



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

FEB 1 1985

Docket No.: 50-322

MEMORANDUM FOR: Chairman Palladino
Commissioner Roberts
Commissioner Asselstine
Commissioner Bernthal
Commissioner Zech

FROM: Darrell G. Eisenhut, Director
Division of Licensing

SUBJECT: BOARD NOTIFICATION 85-009
EXEMPTION FROM GENERAL DESIGN CRITERION-17
REGARDING LOW POWER OPERATION OF THE SHOREHAM
NUCLEAR POWER STATION

In accordance with the procedures for Board Notifications, the following information is being provided directly to the Commission. The appropriate boards and parties are being informed by a copy of this memorandum. This information is relevant only to the Shoreham Nuclear Power Station.

During its review of the application of the Long Island Lighting Company (LILCo) for an exemption from the provisions of General Design Criterion-17 (GDC), for operation at up to five percent of rated power, the staff considered the possibility that single equipment failures could cause a loss of both alternate sources of ac electric power. In Supplement 6 to the Shoreham Safety Evaluation Report (NUREG-0420) (SSER6) dated July, 1984, the staff concluded that "the alternate ac power sources have the required redundancy, meets the single failure criterion, and have the capacity, capability, and reliability to supply power to all required safety loads for low power operation" (SSER6, p.8-9).

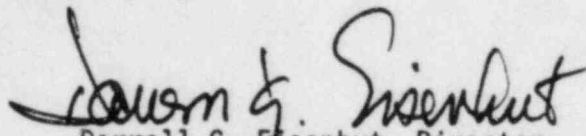
Upon reconsideration of the electrical distribution system at Shoreham, the staff has determined that there does exist the possibility of a single equipment failure which could disable both alternate sources of ac power (see the enclosed figure from the Shoreham FSAR). As defined for purposes of evaluating the request for exemption, the staff considered the occurrence of a LOCA coincident with a loss of both off-site sources of ac power from the LILCo grid. Further, because of uncertainties concerning their reliability, it was assumed that none of the three TDI Emergency Diesel Generators would be available to start. The licensee proposed that in this circumstance, power would be supplied from a 20 MW, dead-line, blackstart gas turbine generator which would feed the Reserve Station Service Transformer (RSST), and through it, the safety related emergency busses through breakers 424, 444, and 464; in the case of failure of the gas turbine, power would be supplied from four 2.5 MW mobile diesel generators, through Bus 11, and breakers 450, 415, 435

8502040454

N005

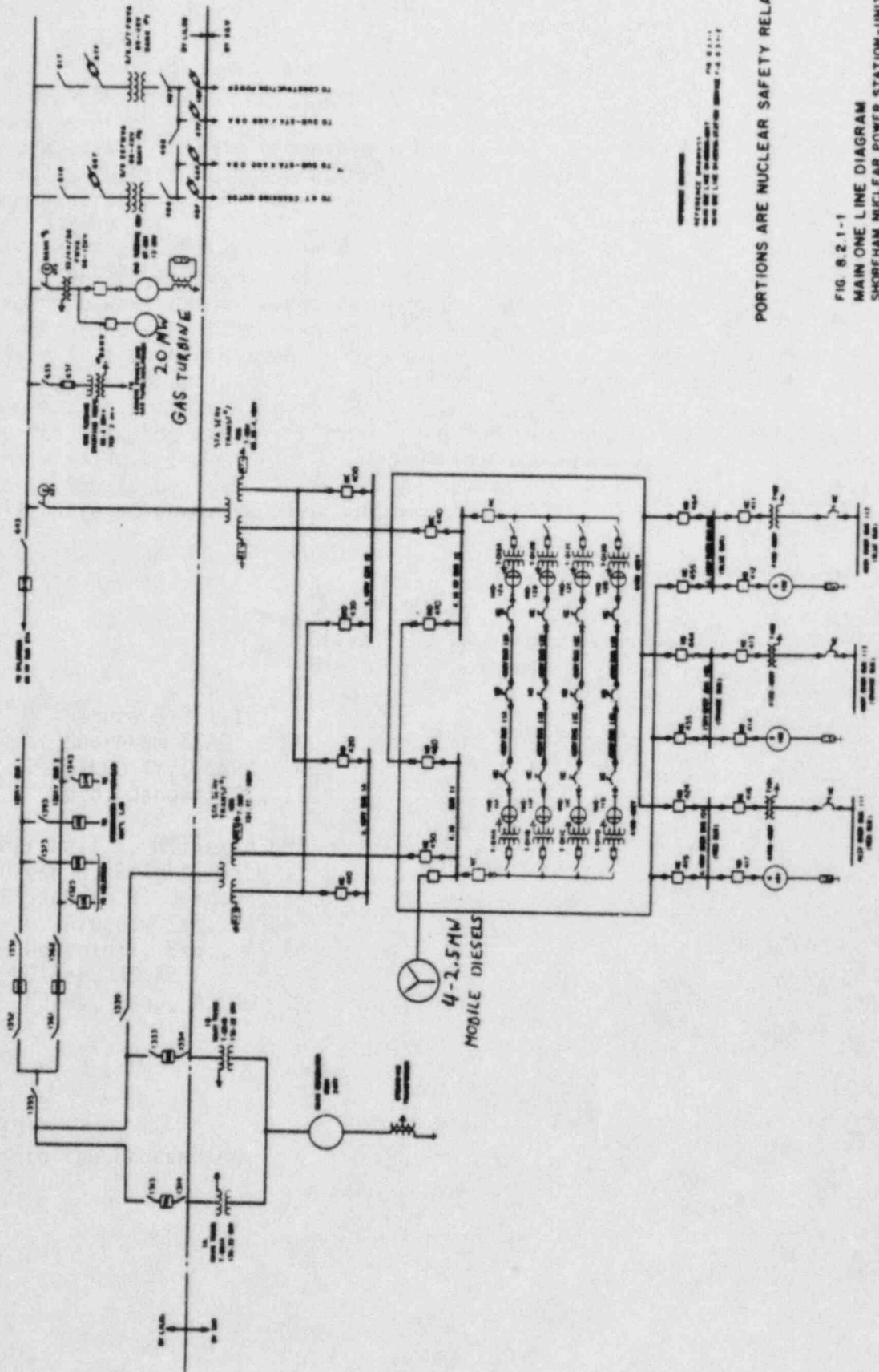
and 455. When SSER6 was written, however, it was not realized that if a fault in breaker 460 were to occur, such a fault could prevent power from reaching the emergency busses. This is because breaker 460 is common to both the power path from the gas turbine to the emergency busses, and to the path from the mobile diesel generator to the emergency busses.

The staff discussed this matter with the licensee, which provided its response on January 29, 1985 (see Enclosure 2). The licensee reported that it would be able to route power to the emergency busses by using an alternate path through the offsite distribution system. The licensee further committed to physically rack down breaker 460, thereby physically removing the possibility of the failure described above. The staff has reviewed the licensee's response, and has determined that if breaker 460 is racked down, the alternate ac power sources meet the single failure criterion, and the conclusions stated in SSER6 remain valid. The staff would condition the Shoreham license to require breaker 460 to be racked down during operation up to five percent power using the alternate ac power supply configuration.


Darrell G. Eisenhut, Director
Division of Licensing

Enclosures: 1. Figure 8.2.1-1,
Shoreham FSAR
2. LILCo ltr. SNRC-1140,
dtd. January 29, 1985

cc: Judge Marshall E. Miller ASLB
Judge Glenn O. Bright, ASLB
Judge Elizabeth B. Johnson, ASLB
Eleanor L. Frucci, Esq., ASLB
Alan S. Rosenthal, Esq., ASLAB
Howard Wilber, ASLAB
Gary J. Edles, Esq., ASLAB
SECY (2)
OPE
OGC
EDO
ACRS (10)
Parties to the Proceeding



REFERENCE DRAWING: FIG. 8.2.1-1
 DATE: 12/24/68
 DRAWN BY: L. J. HARRIS
 CHECKED BY: J. R. HARRIS

PORTIONS ARE NUCLEAR SAFETY RELATED

FIG. 8.2.1-1
 MAIN LINE DIAGRAM
 SHOREHAM NUCLEAR POWER STATION-UNIT 1
 FINAL SAFETY ANALYSIS REPORT

28792
TO: RALPH CARUSO
FROM: GARY GISONDA



LONG ISLAND LIGHTING COMPANY

SHOREHAM NUCLEAR POWER STATION

P.O. BOX 818, NORTH COUNTRY ROAD • WADING RIVER, N.Y. 11792

JOHN D. LEONARD, JR.
VICE PRESIDENT - NUCLEAR OPERATIONS

January 29, 1985

SNRC-1140

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Single Failure Concerns
Alternate AC Power Supplies
Shoreham Nuclear Power Station - Unit 1
Docket No. 50-322

Dear Mr. Denton:

It has come to our attention, as a result of recent phone conversations between members of our respective staffs, that your Staff has raised questions concerning a postulated single failure that they believe will disable both of LILCO's alternate AC power supplies (the 20 MW gas turbine and the four 2.5 MW mobile diesel generators). Your Staff postulates the following conditions simultaneously exist: (a) loss of all offsite AC power, (b) a design basis loss of coolant accident, (c) inability to start any of the multiple offsite gas turbine units to restore power to the site and, (d) an electrical fault occurs in electrical circuit breaker number 460 between the reserve station service transformer (RSST) and bus 11 as shown in PSAR Figure 8.2.1-1. Given this set of conditions they are concerned that this single fault can render both sources of AC alternate power incapable of restoring power to an emergency bus. If their concern is valid the Staff believes that this would not be consistent with previous Staff findings on this subject as described in SSERs 5 and 6 and in Staff testimony before the Low Power Licensing Board.

The purpose of this letter is to demonstrate that the concern raised by the Staff does not affect its prior testimony concerning the susceptibility of LILCO's alternate power supplies to single failures.

Breaker number 460, the reserve station service transformer supply breaker to bus 11, is normally open. This reserve station service transformer supply breaker and all other interconnecting tie supply breakers on buses 1A, 1B, 11 and 12 are normally open and the verification of this is required per Shoreham Nuclear

112
28792
5875058

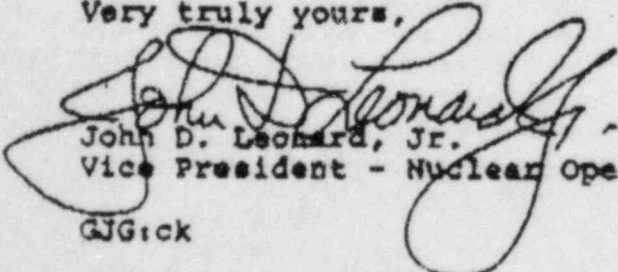
Power Station Technical Specification 4.13.1.1.2.a.6. First, the fault postulated by the Staff on normally open breaker 460 is not a credible failure mode. It has been our experience that electrical faults, such as the one being postulated by the Staff do not occur when the breaker is in the open position. As noted above, the open status of the breaker is verified periodically per the technical specifications. Thus, it's not credible to assume that the breaker fails in this mode while it is open.

Second, even if a fault occurred as postulated in tie breaker number 460 it is still possible for the 20 MW gas turbine to supply power to Shoreham. In such an event, the EMD diesels could not be connected to the failed bus 11 and the failure of breaker number 460 would also cause a trip of the RSST protective relays which would trip all 7 RSST 4 KV breakers, the 69 KV switchyard supply breaker 640 and the 20 MW gas turbine breaker. The Plant Operator can open ABS 623 and the 4KV switch gear breaker 450 thereby isolating bus number 11 and the faulted 4 KV breaker 460. The Plant Operator can then reset the RSST lock out relay 86T4B, thereby allowing the 20 MW gas turbine to start in a dead line mode. The System Operator, by rearranging system breakers, can reroute power from the gas turbine via the 69 KV system and the 138/69 KV step up transformer at the Wildwood substation on the Shoreham property to the Shoreham 138 KV switchyard. Power is then connected to the emergency 4 KV bus from the normal station service transformer.

Despite our systems ability to overcome this highly improbable multiple contingency event we heraby commit to rack down 4 KV breaker number 460 to eliminate the Staff concern. We anticipate that this commitment should fully resolve this concern. Given that the postulated failure is highly unlikely, that there are ways to route power from the 20 MW gas turbine, even if it occurred, and that LILCO has made the above commitment with respect to breaker number 460, we trust that there is no need to change previous Staff positions on this subject.

Should you or members of your Staff have any additional questions, please do not hesitate to call my office.

Very truly yours,



John D. Leonard, Jr.
Vice President - Nuclear Operations

GJG:ick

cc: P. Eselgroth, Sr. Resident Inspector

DISTRIBUTION LIST FOR BOARD NOTIFICATION

Shoreham Unit 1, Docket Nos. 50-322

Atomic Safety and Licensing Appeal Board	Fabian G. Palomino, Esq.
Atomic Safety and Licensing Board Panel	Spence Perry, Esq.
Docketing and Service Section	W. Taylor Reveley, III, Esq.
Document Management Branch	Dr. Peter F. Riehm
MHB Technical Associates	Alan S. Rosenthal, Esq.
	Cherif Sedky, Esq.
	Mr. Frederick J. Shon
	Mr. Martin Suibert
	Howard A. Wilber, Esq.
Robert Abrams, Esq.	Mr. John Leonard
Martin Bradley Ashare, Esq.	Resident Inspector
Edward M. Barrett, Esq.	Energy Research Group, Inc
Howard L. Blau, Esq.	Ezra Bualik
Ms. Nora Bredes	Dr. M. Stanley Livingstone
Lawrence Brenner, Esq.	
Glenn O. Bright, Esq.	
Herbert H. Brown, Esq.	
Hon. Peter Cohalan	
Gerald C. Crotty, Esq.	
James B. Dougherty, Esq.	
Donna D. Duer, Esq.	
Jay Dunkleberger, Esq.	
Alan R. Dynner, Esq.	
Anthony F. Earley, Jr.	
Gary J. Edles, Esq.	
Peter S. Everett, Esq.	
Jonathan D. Feinberg, Esq.	
Dr. George A. Ferguson	
Leon Friedman, Esq.	
Eleanor L. Frucci, Esq.	
Stewart M. Glass, Esq.	
Mr. Marc W. Goldsmith	
Norman L. Green, Esq.	
Mr. Bruce L. Harshe	
Elizabeth B. Johnson, Esq.	
Dr. Jerry R. Kline	
Stephen B. Latham, Esq.	
James A. Laurensen, Esq.	
Mr. Brian McCaffrey	
Marshall E. Miller, Esq.	
Dr. Peter A. Morris	
Chris Nolin	