

SEP 11 1985

MEMORANDUM FOR: Thomas M. Novak, Assistant Director  
for Licensing, DL

FROM: L. S. Rubenstein, Assistant Director  
for Core and Plant Systems, DSI

SUBJECT: RESOLUTION OF SEABROOK INTEGRATED DESIGN INSPECTION  
(IDI) ISSUES (FINDINGS 6-17 AND 6-30) TAC NO. 57134

In accordance with a memorandum from Brian Grimes to Frank Miraglia, on the above subject, the Power Systems Branch has reviewed IDI finding 6-17, circuit breaker fault current qualification and 6-30, conduit marking, which fall in PSB area of review responsibility. We conclude that non-Class 1E circuit breaker fault current qualification is not necessary (6-17) and the present identification of conduit marking (6-30) is acceptable. Our detailed evaluation of these items is enclosed. This completes our action on TAC No. 57134.

Original signed by  
L. S. Rubenstein

L. S. Rubenstein, Assistant Director  
for Core and Plant Systems  
Division of Systems Integration

Enclosure:  
Evaluation

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Central Files  
PSB RF  
L. Rubenstein

D/14

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DATE	9/6/85	9/6/85	9/10/85	9/11/85		

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## ENCLOSURE

### Integrated Design Inspection Finding 6-17

At Seabrook all BOP nonsafety-related circuits are designed as associated circuits. These associated circuits are subject to all the requirements placed on Class 1E circuits (such as cable derating, environmental qualification, flame retardancy, splicing restrictions, and raceway fill). The basis for associated circuit acceptability at Seabrook is directly dependent upon fault current interruption by circuit breakers to prevent harmful effects to the Class 1E circuits. However, these breakers have not been tested for fault current interruption capability during a seismic event. In the Seabrook SER, it is stated that in the staff's judgement these protective devices will maintain their structural integrity and perform their function (power removal) when subjected to a seismic event and failure of a load. NRR was requested by IE to confirm whether this SER statement applies to circuit breakers in associated circuits, such as E22 and BQ.

The SER statement applies to circuit breakers E22 and BQ used in associated circuits. This statement was based on the fact that these circuit breakers are identical to the qualified Class 1E breakers. The applicant has stated that although no specific test was performed on these Class 1E breakers to confirm the fault current interruption capability of E22 and BQ circuit breakers during or after a seismic event, these breakers have been demonstrated to maintain their integrity during a seismic event and were subjected to operational tests which included an overload test, a dielectric test and opening and closing of the breakers. Furthermore, the tested breakers were dissected and examined for integrity; no abnormalities were observed. Based on the above and the prototype test performed on such breakers for fault interrupting capability, the staff believes that these breakers will function under fault current during a seismic event. Although non-Class 1E breakers are not qualified as Class 1E,

they are typically designed and manufactured the same as the qualified Class 1E equipment. The difference is in the formal documentation of quality assurance and qualification of the equipment and in some cases the site related bracing of the equipment. Since the Class 1E breakers maintain their integrity for seismic events, there is reasonable assurance that they will function under fault current during a seismic event, and that the non-Class 1E breakers of like design can also be expected to maintain integrity and perform this function. For this reason, the staff concludes there is no need for seismic qualification of non-Class 1E E22 and BQ breakers under fault conditions. Our conclusion is also based on the fact that it is evident from numerous earthquake experiences in operating industrial facilities in highly seismic areas where circuits or loads (equivalent to non-1E design) did not fail and cause fires nor are the circuit breakers protecting those circuits malfunctioned. In actual experience, a wide variety of manufacturers and types of electrical equipment exhibit inherent capability to withstand the event. Therefore, we conclude that it is not essential to require seismic qualification of non-1E equipment to reduce the potential for secondary effects in the very unlikely event of its failure during a low probability design basis event, i.e. an earthquake.

#### Integrated Design Inspection Finding 6-30 Conduit Marking

In the Seabrook design, the Class 1E conduits are not marked to identify the separation group at intervals not to exceed 15 feet in accordance with IEEE Std. 384, and Regulatory Guide 1.75. The Seabrook FSAR takes exception to this requirement. NRR was requested by IE to review this exception.

In the Seabrook design, the Class 1E conduit markings are provided at conduit ends, both sides of the walls, floors and in-line boxes to ensure cables of a different separation group are not pulled into a conduit. In addition, QC inspections are performed to assure that cables are routed in conduits of correct separation group. Based on our review of the information provided by

the applicant, the staff concludes that the intent of the conduit identification is to insure that cable is routed into the correct conduit. The method of identification discussed above coupled with QC inspection performed after the installation provides assurance that cables are routed into the correct conduit. In addition the method of identification precludes the need to consult any reference material to distinguish between redundant Class 1E raceway systems. The staff, therefore, finds this exception to the FSAR revision acceptable.

FEB 14 1986

Docket No.: 50-443

MEMORANDUM FOR: Vincent S. Noonan, Director, PWR Project Directorate No. 5  
Division of PWR Licensing-A

FROM: Victor Nerses, Project Manager, PWR Project Directorate No. 5  
Division of PWR Licensing-A

SUBJECT: SEABROOK ENVIRONMENTAL QUALIFICATION OF ELECTRICAL  
EQUIPMENT SITE AUDIT

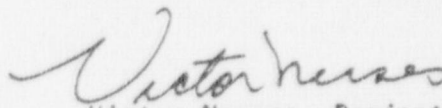
DATE & TIME: Tuesday, February 25 through Thursday, February 27, 1986  
Tuesday: 8:00 am to a time to complete the daily list  
Wednesday: 8:00 am to a time to complete the daily list  
Thursday: 8:00 am to a time to complete the daily list  
(Thursday at 3:00 pm an Exit meeting will be held in the  
Seabrook Information and Education (Center)

LOCATION: Seabrook Site  
Seabrook, New Hampshire

PURPOSE: To review test procedures and results for selected equipment,  
examine configuration and mounting and determine whether  
compliance with established criteria has been demonstrated.

PARTICIPANTS: NRC PSNH

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M. Trojovsky	
V. Nerses, et al.	

  
Victor Nerses, Project Manager  
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cc: See next page

Note: The NRC exit meeting is open to interested members of the public to attend as observers. Members of the public who wish to attend this meeting must contact V. Nerses (301) 492-8535 no later than 12:30 pm February 24, 1986. (The NRC generally does not have access authority to allow members of the public to attend the site audit portion of the meeting. This authority resides with PSNH who has responsibility to maintain physical security and proprietary information. Therefore, admission of the public to the Seabrook construction site is at the discretion of PSNH. For further information about access to the site tour, contact the site representative, Mr. Sanchez, at (603) 474-9521, Extension 2453).

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2/14/86

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4/10/86

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Seabrook Nuclear Power Station

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FEB 14 1986

MEETING NOTICE DISTRIBUTION

Docket or Central File 50-443

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Local PDR

PD#5 Reading File

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