnetic flow meters, which provide greater accuracy, were considered. However, because the magnetic flow meters are not seismically qualified, they are not suitable for use in the required applications. Also, installation of these meters would require significant piping modifications.

PECo considers that the ultrasonic flow instruments provide the necessary accuracy for pump performance trending purposes and to detect pump degradation. Also, we consider that we meet the intent of the code since the ultrasonic flow instrument

RELIEF REQUEST NO. GPRR-3 (cont'd)

is accurate to within $\pm 5\%$ of-reading. Although the existing method of measuring flow is acceptable (i.e., measuring change in tank level as a function of time), ultrasonic flow measurement provides more accurate data.

ALTERNATE TESTING:

Use ultrasonic flow instrumentation, which is accurate to within $\pm 5\%$ of-reading, for measuring IST flow data.

IST TABLE - PUMPS
PEACH BOTTOM ATOMIC POWER STATION - UNIT # 2 & COMMON

PAGE NO.: 1
DATE: 11/07/90

<u>PUMP NAME OR DESCRIPTION</u>	<u>PUMP ID. NO.</u>	<u>P&ID</u>	<u>COORD.</u>	<u>TEST PARAMETERS</u>	<u>RELIEF REQUEST</u>	<u>REMARKS</u>
CORE SPRAY (CS)	2AP037	M-362(SHT 1)	D-6	Pi, D/P, Q, V, L/P	GPRR-1, GPRR-2	
CORE SPRAY (CS)	2BP037	M-362(SHT 1)	D-3	Pi, D/P, Q, V, L/P	GPRR-1, GPRR-2	
CORE SPRAY (CS)	2CP037	M-362(SHT 1)	D-4	Pi, D/P, Q, V, L/P	GPRR-1, GPRR-2	
CORE SPRAY (CS)	2DP037	M-362(SHT 1)	D-2	Pi, D/P, Q, V, L/P	GPRR-1, GPRR-2	
DIESEL FUEL OIL TRANSFER	0AP060	M-377(SHT 4)	G-6	Pi, D/P, Q, V, L/P	GPRR-1, GPRR-2, GPRR-3	
DIESEL FUEL OIL TRANSFER	0BP060	M-377(SHT 4)	E-6	Pi, D/P, Q, V, L/P	GPRR-1, GPRR-2, GPRR-3	
DIESEL FUEL OIL TRANSFER	0CP060	M-377(SHT 4)	D-6	Pi, D/P, Q, V, L/P	GPRR-1, GPRR-2, GPRR-3	
DIESEL FUEL OIL TRANSFER	0DP060	M-377(SHT 4)	B-6	Pi, D/P, Q, V, L/P	GPRR-1, GPRR-2, GPRR-3	
EMERGENCY COOLING WATER (ECW)	00P186	M-330(SHT 1)	G-4	Pi*, D/P, V, Q**, L/P	48-PRR-1, GPRR-1, GPRR-2, GPRR-3	*CALCULATED INLET PRESS. (TEXT 5.1.1). **48-PRR-1 WILL EXPIRE WHEN MOD 5110 IS COMPLETE.
EMERGENCY SERVICE WATER (ESW)	0AP057	M-315(SHT 1)	F-7	Pi*, D/P, V, Q**, L/P	33-PRR-1, GPRR-1, GPRR-2, GPRR-3	*CALCULATED INLET PRESS. (TEXT 5.1.1). **33-PRR-1 WILL EXPIRE WHEN MOD 5110 IS COMPLETE.
EMERGENCY SERVICE WATER (ESW)	0BP057	M-315(SHT 4)	A-5	Pi*, D/P, V, Q**, L/P	33-PRR-1, GPRR-1, GPRR-2, GPRR-3	*CALCULATED INLET PRESS. (TEXT 5.1.1). **33-PRR-1 WILL EXPIRE WHEN MOD 5110 IS COMPLETE.

1ST TABLE - PUMPS
PEACH BOTTOM ATOMIC POWER STATION - UNIT # 2 & COMMON

PAGE NO.: 2
DATE: 11/07/90

<u>PUMP NAME OR DESCRIPTION</u>	<u>PUMP ID. NO.</u>	<u>P&ID</u>	<u>COORD.</u>	<u>TEST PARAMETERS</u>	<u>RELIEF REQUEST</u>	<u>REMARKS</u>
EMERGENCY SERVICE WATER BOOSTER	0AP163	M-330(SHT 1)	E-6	Pi, D/P, V, Q**, L/P	33-PRR-1, GPRR-1, GPRR-2, GPRR-3	**33-PRR-1 WILL EXPIRE WHEN MOD 5110 IS COMPLETE.
EMERGENCY SERVICE WATER BOOSTER	0BP163	M-330(SHT 1)	D-6	Pi, D/P, V, Q**, L/P	33-PRR-1, GPRR-1, GPRR-2, GPRR-3	**33-PRR-1 WILL EXPIRE WHEN MOD 5110 IS COMPLETE.
HIGH PRESSURE COOLANT INJECTION (HPCI)	20P033/038	M-366(SHT 1)	F-6	N, Pi, D/P, Q, V, L/P	GPRR-1, GPRR-2	
HIGH PRESSURE SERVICE WATER (HPSW)	2AP042	M-315(SHT 1)	A-7	Pi*, D/P, Q, V, L/P	GPRR-1, GPRR-2	*CALCULATED INLET PRESS. (TEXT 5.1.1).
HIGH PRESSURE SERVICE WATER (HPSW)	2BP042	M-315(SHT 1)	A-5	Pi*, D/P, Q, V, L/P	GPRR-1, GPRR-2	*CALCULATED INLET PRESS. (TEXT 5.1.1).
HIGH PRESSURE SERVICE WATER (HPSW)	2CP042	M-315(SHT 1)	A-6	Pi*, D/P, Q, V, L/P	GPRR-1, GPRR-2	*CALCULATED INLET PRESS. (TEXT 5.1.1).
HIGH PRESSURE SERVICE WATER (HPSW)	2DP042	M-315(SHT 1)	A-4	Pi*, D/P, Q, V, L/P	GPRR-1, GPRR-2	*CALCULATED INLET PRESS. (TEXT 5.1.1).
REACTOR CORE ISOLATION COOLING (RCIC)	20P036	M-360(SHT 1)	E-7	N, Pi, D/P, Q, V, L/P	GPRR-1, GPRR-2	
RESIDUAL HEAT REMOVAL (RHR)	2BP035	M-361(SHT 2)	C-5	Pi, D/P, Q, V, L/P	GPRR-1, GPRR-2	
RESIDUAL HEAT REMOVAL (RHR)	2CP035	M-361(SHT 1)	B-5	Pi, D/P, Q, V, L/P	GPRR-1, GPRR-2	
RESIDUAL HEAT REMOVAL (RHR)	2DP035	M-361(SHT 1)	A-5	Pi, D/P, Q, V, L/P	GPRR-1, GPRR-2	
RESIDUAL HEAT REMOVAL (RHR)	assist	M-361(SHT 1)	A-5	Pi, D/P, Q, V, L/P	GPRR-1, GPRR-2	