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NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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November 21, 1980

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Mr. W. G. Council, Senior Vice President
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Dear Mr. Council:

RE: HADDAM NECK - SEP TOPIC VII-3.B, DC POWER SYSTEM BUS
VOLTAGE MONITORING AND ANNUNCIATION

In a letter dated September 4, 1980, you provided comments on our draft evaluation for the subject topic. The enclosed evaluation of Topic VII-3.B for the Haddam Neck Plant has been revised to reflect your comments and is being forwarded for your information. Unless additional comments or information are brought to our attention, it is our intention to use this evaluation of the topic during the final SEP integrated assessment.

Sincerely,

Dennis M. Crutchfield

Dennis M. Crutchfield, Chief
Operating Reactors Branch #5
Division of Licensing

Enclosure:
SEP Topic VII-3.B
Evaluation

cc w/enclosure:
See next page

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November 21, 1980

cc w/enclosure:

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SEP TECHNICAL EVALUATION

TOPIC VIII-3.B
DC POWER SYSTEM BUS VOLTAGE
MONITORING AND ANNUNCIATION

FINAL DRAFT

HADDAM NECK

Docket No. 50-213

September 1980

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SEP TECHNICAL EVALUATION
TOPIC VIII-3.B
DC POWER SYSTEM BUS VOLTAGE
MONITORING AND ANNUNCIATION

HADDAM NECK

1.0 INTRODUCTION

The objective of this review is to determine if the DC power system bus voltage monitoring and annunciation are in compliance with current licensing criteria for Class IE DC power systems.

The specific criteria for DC power system monitoring derive from the general criteria embodied in Sections 5.3.2(4), 5.3.3(5), and 5.3.4(5) of IEEE Standard 308-1974¹, and in Regulatory Guide 1.47². In summary, these general criteria simply state that the DC system (batteries, distribution systems, and chargers) shall be monitored to the extent that it is shown to be ready to perform its intended function.

2.0 CRITERIA

As a minimum, the following indications and alarms of the Class IE DC power system(s) status shall be provided in the control room:³

- Battery current (ammeter-charge/discharge)
- Battery charger output current (ammeter)
- DC bus voltage (voltmeter)
- Battery charger output voltage (voltmeter)
- Battery high discharge rate alarm
- DC bus undervoltage and overvoltage alarm
- DC bus ground alarm (for ungrounded system)
- Battery breaker(s) or fuse(s) open alarm

- Battery charger output breaker(s) or fuse(s) open alarm
- Battery charger trouble alarm (one alarm for a number of abnormal conditions which are usually indicated locally).

3.0 DISCUSSION AND EVALUATION

3.1 Discussion. Two 125 V batteries, two battery chargers, and two DC buses comprise the Haddam Neck Class IE DC power systems. Control room indication consists of battery charger ammeters, bus voltmeters, bus undervoltage alarms, bus ground alarms, "Battery Charger OFF" alarms and "Battery Fuse OPEN" alarms.^{4,5,6} Local (switchgear room) indication consists of charger ammeters and voltmeters, neutral-to-ground and positive-to-ground voltmeters, and ground indicating lamps.

3.2 Evaluation. The Haddam Neck control room has no indication of battery current, battery high discharge rate, bus overvoltage, or charger output breaker/ fuse status. Charger output breaker/fuse status can be inferred from the charger ammeter. Therefore, the Haddam Neck DC power systems monitoring is not in compliance with current licensing criteria.

4.0 SUMMARY

Of 11 parameters currently required to be indicated or alarmed in the control room, only five are directly indicated or alarmed in the Haddam Neck control room. Therefore, the Haddam Neck DC power systems are not monitored in compliance with current licensing criteria.

5.0 REFERENCES

1. IEEE Standard 308-1974, "Standard Criteria for Class IE Power Systems for Nuclear Power Generating Stations."

2. Regulatory Guide 1.74, "Bypassed and Inoperable Status Indication for Nuclear Power Plant Safety Systems."
3. NRC Memorandum, PSB (Rosa) to SEPB (Crutchfield), "DC System Monitoring and Annunciation," dated October 16, 1979.
4. Letter, Connecticut Yankee Atomic Power Company (Council) to NRR (Ziemann), "SEP Topic VIII-3.B, DC Power System Bus Voltage Monitoring and Annunciation," dated August 29, 1979.
5. Stone and Webster/Connecticut Yankee Atomic Power Company drawing 16103-3008, Rev. 11, dated 10-14-76.
6. Letter, CYAPCo (Council) to NRR (Crutchfield), dated September 4, 1980.