August 2, 1982

Docket No. 50-155
LS05-82-09-014

Mr. David J. VandeWalle
Nuclear Licensing Administrator
Consumers Power Company
1945 West Parnall Road
Jackson, Michigan 49201

Dear Mr. VandeWalle:

SUBJECT: SEP TOPIC VIII-2, ONSITE EMERGENCY POWER SYSTEMS - DIESEL GENERATOR, REVISED SAFETY EVALUATION FOR BIG ROCK POINT

The enclosed safety evaluation report (SER) has been revised to reflect the operating experience documented in Mr. Vincent's August 3, 1982 letter to D. M. Crutchfield. This SER replaces Enclosure 2 of our June 22, 1982 letter from D. M. Crutchfield to you. Enclosure 1 to our June 22, 1982 letter remains unchanged.

As a result of the additional information you have provided, the staff has concluded that the diesel generator output frequency is acceptable under accident loading conditions. The staff, therefore, considers this topic to be completed acceptably.

This topic assessment may be revised in the future if your facility design is changed, or if NRD criteria relating to this topic are modified before the integrated assessment is completed.

Sincerely,

SE04

Dennis M. Crutchfield, Chief
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Division of Licensing

Enclosure:
As stated

cc w/enclosure:
See next page

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Mr. David J. VandeWalle

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SYSTEMATIC EVALUATION PROGRAM
TOPIC VIII-2

BIG ROCK POINT

TOPIC: VIII-2, ONSITE EMERGENCY POWER SYSTEMS - DIESEL GENERATOR

I. Introduction

Diesel generators, which provide emergency standby power for safe reactor shutdown in the event of total loss of offsite power, have experienced a significant number of failures. The failures to date have been attributed to a variety of causes, including failure of the air startup, fuel oil, and combustion air systems. In some instances, the malfunctions were due to lockout. The information available to the control room operator to indicate the operational status of the diesel generator was imprecise and could lead to misinterpretation. This was caused by the sharing of a single annunciator station by alarms that indicate conditions that render a diesel generator unable to respond to an automatic emergency start signal and alarms that only indicate a warning of abnormal, but no disabling, conditions. Another cause was the wording on an annunciator window which did not specifically say that the diesel generator was inoperable (i.e., unable at the time to respond to an automatic emergency start signal) when in fact it was inoperable for that purpose. The review included the reliability, protective interlocks, fuel oil quality, and testing of diesel generators to assure that the diesel generator meets the availability requirements for providing emergency standby power to the engineered safety features.

II. Review Criteria

The review criteria are presented for Section 8.3.1 in Table 8-1 of the Standard Review Plan.

III. Related Safety Topics and Interfaces

The scope of review for this topic was limited to avoid duplication of effort since some aspects of the review were performed under related topics. Related topics and the subject matter are identified below. Each of the related topic reports contain the acceptance criteria and review guidance for its subject matter.

III-12	Environmental Qualification
VI-7.C.1	Independence of Onsite Power
VIII-1.A	Degraded Grid
XVII	Fuel Oil Quality Assurance

There are no safety topics that are dependent in the present topic information for their completion.

IV. Review Guidelines

The review guidelines are presented in Section 8.3.1 of the Standard Review Plan.

V. Evaluation

The concern with regard to annunciators was pursued as a generic issue. The staff safety evaluation concluded that in order to provide the operator with accurate, complete and timely information pertinent to the status of the diesel generators, as required by IEEE Std. 279-1971, the following corrective actions are required:

1. Disabling and non-disabling conditions, currently alarmed at a common annunciator station, should be separated and annunciated at separate annunciator points.

2. The wording on the annunciator for disabling conditions should specifically state that the diesel generator is unavailable for an automatic emergency start.

By a letter dated May 11, 1978, the licensee agreed to make suitable modifications to the annunciators.

Also, as a result of the work done by the University of Dayton, a generic program for implementing most of the recommendations for reliability enhancement that are contained in the University of Dayton report is being conducted by NRC. This latter program will also determine the adequacy of the diesel generator testing program on a case-by-case basis and enforce any necessary changes.

The question of fuel oil quality was addressed on a generic basis in January 1980, by letters to all licensees. The letters required that licensees include fuel oil in their Quality Assurance program. The Quality Assurance program is addressed in Topic XVII. Until completion of Topic XVII, the periodic testing of the diesels is considered to be an adequate interim method for assuring acceptable quality in the fuel oil stored on site.

Beyond these efforts, EG&G Report EGG-EA-5882, "Diesel Generator Big Rock Point" presents a technical evaluation of the diesel generator protective interlocks and load capability at Big Rock Point against present licensing criteria. The report notes that the protective trips are in agreement with current NRC guidelines, but that the output frequency is too low during the loading of the fire pump.

By a August 3, 1981 letter from R. A. Vincent to D. M. Crutchfield the licensee presented an analysis of operating experience for the subject diesel loads. The salient point is that the monthly testing is conducted with the accident loads that see the frequency transient energized and they have not suffered any degradation.

VI. Conclusion

The staff finds that the diesel generator protective interlocks are acceptable, and the low output frequency has been justified by test.