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July 24, 1980

Director of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Attn: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing
Washington, DC 20555

Reference: Beaver Valley Power Station, Unit No. 1
Docket No. 50-334
Station Service Busses Undervoltage Relays

Gentlemen:

In discussions with Mr. W. Ross of your staff and Mr. A. Udy of EG and G, several questions were raised on the station service bus undervoltage relays, subsequently verbal replies were given. The purpose of this letter is to document our verbal responses.

Q1. The trip setpoint of $\geq$ 90% of nominal bus voltages in Table 3.3-4 is unacceptable. Please provide a setting with $\pm$ tolerances.

A1. The trip setpoint should be changed to $90 \pm \frac{3}{0}$ of nominal bus voltage. It is our understanding that Duquesne Light Company does not have to submit a revision to the request for technical specification change.

Q2. What is the maximum, minimum and transient rating of the safety related electrical equipment?

A2. The ratings are: 4160V, 460V, 240V and 120V - $\pm$ 10%. By "transient rating," Mr. Udy stated he meant minimum starting voltage of motors. Duquesne Light Company replied that we do not have documentation that all motors will start at 80% voltage, but by experience we believe they will.

Q3. Will DBA limits be exceeded if the 75% - 1 sec. undervoltage protection (October 15, 1979, letter) fails to trip?

A3. No. If the relay fails on one emergency bus system, it does not affect the redundant emergency bus system which has identical protection. With this configuration, we do not feel DBA limits will be exceeded as it meets the single failure criteria. Mr. Udy asked if this relay is a 3Ø relay. Duquesne Light Company confirmed it is.

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Q4. Does the sustained undervoltage (90%) relay logic have two timers?

A4. No; however, this protection is provided on both redundant emergency bus systems. No single failure affects both emergency bus systems.

Q5. In Duquesne Light Company's February 22, 1980, letter, it was stated that 1.09 PU voltage is obtained on the 4kV busses. Does this exceed the voltage limits of the equipment?

A5. No. Equipment is specified to operate at ± 10 percent of nominal rated voltage.

Q6. Capacitor control will switch off banks at 108%. Does this exceed voltage limits of equipment?

A6. No. Equipment is specified to operate at ± 10 percent of nominal rated voltage.

Q7. When will the capacitor banks be installed?

A7. Based on the proposed engineering and procurement schedule, it is anticipated that the capacitor banks will be installed at the second refueling outage.

Q8. When will the regulating transformers be installed?

A8. Based on the present schedule, it is anticipated that the regulating transformers will be installed at the first scheduled station outage subsequent to September 30, 1980.

Q9. When will the voltage comparison test be done?

A9. We are planning to perform the tests during startup in mid-August 1980. Additionally, in order to simulate the startup loading on the computer, the test data must be obtained and correlated. We must also schedule time on the computer with Westinghouse. Therefore, if the test data is available by the end of August 1980, the comparison with the computer study would be available for submittal to the NRC by the end of September 1980.

Q10. What is the regulation capability of the bypass transformers?

A10. Input = 460V ± 10%, Output = ± 2%.

Q11. If the regulating transformer input voltage is reduced 18%, what is Duquesne Light Company's estimate of the output voltage?

A11. The output voltage would be down 10%. This is based on the following:

Input down 10%	-	output down 2%
Additional 8% drop on input		output down 8%
	Sum	output down 10%

Q12. In Duquesne Light Company's letter of June 17, 1980, it is stated that the 1N bus voltage will drop to 84.5% of rated voltage without capacitors. Is this a typographical error?

A12. No. It is correct. The value corresponds to 406V on a 480 volt base. In our letter of February 22, 1980, this same value was stated on page 2 as 406V (88.3% of 460V). The base upon which the percentage is calculated is different in each case.

If you have any questions concerning this response, please contact us.

Very truly yours,

C. N. Dunn
Vice President, Operations

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