

SEP 17 1980

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MEMORANDUM FOR: Dennis M. Crutchfield, Chief
Systematic Evaluation Program Branch

FROM: Howard Levin, Technical Assistant
Division of Engineering

SUBJECT: DIGITIZED PSEUDO SPECTRAL ACCELERATION DATA FOR
SEP PLANTS

Attached are digitized pseudo spectral acceleration values (5% damping) for the preliminary site specific ground response spectra transmitted to you in a letter from R. Jackson, dated June 23, 1980. Noted is a scaling relationship which can be used to convert from the 5% damped spectra to spectra in the range of 2% to 20%.

Howard Levin, Technical Assistant
Division of Engineering

cc: D. Eisenhat
R. Vollmer
J. Knight
R. Jackson
L. Reiter
J. Greeves
T. Cheng

810529 6046
XA

OFFICE	NRR/DE				
SURNAME	HLevin:mg				
DATE	9/17/80				

SYSTEMATIC EVALUATION PROGRAM
 SITE SPECIFIC SPECTRA
 PSEUDO SPECTRAL ACCELERATIONS (cm/sec²)

	Yankee Rowe	Oyster Creek	GINNA	Haddam Neck	Millstone	Big Rock Pt.	LaCrosse	Palisades	Dres
04	203.00	172.61	178.85	215.91	196.23	122.29	122.29	122.29	134
05	213.69	178.17	192.52	228.92	210.91	130.19	130.19	130.19	142
08	247.74	206.77	230.16	279.47	253.44	152.05	152.05	152.05	164
10	275.68	229.98	258.38	316.00	287.00	179.69	179.69	179.69	181
10	434.80	363.77	388.92	475.17	433.65	213.50	213.50	214.77	270
10	455.49	376.59	375.82	456.79	415.45	201.96	201.96	224.41	257
10	403.76	339.90	328.79	395.71	360.53	171.68	195.71	218.32	249
10	224.32	180.98	165.10	183.25	165.68	122.90	151.98	174.57	185
15	195.20	161.33	168.65	202.48	184.16	102.50	102.50	102.50	124
15*	22.48	18.41	16.92	19.66	17.82	11.39	13.50	15.18	16

CONVERSION TO OTHER DAMPING VALUES (RANGE 2% - 20%)

$$PSA_{x\%} = PSA_{5\%} \times 10^{C_T \times (\text{new damping}(x) - .05)}$$

Period	C _T
04	**
05	**
065	-0.290
08	-0.600
10	-0.904
13	-1.270
10	-1.700
10	-1.990
10	-1.950
15	-1.810
15	-1.960

cm/sec
 Statistically Insignificant Coefficient, Use 5% PSA Value



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D. C. 20555

June 29, 1981

Chad

Docket No. 50-219
LS05-81-06-116

Mr. I. R. Finfrock, Jr.
Vice President - Jersey Central
Power & Light Company
Post Office Box 388
Forked River, New Jersey 08731

Dear Mr. Finfrock:

SUBJECT: SEP TOPIC VIII-2, ONSITE EMERGENCY POWER SYSTEMS - DIESEL
GENERATOR, SAFETY EVALUATION FOR OYSTER CREEK

The enclosed staff safety evaluation is based on contractor's documents that have been made available to you previously. These documents support the findings of the staff safety evaluation of Topic VIII-2 that recommends modifications to the diesel generator protective interlocks.

The need to actually implement these changes will be determined during the integrated safety assessment. This topic assessment may be revised in the future if your facility design is changed or if NRC criteria relating to this topic are modified before the integrated assessment is completed.

Sincerely,

Dennis M. Crutchfield
Dennis M. Crutchfield, Chief
Operating Reactors Branch No. 5
Division of Licensing

Enclosure:
As stated

cc w/enclosure:
See next page

*PD12
8107020242*

Mr. I. R. Finfrock, Jr.

cc

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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 for Oyster Creek 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) Clearly distinguish between both disabling and nondisabling conditions that are shared on one single "D/G TROUBLE" annunciator.
- 2) Provide information sufficient to determine if the D/G is provided with a manual shutdown lockout relay.

By a letter dated May 17, 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 0713F, "Diesel Generators" presents a technical evaluation of the diesel generator protective interlocks and load capability at Oyster Creek against present licensing criteria. The report notes that five diesel-generator protective trips are not bypassed during emergency operation. This is not in agreement with current NRC guidelines that specify that only engine overspeed and generator differential may be used during emergency operation.

VI. Conclusion

The staff proposes that the diesel generator protective interlocks be brought into conformance with the Branch Technical Position ICSB-17 (PSB).