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STATUS OF EVALUATIONS AND MODIFICATIONS OF
DIESEL GENERATOR STATUS ANNUNCIATOR SYSTEMS AT
VARIOUS U. S. NUCLEAR POWER PLANTS

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LLL

October 1979

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ABSTRACT

This report documents the current status of evaluations and modifications to the diesel generator status annunciators in a number of U. S. nuclear power plants. These modifications may be required in order to:

- (1) Ensure that all conditions which might render the diesel generators incapable of automatic starting are annunciated in the control room.
- (2) Ensure that the wording on the control room annunciator clearly indicates to the operator that the diesel generator is unavailable if such is the case.
- (3) Separate disabling and non-disabling annunciation.

This report is supplied as part of the Selected Electrical, Instrumentation, and Control Systems Issues Program being conducted for the U. S. Nuclear Regulatory Commission by Lawrence Livermore Laboratory.

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FOREWORD

This report is supplied as part of the Selected Electrical, Instrumentation, and Control Systems Issues (SEICSI) Program being conducted for the U. S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Division of Operating Reactors, by Lawrence Livermore Laboratory, Field Test Systems Division of the Electronics Engineering Department.

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OF
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1. INTRODUCTION

By letter dated November 28, 1977, the U. S. Nuclear Regulatory Commission (NRC) requested a number of nuclear power plant licensees* to review the circuitry of and wording on their diesel generator status annunciators and to provide the following information:

- (1) All conditions which render the diesel generators incapable of responding to an automatic start signal.
- (2) The wording on the annunciator panel for each of the conditions listed in (1) above.
- (3) Any other alarm signal which causes each panel listed in (2) above to alarm.

*A list of the licensees and their respective plants is given in Section 2.

- (4) Any condition which renders the diesel generators incapable of responding to an automatic start signal (i.e., responding to (1) above) that is not annunciated in the control room.
- (5) Any modifications which are contemplated as a result of the above review.

The NRC review was prompted by an evaluation of several licensee event reports which detailed occasions where the diesel generators at a plant failed to operate on demand. Some of the failures were due to manually aligned switches which were not correctly aligned to permit automatic operation of the diesel generators. These misaligned switches were not annunciated in the control room.

The purpose of this report is to evaluate the correspondence between the NRC staff and the various licensees on the subject of diesel generator status annunciation and using the following NRC staff position criteria:

- (1) All conditions which can prevent the diesel generators from starting should be properly annunciated in the control room.
- (2) Unambiguous wording should be provided on the annunciator window(s) to indicate when the diesel generators are incapable of responding to an emergency start request.

2. EVALUATION OF THE DIESEL GENERATOR STATUS ANNUNCIATORS

All of the licensees who received the NRC request for information on diesel generator status annunciators replied. These licensees and their respective plants are as follows:

<u>LICENSEE</u>	<u>PLANT</u>
1. AEP Corporation	Cook 1
2. Alabama Power Company	Farley 1
3. Arkansas Power and Light Company	Arkansas 1 Arkansas 2
4. Baltimore Gas and Electric Company	Calvert Cliffs 1 Calvert Cliffs 2
5. Boston Edison Company	Pilgrim 1
6. Carolina Power and Light Company	Brunswick 1 Brunswick 2 Robinson 2
7. Commonwealth Edison Company	Dresden 1 Dresden 2 Dresden 3 Quad Cities 1 Quad Cities 2 Zion 1 Zion 2
8. Connecticut Yankee Atomic Power Company	Haddam Neck
9. Consolidated Edison Company of New York, Inc.	Indian Point 1 Indian Point 2
10. Consumer Power Company	Big Rock Point 1 Palisades
11. Dairyland Power Cooperative	Lacrosse

LICENSEEPLANT

12. Duke Power Company	Oconee 1 Oconee 2 Oconee 3
13. Duquesne Light Company	Beaver Valley 1
14. Florida Power and Light Company	St. Lucie 1 Turkey Point 3 Turkey Point 4
15. Florida Power Corporation	Crystal River 3
16. Georgia Power Company	Hatch 1 Hatch 2
17. Indiana and Michigan Power Company	Cook 2
18. Iowa Electric Light and Power	Duane Arnold
19. Jersey Central Power and Light	Oyster Creek
20. Maine Yankee Atomic Power Company	Maine Yankee
21. Metropolitan Edison Company	Three Mile Island 1 Three Mile Island 2
22. Nebraska Public Power District	Cooper Station
23. Niagara Mohawk Power Corporation	Nine Mile Point 1
24. Northeast Nuclear Energy Company	Millstone 1 Millstone 2 Monticello
25. Northern States Power Company	Prairie Island 1 Prairie Island 2
26. Omaha Public Power District	Fort Calhoun
27. Pacific Gas and Electric Company	Humboldt Bay
28. Philadelphia Electric Company	Peach Bottom 2 Peach Bottom 3
29. Portland General Electric Company	Trojan
30. Power Authority of the State of New York, Inc.	Fitzpatrick Indian Point 3

<u>LICENSEE</u>	<u>PLANT</u>
31. Public Service Company of Colorado	Fort St. Vrain
32. Public Service Electric and Gas Company	Salem 1
33. Rochester Gas and Electric Corporation	Ginna
34. Sacramento Municipal Utility District	Rancho Seco
35. Southern California Edison Company	San Onofre 1
36. Tennessee Valley Authority	Browns Ferry 1 Browns Ferry 2 Browns Ferry 3
37. Toledo Electric Company	Davis-Besse 1
38. Vermont Yankee Nuclear Power Corporation	Vermont Yankee
39. Virginia Electric and Power Company	North Anna 1 Surry 1 Surry 2
40. Wisconsin Electric Power Company	Point Beach 1 Point Beach 2
41. Wisconsin Public Service Corporation	Kewaunee
42. Yankee Atomic Electric Company	Yankee Rowe

The correspondence between the NRC staff and the various licensees on the subject of diesel generator status annunciators was evaluated using the NRC staff position criteria given in Section 1. Some of the licensees identified problems as a result of the review and proposed changes and schedules for their implementation. Other licensees replied that no problems existed and their replies satisfied the NRC staff. Most

of the replies fell somewhere in between and raised further questions. NRC sent subsequent letters to many of the licensees stating that the information originally provided was not sufficient to determine if one or both of the following situations existed at the plants:

- (1) The plant had relays that (1) were locked-in when the diesel generators were shut down, (2) would prevent a subsequent automatic start, and (3) did not have their status annunciated in the control room.
- (2) The condition of the plant diesel-generator mode switch not being on "automatic" was annunciated in the control room.

A summary of the status of evaluations and modifications is presented in the Appendix. Each page of the summary covers an individual plant and includes information under the following headings:

- (1) LAST ACTION--The essence of the last NRC correspondence to the licensee.
- (2) RESPONSE--The essence of the response by the licensee to NRC.
- (3) NEXT ACTION--Our recommendation as to the next action to be taken.
- (4) FINAL ACTION--Our recommendation as to the final action necessary to conclude the issue.

In addition, the terms NOTE 1 and NOTE 2 are found in the summary and are defined as follows:

- (1) NOTE 1--There exists an NRC staff letter to the licensee stating that the last response by the licensee appears to satisfy the concerns and requirements of the NRC staff pending an NRC staff review. The date of the letter follows the NOTE 1 notation.
- (2) NOTE 2--A recommendation is made for the NRC staff to witness the next diesel generator test shutdown. The NRC staff should ensure that there is no step of the shutdown procedure which could leave the diesel generators incapable of responding to an automatic start signal that is not annunciated in the control room.

3. CONCLUSIONS

An evaluation was made of the diesel generator status annunciators at various U. S. nuclear power plants. The conclusions and recommendations for each individual nuclear power plant evaluated are contained in the last two columns of each page in the Appendix. In those cases where the licensee has indicated that it does not use a lock-out relay to shutdown the diesel generator and where we have used the notation "NOTE 2", we recommend that the NRC Inspector witness the next diesel generator test to ascertain that there is no step of the shutdown procedure which could leave the diesel generators incapable of responding to an automatic start signal and which is not annunciated in the control room.

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APPENDIX

SUMMARY OF THE EVALUATION OF THE DIESEL GENERATOR STATUS ANNUNCIATORS AT VARIOUS U. S. NUCLEAR POWER PLANTS

1. Cooper Station	24. San Onofre, Unit 1
2. Palisades	25. Peach Bottom, Units 2 and 3
3. Cook, Units 1 and 2	26. Crystal River, Unit 3
4. Trojan	27. Beaver Valley, Unit 1
5. Maine Yankee	28. Brunswick, Units 1 and 2
6. Vermont Yankee	29. Fitzpatrick, Unit
7. Pilgrim	30. Nine Mile Point, Unit 1
8. Browns Ferry, Units 1, 2, and 3	31. Point Beach, Units 1 and 2
9. Humboldt Bay, Unit 3	32. Fort Calhoun
10. Three Mile Island, Unit 1	33. R. E. Ginna, Unit 1
11. Millstone, Unit 1	34. Arkansas
12. Millstone, Unit 2	35. Monticello
13. Salem, Unit 1	36. Prairie Island, Units 1 and 2
14. Calvert Cliffs, Units 1 and 2	37. Hatch, Unit 1
15. Kewaunee	38. Surry, Units 1 and 2
16. Oyster Creek, Unit 1	39. St. Lucie, Unit 1
17. Yankee Rowe	40. Indian Point, Units 1 and 2
18. Duane Arnold	41. Dresden, Unit 1
19. Rancho Seco, Unit 1	42. Dresden, Units 2, 3, and 4
20. La Crosse	43. Quad Cities, Units 1 and 2
21. Haddam Neck	44. H. B. Robinson, Unit 2
22. Turkey Points, Units 3 and 4	45. Davis-Besse, Unit 1
23. Zion, Units 1 and 2	46. J. M. Farley

1. CHURCH STATION

DOCKET NO.: 50-290

SECOND DOCKET NO.:

LAST ACTION

Licensee proposed modification in its May 19, 1978 letter to add annunciators in the control room for films a, b, c, and d of letter from NRC (lear) to licensee dated April 18, 1978.

RESPONSE

NRC DOR approved proposed modification in its letter dated March 2, 1979.

NEXT ACTION

None.

FINAL ACTION

NRC should verify modification complete.

NOTE 1, March 2, 1979.

2. PALISADES

DOCKET NO.: 50-255

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter to:

- 1) Determine if D/G's have a manual shutdown lockout relay.
- 2) Verify that a D/G control switch not in the automatic position is annunciated.
- 3) Verify that a shared annunciator cannot be cleared until all inputs are cleared.

RESPONSE

Licensee responded by letter dated July 7, 1978 that:

- 1) There is no manual shutdown lockout relay in the control system.
- 2) The control switch position is not alarmed.
- 3) Shared annunciators cannot be cleared until all inputs are cleared.

NEXT ACTION

- 1) NRC should review the schematic diagram of the as-built system in the field to verify that no manual shutdown lockout relay exists. NOTE 2.
- 2) Inform licensee that a control switch not in the auto should be annunciated.
- 3) None.

FINAL ACTION

- 1) Document results of NRC review.
- 2) NRC verify that modification is complete.
- 3) None.

3. COOK, UNITS 1 & 2

DOCKET NO.: 50-315

SECOND DOCKET NO.: 50-316

LAST ACTION

Staff review of licensee response to initial inquiry has been completed, and the following actions should be taken by the licensee:

- 1) Annunciate the control knife switch open position.
- 2) Determine if a manual shutdown lockout relay exists.
- 3) Verify that an annunciator is provided to clearly indicate when the D/G control switch is not in the automatic position.

RESPONSE

None.

NEXT ACTION

NRC should inform the licensee of the staff position.

FINAL ACTION

NRC should verify that the licensee has implemented the staff position.

4. TROJAN

DOCKET NO.: 50-344

SECOND DOCKET NO.:

LAST ACTION

Licensee proposed modifications in its May 31, 1978 letter.

RESPONSE

NRC OOR approved proposed modifications in its letter dated June 26, 1978 and verified that the modifications were completed via phone to IE Resident Inspector (Mike Malmoose) on June 19, 1979.

NEXT ACTION

None.

FINAL ACTION

None; task complete; NRC acceptance letter dated June 26, 1978 has been sent to licensee.

NOTE 1, June 26, 1978.

5. MAINE YANKEE

DOCKET NO.: 50-309

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter of July 6, 1978 to:

- 1) Verify that all shared annunciators for disability conditions cannot be cleared until all abnormal conditions are corrected.
- 2) Verify if the D/G is provided with a manual shutdown lockout relay. An alarm should be provided which is worded to clearly indicate the D/G is incapable of an auto start when the relay is not set.

RESPONSE

Licensee responded by letter dated August 4, 1978 that:

- 1) Item 1 has been verified.
- 2) There is no manual shutdown lockout relay provided.

NEXT ACTION

- 1) None.
- 2) NRC should review the schematic diagram of the as-built system in the field. Verify that no manual shutdown lockout relay exists.

FINAL ACTION

- 1) None.

- 2) Document results of the NRC review.

DATE 1, August 22, 1978.

6. VERMONT YANKEE

DOCKET NO.: 50-271

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter of April 18, 1978 to:

- 1) Verify that there is no manual shutdown lockout relay.
- 2) Verify that the D/G voltage regulator control switches are annunciated.
- 3) Verify that all shared annunciators for the D/G disabling conditions cannot be cleared until all of the abnormal conditions are corrected.

RESPONSE

Licensee responded by letter of May 17, 1978 that:

- 1) There is no manual lockout shutdown relay.
- 2) An annunciator would be added to the voltage regulator control switch.
- 3) All shared annunciators for the D/G disabling conditions cannot be cleared until all of the abnormal conditions are corrected.

NEXT ACTION

- 1) NRC should verify from schematic diagram or the as-built system in the field that the normal post-test shutdown method does not actuate a lockout relay that must be manually reset to enable an auto start. NOTE 2.
- 2) NRC should verify the annunciator labeling in the field.
- 3) None.

FINAL ACTION

- 1) Document results of NRC review.
- 2) Document, review and accept annunciator labeling.
- 3) None.

7. PILGRIM, UNIT 1

DOCKET NO.: 50-293

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter of September 15, 1978 to:

- 1) Provide a separate alarm for each valve/switch on a single shared alarm (with reflash capability) for all affected devices with wording clearly indicating that the D/G is incapable of an automatic start.
- 2) Provide confirmation that all shared annunciators for the D/G disabling conditions cannot be cleared in the control room until all abnormal (disabling) conditions are corrected. Provide a description of any exceptions and the corrective measures to be initiated.
- 3) Provide information sufficient to verify that an alarm is provided which clearly indicates when the D/G control switch is not in the automatic position.

RESPONSE

Licensee responded by letter dated October 20, 1978 that:

- 1) Functionally testing the D/G after maintenance and daily checking the position of the shut-off valves provide adequate assurance that the D/G will not be left in an inoperable mode due to the incorrect positioning of the air start shutoff valve. No modification is necessary.
- 2) During the emergency mode, all shared annunciators for D/G disabling conditions cannot be cleared in the control room until all abnormal (disabling) conditions are corrected. During the test mode, these conditions can be cleared in the control room after acknowledging the trouble alarm of the local control panel. During the emergency mode, these controls are bypassed and alarmed in the local panel and the control room on a common alarm.
- 3) Even if a switch is not in the automatic position, it will not prevent an automatic start.

NEXT ACTION

- 1) The Licensee should be informed to implement the NRC staff position.
- 2) None.
- 3) If the D/G is in the test mode and the shutdown relay is energized (e.g., by pushing the normal post-test shutdown button), it appears that the alarm can be cleared in the control room after the local alarm is cleared. Can the local alarm be cleared without clearing the shutdown relay? If so, an automatic start could be blocked if the local alarm were cleared without first reverting the shutdown relay and the operators were not aware of it. This should be reviewed and corrected if such conditions exist.

FINAL ACTION

- 1) NRC should verify and document the modifications installed.
- 2) None.
- 3) The results of review should be documented and the licensee informed of the final disposition.

8. BROWNS FERRY, UNITS 1, 2, & 3

DOCKET NO.: 50-259

SECOND DOCKET NO.: 50-260

THIRD DOCKET NO.: 50-296

LAST ACTION

Licensee was informed by NRC that:

1) The NRC staff position is that: If the control switch is not in single-unit mode, an alarm for this condition should be provided in the control room which clearly indicates a D/G automatic start is blocked.

2) Licensee was requested by letter dated March 29, 1977 to list the wording on the annunciator window in the control room for those conditions preventing automatic starts.

RESPONSE

1) The licensee proposed no changes in the system as "there is no control room annunciation when the D/G mode is not in the single-unit mode. However, this doesn't really matter, since when an accident signal is received by the D/G, the D/G mode automatically goes to the single-unit mode which allows the D/G to automatically start and come up to speed. The single-unit-mode switch does not actually move, but an automatic start due to an accident signal is not inhibited. Therefore, no safety concern exists."

2) The licensee responded by letter dated June 3, 1977 that: The control circuit logic breaker is annunciated in the control room as "DIESEL GEN # CONTROL POWER OFF" and the operator is aware of the automatic start inhibit.

NEXT ACTION

1) None.

2) The NRC staff position is that the control circuit logic breaker should be annunciated in the control room as DIESEL GEN # AUTO START DISABLED".

FINAL ACTION

1) None.

2) NRC should verify that the licensee has implemented the staff position.

NOTE 1, December 15, 1978.

9. HUMBOLDT BAY, UNIT 3

DOCKET NO.: 50-133

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter of April 18, 1978 to:

- 1) Identify the D/G disabling conditions not clearly annunciated in the control room (control switch not in the automatic position).
- 2) Determine if the D/G is provided with a manual shutdown lockout relay.
- 3) Provide confirmation that shared annunciators for the D/G disabling conditions cannot be cleared in the control room until all of the abnormal (disabling) conditions are corrected.

RESPONSE

Licensee responded by letter of May 19, 1978:

- 1) The wording for this annunciator, which alarms if the control switch is not in the automatic position, will be changed to "EMERGENCY ENGINE GENERATOR DISABLED".
- 2) The D/G is provided with an emergency-stop relay which is energized and locked-in when overspeed engine water high temperature or low oil pressure sensors exceed their setpoints. Activation of this relay initiates an emergency shutdown by opening a contact in the engine ignition circuitry to shut down the engine. The licensee will add a modification to monitor this relay and annunciate it on the annunciator in item (1) above.
- 3) The annunciator is not capable of being cleared or reset unless all of the abnormal conditions associated with it are corrected. Resetting these annunciators cannot be accomplished in the control room and requires that an operator be dispatched to take corrective action.

NEXT ACTION

- 1) NRC should verify that the wording has been changed.
- 2) NRC should review the schematic diagram or the as-built system in the field to verify that no manual shutdown lockout relays exist. NRC should verify that the modification is installed. NOTE 2.
- 3) None.

FINAL ACTION

- 1) NRC should document the results of the inspection.
- 2) The results of the NRC review should be documented.
- 3) None.

10. THREE MILE ISLAND, UNIT 1

DOCKET NO.: 50-289

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter dated March 28, 1977 to identify that both disabling and nondisabling conditions are alarmed on the "D/G TROUBLE" annunciator which monitors both D/G's.

RESPONSE

Licensee responded by letter of May 12, 1977 that it proposed to rearrange the alarms, add a "D/G BLOCKED" annunciator for each D/G to alarm all of the disabling conditions, and add a reflash capability to the control room annunciator "D/G TROUBLE ALARM". Tentative date for completion of these modifications was 1978.

NEXT ACTION

NRC should verify that the licensee has implemented these modifications.

FINAL ACTION

The results of the verification should be documented.

NOTE 1, January 31, 1978.

11. MILLSTONE, UNIT 1

DOCKET NO : 50-245

COND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter to:

- 1) Propose modifications resulting from the review.
- 2) Determine if the D/G are provided with a manual shutdown lockout relay.
- 3) Verify that an alarm is provided which clearly indicates when the D/G control switch is not in the automatic position.

RESPONSE

Licensee responded by letter of May 12, 1978 that:

- 1) It proposes to add a separate annunciator for the D/G to distinguish between disabling and nondisabling conditions.
- 2) The D/G is provided with manual shutdown lockout relays. Alarms are provided which indicate when these relays are not reset. The main control room alarms will be modified as necessary to clearly indicate that the D/G is incapable of an automatic start if the relays are not reset.
- 3) No alarm exists for the D/G because there is no control switch which could prevent the D/G from responding to an automatic start.

NEXT ACTION

- 1) NRC should verify that the licensee has implemented the modifications.
- 2) NRC should verify that the licensee has implemented the modifications.
- 3) None.

FINAL ACTION

- 1) The results of the verification should be documented.
- 2) The results of the verification should be documented.
- 3) None.

12. MILLSTONE, UNIT 2

DOCKET NO.: 50-336

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter dated May 3, 1978 to:

- 1) Verify that all shared annunciators should not be able to be cleared until all disabling conditions are cleared.
- 2) Determine if the D/G have manual shutdown lockout relays.

RESPONSE

Licensee responded by letter of June 2, 1978 that:

- 1) Any annunciator that notifies the operator that the D/G has been disabled cannot be cleared until the faulted condition has been cleared.
- 2) The D/G does not have a manual shutdown lockout relay. However, a condition was identified where the D/G would be disabled by use of the "EMERGENCY SHUTDOWN PUSH-BUTTONS" with no attendant alarm annunciation. The alarm circuitry will be modified to reflect this condition.

NEXT ACTION

- 1) None.
- 2) NRC should check that the annunciator wording is changed no later than the second refueling outage. Will the wording be "D/G DISABLED"?

FINAL ACTION

- 1) None.
- 2) NRC should verify the wording and document the completion of this modification.

NOTE 1, June 16, 1978.

13. SALEM, UNIT 1

DOCKET NO.: 50-272

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter to:

- 1) List any D/G disabling condition not clearly annunciated in the control room with the relay test switches in test position.
- 2) D/G breaker control switch in "PULL TO LOCK OUT" position.
- 3) Provide an alarm if a manual shutdown lockout relay exists. The alarm should be worded to clearly indicate that the D/G is incapable of an automatic start when the relay is not reset.

RESPONSE

Licensee responded by letter of August 2, 1978 that:

- 1) The test switches will be modified so that whenever the contacts of the switch are operated which could prevent the automatic start of the D/G, an alarm will appear on the auxiliary annunciator. The alarm will be appropriately worded to alert the operator of such a condition.
- 2) It proposes to change the control switch to a spring-return switch.
- 3) The manual lockout of the D/G is accomplished with a lockout switch.

NEXT ACTION

NRC should verify that:

- 1) An alarm has been added to the auxiliary annunciator for the relay test switch so that the condition is also annunciated in the control room and the wording on this annunciator is in accordance with the NRC staff position.
- 2) NRC should verify that the test switches have been modified and that the annunciator wording is in accordance with staff position.
- 3) NRC should verify that no manual shutdown lockout relays exist and that the lockout switch is annunciated in the control room.

FINAL ACTION

- 1) NRC should verify the wording and document the completion of the modification.
- 2) NRC should verify the wording and document the completion of the modification.
- 3) NRC should verify all of the annunciators to ensure that those required to be in the control room are not located in an auxiliary or control console.

NOTE 1, September 8, 1978.

14. CALVERT CLIFFS, UNITS 1 & 2

DOCKET NO.: 50-317

SECOND DOCKET NO.: 50-318

LAST ACTION

Licensee was requested by NRC letter of April 7, 1977 to identify each condition that renders the diesel generator incapable of responding to an automatic emergency start signal which is not alarmed in the control room.

RESPONSE

Licensee responded by letter of June 6, 1977 that all practical conditions that could render the D/G incapable of responding to an automatic emergency start signal are monitored with annunciators in the control room.

NEXT ACTION

NRC should verify that all of the conditions (and not just conditions that are practical to identify) which could render the D/G incapable of responding to an automatic emergency start signal are monitored with annunciators.

FINAL ACTION

NRC should document the results of the review.

NOTE 1, May 3, 1978.

15. KEWAUREE

DOCKET NO.: 50-305

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter dated March 29, 1977 to:

- 1) List all of the conditions that render the D/G incapable of responding to any automatic emergency start signal.
- 2) Provide information sufficient to determine if the D/G is provided with a manual shut-down lockout relay.

RESPONSE

- 1) Licensee responded by letter of June 9, 1977 that the design of the D/G annunciation scheme was reviewed to ensure that all of the conditions which could prevent operation of the D/G are properly monitored and that such monitoring and annunciation is compatible with the design intent.
- 2) Per phone conference on April 25, 1979 between Mark March and Lenny Olshan, there are no manual lockout relays on the system, only automatic relays which are annunciated on the control panel as "ENGINE - START RUN FAILURE".

NEXT ACTION

- 1) It is the NRC staff position that all of the conditions which could prevent operation of the D/G are clearly annunciated in the control room.
- 2) None.

FINAL ACTION

- 1) NRC should verify the annunciators to ensure that those required to be in the control room are not located in an auxiliary or control console. The results should be documented.
- 2) None.

16. OYSTER CREEK, UNIT 1

DOCKET NO.: 50-219

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter of April 11, 1978 to:

- 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.

RESPONSE

Licensee responded by letter of May 17, 1978 that:

- 1) It will remove the existing nondisabling alarms from the present D/G trouble alarm, redesignate the wording of the annunciator windows to reflect the conditions more clearly, provide a new annunciator for the 43MS contact (manual-mode switch not in automatic), and provide a low battery-voltage sensor with an alarm function indicating D/G d-c failure.
- 2) The D/G does not use manual shutdown lockout relays. Momentary contact switches are used for the manual stop function. The contacts of these stop switches are provided in the coil circuit of the unit start relay (USR) so that when the normally closed contact is opened, the USR seal-in circuit is broken, and USR relay drops out shutting down the D/G.

NEXT ACTION

- 1) NRC should verify that all of the disabling alarms are at least annunciated on a common window and that the new common annunciator wording meets the staff position.
- 2) None. NOTE 2.

FINAL ACTION

- 1) NRC should document the results of the review.
- 2) None.

LAST ACTION

Licensee was requested by NRC letter to:

- 1) List any D/G disabling conditions not clearly annunciated in the control room with the emergency stop not reset.
- 2) List any D/G disabling conditions not clearly annunciated in the control room with the emergency restart control switch in the "OFF" position.
- 3) Determine if the D/G's have a manual shutdown lockout relay.

RESPONSE

Licensee responded by letter of May 10, 1977 that:

- 1) It proposes to add a new annunciator window ("D/G DISABLING CONDITION") to alarm on this condition and other equipment failure-type disabling conditions.
- 2) It proposes to add a new annunciator window ("DIESEL RESTART PROGRAM CS OFF").
- 3) The information provided is not sufficient to determine if the D/G's are provided with a manual shutdown lockout relay.

NEXT ACTION

- 1) NRC should verify that this modification has been completed and, at the same time, check if this condition has reflash capability.
- 2) The NRC staff position is that this condition should be annunciated as a D/G disabling condition with reflash capability and, if so, the licensee should be informed.
- 3) NRC should verify that no manual shutdown lockout relays exist. If such relays exist, an alarm should be provided which is worded to clearly indicate that the D/G is incapable of an automatic start when the relay is not reset.

FINAL ACTION

- 1) NRC should document the results of the review.
- 2) NRC should confirm that a mispositioned control switch is alarmed as a disabling condition and document the review.
- 3) NRC should document the results of the review.

NOTE 1, May 2, 1978.

18. DUANE ARNOLD

DOCKET NO.: 50-331

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter dated March 28, 1977 to:

- 1) Review the status annunciators for the D/G.
- 2) The information provided is not sufficient to determine if the D/G is provided with a manual shutdown lockout relay.

RESPONSE

Licensee responded by letter of May 13, 1977 that:

- 1) It identified that the 4-kV bus transfer breaker selector switch was not in automatic and proposes to change the existing annunciator wording to read "4KV ESS BUS PARALLELED OR AUTOMATIC/MAN SWITCH NOT IN AUTOMATIC".
- 2) Per NRC memo dated December 12, 1978, it was stated that there is a manual shutdown lockout relay and it does alarm.

NEXT ACTION

- 1) The NRC staff position is that this does not indicate that a D/G automatic start is blocked. It should be more clearly worded and the licensee should be so informed.
- 2) NRC should verify that the wording on the annunciator for the lockout relay clearly indicates that the diesel generator system is disabled.

FINAL ACTION

- 1) NRC should review all of the annunciator wording, and document the results of review.
- 2) NRC should document the results of the review.

NOTE 1, December 12, 1978.

LAST ACTION

Licensee was requested by NRC letter to:

- 1) Review the status annunciator for D/G disabling conditions not clearly annunciated in the control room.
- 2) The information provided is not sufficient to determine if the D/G are provided with a manual shutdown lockout relay.

RESPONSE

Licensee responded by letter of May 16, 1977 that:

- 1) Licensee proposes to add an annunciator worded "DSL GEN AUTO START INOPERABLE" to alarm on all disabling conditions including equipment failures.
- 2) Later NRC discussions with licensee staff determined that the D/G are provided with manual shutdown lockout relays with alarms. An engineering safety feature signal will override the lockout and automatically reset the lockout relay.

NEXT ACTION

- 1) In making the review, the licensee assumed the following conditions:
 - a) All supporting systems and equipment are properly aligned.
 - b) There are no abnormal or defective mechanical or electrical components or systems, the failure or abnormal operation of which could not be detected without actually attempting to start or operate the emergency generating units.
 - c) The D/G unit had performed satisfactorily on its last automatic start test and no work had been done on the units since the performance of the tests.

The NRC staff position on the above is:

- a) An alarm should be provided for any equipment that could block an auto start if mispositioned.
- b) None.
- c) The NRC does not wish to accept the assumption that this is only valid if the technical specification requires a test after all maintenance.

2) None.

FINAL ACTION

- 1) NRC should verify that the assumed conditions do not present any abnormal or non-annunciated conditions. NRC should document results of the review.

2) None.

NOTE 1, May 24, 1978.

20. LA CROSSE

DOCKET NO.: 50-409

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter dated March 28, 1977 to:

- 1) Identify any annunciator which could render the D/G incapable of responding to an automatic emergency start.
- 2) The information provided is not sufficient to determine if the D/G is provided with a manual shutdown lockout relay.
- 3) Submit any proposed modifications resulting from this evaluation.

RESPONSE

Licensee responded by letter of July 22, 1977 that:

- 1) The D/G 1A-mode switch is not in the automatic position. This condition is alarmed on the "EMERGENCY D/G TROUBLE" annunciator. This is unacceptable and should be changed to an annunciator which clearly indicates that the D/G will not automatically start.
- 2) The 86 lockout relay is annunciated in the control room for 1B D/G trouble but not for the 1A D/G.
- 3) Add to 1B D/G a control power indicating lamp in the control room. An alarm should be added also.

NEXT ACTION

- 1) NRC should verify that the licensee changes the alarm to another annunciator with appropriate wording.
- 2) NRC should verify that the 1A D/G is annunciated for the 86 lockout relay.
- 3) NRC should verify that an alarm is added to the 1B D/G control power and not just to an indicating lamp.

FINAL ACTION

- 1) NRC should review and document the results of all actions.
- 2) NRC should review and document the results of all actions.
- 3) NRC should review and document the results of all actions.

21. HADDAM NECK

DOCKET NO.: 50-213

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC to review the alarm circuitry and D/G control circuits for the D/G's to:

- 1) Identify all conditions which are not clearly annunciated in the control room.
- 2) Determine if the D/G are provided with a manual shutdown lockout relay.
- 3) Verify that an alarm is provided which clearly indicates when the D/G control switch is not in the automatic position.

RESPONSE

The licensee responded by letter of May 16, 1977 that:

- 1) It proposes to add an annunciator for each D/G to alarm a disabling condition.
- 2) Per conversation with PM on April 25, 1979, there are no manual shutdown lockout relays.
- 3) Per conversation with PM on April 25, 1979, two new alarms will be wired to indicate when either emergency D/G is incapable of responding to an automatic start signal.

NEXT ACTION

- 1) NRC should verify that the licensee has implemented the modifications.
- 2) NRC should verify that there are no manual shutdown lockout relays from the schematic diagram or the as-built system.
- 3) NRC should verify that these modifications have been incorporated and that the annunciation meets the staff position.

FINAL ACTION

- 1) NRC should document the results of the review.
- 2) NRC should document the results of the review.
- 3) NRC should document the results of the review.

22. TURKEY POINT, UNITS 3 & 4

DOCKET NO.: 50-250

SECOND DOCKET NO.: 50-251

LAST ACTION

Licensee was requested by NRC letter of April 4, 1978 to:

- 1) Identify the D/G disabling conditions not clearly annunciated in the control room.
- 2) The information provided is not sufficient to determine if the D/G are provided with a manual shutdown lockout relay.

RESPONSE

Licensee responded by letter of June 13, 1978 that:

- 1) When the D/G local-normal switch is not in normal position, the D/G will not be able to respond to an automatic start signal. The annunciator window for this condition reads "LOCAL NORMAL SWITCH OFF-NORMAL". This wording should be changed to more clearly indicate that the D/G will not automatically start. Appropriate wording will be developed and is expected to be in place within approximately one month.
- 2) The D/G's are not provided with a manual shutdown lockout relay.

NEXT ACTION

- 1) NRC should verify that the licensee has implemented the change and that the new wording on the annunciator meets the staff position.

2) None.

FINAL ACTION

- 1) NRC should document the results of the review.

2) None.

NOTE 1, June 30, 1978.

23. ZION, UNITS 1 & 2

DOCKET NO.: 50-295

SECOND DOCKET NO.: 50-304

LAST ACTION

Licensee was requested by NRC letter of March 29, 1977 to identify the D/G disabling conditions not clearly annunciated in the control room.

RESPONSE

Licensee responded by letter of May 11, 1977 that the results of its review do not indicate any conditions which might lead to a misinterpretation of the operational status of the D/G.

NEXT ACTION

NRC should draft a letter informing the licensee that its response is inadequate and requesting a more explicit response.

FINAL ACTION

None.

NOTE 1, September 29, 1978.

24 SAN ONOFRE, UNIT 1

DOCKET NO.: 50-206

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter of April 10, 1978 to:

- 1) Determine if the D/G's are provided with a manual shutdown lockout relay.
- 2) Verify that an alarm is provided which clearly indicates when the D/G control switch is not in the automatic position.
- 3) Verify that all shared annunciators for the disabling conditions cannot be cleared in the control room until all of the abnormal conditions are corrected.

RESPONSE

Licensee responded by letter of May 17, 1978:

- 1) There is no lockout relay feature associated with manual shutdown of the D/G. Manual shutdown will not prevent the D/G from responding to an emergency start signal.
- 2) When the D/G breaker control switch is not in a position which permits the D/G to respond to an emergency start signal, annunciator window #55 on the SPG panel alarms in the control room. This window reads "UNIT IN MAINT".
- 3) The only shared annunciators which alarm more than one disabling condition are window #34, "BATT. CHRG. FAILURE", and window #24, "DC BUS LOW VOLTAGE". Even though these annunciators respond to several inputs, every abnormal condition must be corrected, otherwise any attempt by the operator to reset the annunciators will have no effect on the alarm status.

NEXT ACTION

- 1) None.
- 2) None.
- 3) None.

FINAL ACTION

- 1) None.
- 2) None.
- 3) None.

NOTE 1, June 5, 1978.

25. PEACH BOTTOM, UNITS 2 & 3

DOCKET NO.: 50-277

SECOND DOCKET NO.: 50-278

LAST ACTION

Licensee was requested by NRC to review the alarm circuitry and D/G control circuits for the D/G's.

RESPONSE

Licensee's response by letter of May 16, 1977 listed all of the alarm circuits and the annunciation for each alarm.

NEXT ACTION

NRC should request that one annunciator be identified as D/G disabled, in addition to a separate annunciator for each disabling condition. This annunciator should be tied to all disabling conditions.

FINAL ACTION

None.

NOTE 1, April 12, 1979 and June 9, 1978.

26. CRYSTAL RIVER, UNIT 3

DOCKET NO.: 50-302

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter of July 6, 1978 to:

- 1) Verify that all of the shared annunciators for the disability conditions should not be able to clear until all abnormal conditions are corrected.
- 2) Verify that if a D/G is provided with a manual shutdown lockout relay, an alarm should be provided which is worded to clearly indicate the D/G is incapable of an automatic start when the relay is not set.
- 3) Propose modifications to meet the NRC staff positions.

RESPONSE

Licensee responded by letter of August 4, 1978 that:

- 1) Before an alarm which is shared with a number of other alarms can be cleared, all abnormal conditions must be removed first.
- 2) The D/G system has no manual lockout relay.
- 3) It proposed (date unknown) to add the words "NO AUTOMATIC START" to the affected annunciators in the control room.

NEXT ACTION

- 1) None.
- 2) NRC should review the schematic diagram or the as-built system in the field to verify that no manual shutdown lockout relays exist.
- 3) NRC should verify the installation of the annunciator wording modification.

FINAL ACTION

- 1) None.
- 2) Document the results of the NRC review.
- 3) NRC should document the results of the review.

NOTE 1, August 22, 1978.

27. BEAVER VALLEY, UNIT 1

DOCKET NO.: 50-334

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC to:

- 1) List the disabling conditions not clearly annunciated in the control room.
- 2) Provide information sufficient to determine if the D/G's are provided with a manual shutdown lockout relay.

RESPONSE

Licensee responded by letter of May 18, 1977 and discussions with NRC on May 30 and June 5, 1978 that:

- 1) It identified two conditions--D/G control switch not in the automatic position and D/G breaker control not in the automatic position. It proposes to change the wording on the control room annunciators, but it failed to state what the new wording would be.
- 2) A condition was listed as "START LOCKOUT RELAYS NOT RESET" but no information was provided on manual shutdown lockout relay.

NEXT ACTION

- 1) NRC should check the wording to be certain that it clearly indicates the D/G will not automatically start.
- 3) NRC should review the schematic diagram or the as-built system in the field to verify that no manual shutdown lockout relays exist.

FINAL ACTION

- 1) NRC should document the results of the review.
- 2) NRC should document the results of the review.

NOTE 1, August 17, 1978.

2B. BRUNSWICK, UNITS 1 & 2

DOCKET NO.: 50-325

SECOND DOCKET NO.: 50-324

LAST ACTION

Licensee was requested by NRC letter dated March 29, 1977 to:

- 1) List disabling conditions not clearly annunciated in the control room when the D/G control switch is not in the automatic position.
- 2) Propose modifications resulting from review.

RESPONSE

Licensee responded by letter of May 16, 1977 that:

- 1) No mode switch will prevent an automatic start. The mode switch is reset by the emergency start signal.
- 2) It will include a separate control-room alarm for low starting air pressure and to tie the barring gear engaged contact into the "DG UNAVAILABLE" annunciator.

NEXT ACTION

- 1) NRC should verify that maintenance lockouts are clearly alarmed. It does not seem possible that such lockouts could be bypassed for an emergency automatic start.
- 2) NRC should verify that this modification has been completed.

FINAL ACTION

- 1) NRC should document the results of the review.
- 2) NRC should document the results of the review.

29. FITZPATRICK, UNIT 1

DOCKET NO.: 50-333

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC to list the disabling conditions not clearly annunciated in the control room.

RESPONSE

Licensee responded by letter of May 17, 1977 listing all conditions which are annunciated and alarmed in the control room. There are no other conditions that render a D/G incapable of responding to an automatic emergency start signal that is not alarmed in the control room. No modifications will result from this review.

NEXT ACTION

NRC staff position is that all annunciators which have disabling conditions should also be annunciated "D/G DISABLED" and all disabling conditions should be separated from nondisabling conditions.

FINAL ACTION

NRC should review the implementation for compliance to the staff position and document the review.

NOTE 1, April 12, 1978.

30. NINE MILE POINT, UNIT 1

DOCKET NO.: 50-220

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC to list the disabling conditions not clearly annunciated in the control room.

RESPONSE

Licensee responded by letter of May 18, 1977 that it identified two conditions--D/G control switch not in the automatic position, and D/G breaker control switch in the locked out position. It stated that the maintenance procedures and technical specifications describe the conditions for routine switch-gear maintenance and operation with an inoperable D/G.

NEXT ACTION

NRC should inform the licensee that the staff position states the control switch should be annunciated in the control room.

FINAL ACTION

NRC should verify that the modification is complete.

31. POINT BEACH, UNITS 1 & 2

DOCKET NO.: 50-266

SECOND DOCKET NO.: 50-301

LAST ACTION

Licensee was requested by NRC to provide information sufficient to determine if the D/G's are provided with a manual shutdown lockout relay.

RESPONSE

Licensee's response by letter of May 16, 1977 listed that the B6 lockout on the output breaker can energize thereby tripping the breaker, and annunciating in control room "EMERGENCY DIESEL 601 OR 602 TRIP OR LOCKOUT".

NEXT ACTION

NRC should verify that there are no manual shutdown lockout relays from the schematic diagram or the as-built system.

FINAL ACTION

NRC should document the results of the review.

NOTE 1, April 13, 1978.

32. FORT CALHOUN

DOCKET NO.: 50-205

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC to:

- 1) Provide information sufficient to determine if the D/G's are provided with a manual shutdown lockout relay.
- 2) Provide information on the annunciations which are incapable of responding to an automatic start.

RESPONSE

Licensee's response by letter of May 13, 1977 that:

- 1) The condition "lockout relays not reset" is annunciated as "DIESEL OFF AUTO AND LOSS OF SUPERVISORY LIGHT". This alarm is in addition to the extinguishing of the "DIESEL AUTO STANDBY" light. An audible alarm will be activated in the event that any of the above conditions are not satisfied.
- 2) The wording is either "DIESEL TROUBLE" or "DIESEL OFF AUTO".

NEXT ACTION

- 1) NRC should verify that this meets the staff position on manual shutdown lockout relays and is annunciated clearly.
- 2) NRC should inform the licensee that the wording should clearly indicate that the D/G is incapable of responding to an emergency start signal.

FINAL ACTION

- 1) NRC should document the results of the review.
- 2) None.

NOTE 1, May 11, 1978.

33. R. E. GINHA, UNIT 1

DUCKET NO.: 50-244

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter of March 29, 1977 to:

- 1) Provide information concerning possible nonalarmed conditions which might render the D/G's incapable of automatic start.
- 2) Licensee was requested by NRC letter dated April 4, 1978 to determine if the D/G's are provided with a manual shutdown lockout relay.

RESPONSE

Licensee responded by letter of April 27, 1978:

- 1) D/G local/remote control switch in local position is annunciated in the existing system and will be annunciated in the proposed system as a "DIESEL GENERATOR INOPERATIVE" condition.
- 2) No response.
- 3) Low lube oil pressure is annunciated in the existing system and will be annunciated in the proposed system as a "DIESEL GENERATOR INOPERATIVE" condition.

NEXT ACTION

NRC responded by letter of September 18, 1978 that the licensee had provided acceptable responses.

- 1) NRC should verify that the wording has been changed.
- 2) NRC should verify that no manual shutdown lockout relays exist that are alarmed to clearly indicate that the diesel generator would not start automatically if required during an emergency.
- 3) We agree with the reasons stated in item 4 of your letter that the low lube oil pressure trip needs not be bypassed when a safety injection signal is present.

FINAL ACTION

NRC should document the review and verify that all of the modifications proposed by the licensee have been completed, and document those results.

NOTE 1, September 18, 1979.

34. ARKANSAS

DOCKET NO.: 50-313

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC to provide information sufficient to determine if the D/G's are provided with a manual shutdown lockout relay.

RESPONSE

Pwr NRC letter of April 6, 1978 "later discussions with your staff determined that the D/G's are not provided with a manual shutdown lockout relay."

NEXT ACTION

None.

FINAL ACTION

None.

NOTE 1. April 6, 1978.

35. MONTICELLO

DOCKET NO.: 50-263

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC to list the D/G disabling conditions not clearly annunciated in the control room.

RESPONSE

Licensee responded by letter that no disabling conditions were identified that are not clearly annunciated in the control room. Certain nondisabling conditions, however, shared the "D/G NOT IN AUTO" window with other disabling conditions.

NEXT ACTION

The NRC staff position is that the nondisabling conditions should be transferred to the "D/G TROUBLE" window. Thus, the operator can be assured that the "D/G NOT IN AUTO" alarm is a positive indication that the D/G is disabled.

FINAL ACTION

NRC should document the results of the review.

36. PRAIRIE ISLAND, UNITS 1 & 2

DOCKET NO.: 50-202

SECOND DOCKET NO.: 50-306

LAST ACTION

Licensee was requested by NRC letter dated April 4, 1978 to:

1) Provide information as to whether or not the conditions which would cause the remote panel to annunciate that "VOLTAGE RESTORING ORN BREAKER SWITCH ALIGNING" are annunciated in the control room.

2) Provide information as to whether or not the unit has a manual shutdown lockout relay.

RESPONSE

Licensee responded by letter of June 2, 1978 that:

1) Those conditions are indicated (but not annunciated) in the control room as "SAFEGUARDS DIESEL GENERATOR NOT READY".

2) They do have a manual shutdown relay which causes the annunciation "DIESEL GENERATOR INOPERATIVE" in the control room.

NEXT ACTION

None.

FINAL ACTION

None.

NOTE 1, July 19, 1978.

37. HATCH, UNIT 1

DOCKET NO.: 50-321

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC to:

- 1) List the disabling conditions not clearly annunciated in the control room and the proposed modification resulting from the review.
- 2) The information provided is not sufficient to determine if the D/G's are provided with a manual shutdown lockout relay.

RESPONSE

Licensee responded by letter of May 18, 1977 that:

- 1) It would add an alarm for this condition, but it did not specify the wording to be used on the annunciator window. The disabling condition generator differential lockout relay not reset is annunciated as "GEN. OR STA. SERV. TRANSF. ID DIFF. AUX. TRIPPED".
- 2) The licensee should be requested to supply the information.

NEXT ACTION

- 1) NRC should verify that the wording clearly indicates that the D/G is incapable of an automatic start.
- 2) NRC should evaluate the response and make recommendations as necessary.

FINAL ACTION

- 1) NRC should document the results of the review.
- 2) NRC should document the results of the review.

NOTE 1, May 17, 1978.

LAST ACTION

Licensee was requested by NRC to list the D/G disabling conditions not clearly annunciated in the control room and any proposed modifications resulting from the review.

RESPONSE

Licensee responded by letter of May 23, 1978 that:

- 1) Separate manual stop from local or remote location. The annunciator window for the respective emergency generator will be changed to read "Auto Start Blocked". Concurrently, the label plates on the emergency generator control panels will be changed as follows: (a) For the amber indicator light, a red label plate reading "Auto Start Blocked" will be installed. (b) For the associated pushbutton, a black label plate reading "Auto Start Unblocked" will be installed.
- 2) Numerous other disabling conditions are alarmed on the same annunciator as other nondisabling conditions. A facility change to separate certain conditions under an "EDG Disabled" annunciator would tend to downgrade the importance of lesser conditions that would remain under the "D/G trouble" alarm. It is presently station operating policy to consider "D/G trouble" to be a disabling condition requiring positive immediate corrective action. This is accomplished under positive administrative controls.

NEXT ACTION

- 1) NRC should verify that this modification has been completed.
- 2) The NRC staff position is that all disabling conditions should be on an annunciator separate from non-disabling conditions and clearly worded to indicate that the D/G is not capable of an automatic start. Therefore, the existing annunciator system should be modified. NRC should verify that this modification is incorporated.

FINAL ACTION

- 1) NRC should document the results of the review.
- 2) NRC should document the results of the review.

39. ST. LUCIE, UNIT 1

DOCKET NO.: 50-335

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter of May 8, 1978 to:

- 1) Verify that all shared annunciators for the disability conditions are unable to be cleared until all abnormal conditions are corrected.
- 2) Verify that if a D/G is provided with a manual shutdown lockout relay, an alarm should be provided which is worded to clearly indicate the D/G is incapable of an automatic start when the relay is not set.

RESPONSE

Licensee responded by letter of June 7, 1978 that:

- 1) No annunciator for a disabling condition clears before the condition is corrected.
- 2) The lockout relay will inhibit a start attempt unless the condition leading to the lockout is corrected and the lockout relay is reset. The lockout is unannunciated and the annunciator will not clear unless the lockout relay is reset.

NEXT ACTION

- 1) None.
- 2) NRC should verify that the annunciator is worded to clearly indicate that the D/G is incapable of an automatic start when the relay is not reset.

FINAL ACTION

- 1) None.

- 2) NRC should document the results of the review.

NOTE 1, September 7, 1978.

40. INDIAN POINT, UNITS 2 & 3

DOCKET NO.: 50-247

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter of March 28, 1977 to:

- 1) List the disabling conditions not clearly annunciated in the control room when the D/G control switch not in the automatic position.
- 2) List the disabling conditions not clearly annunciated in the control room when the D/G shutdown relay is not reset.

RESPONSE

Licensee responded by letters of May 19, 1977 and September 19, 1978 that:

- 1) The annunciator will alarm until all abnormal conditions have been corrected, and the annunciator will alarm when the diesel control switch is not in the automatic position.
- 2) It proposed to add an alarm for this condition, but it did not identify the wording to be used on the annunciator window.

NEXT ACTION

- 1) NRC should verify that the wording on the annunciator is clearly worded to indicate that the D/G will not automatically start.
- 2) NRC should verify that the wording will clearly indicate that a D/G automatic start is blocked.

FINAL ACTION

- 1) NRC should document the results of the review.
- 2) NRC should document the results of the review.

NOTE 1, September 7, 1978.

41. DRESDEN, UNIT 1

DUCKET NO.: 50-010

SECOND DUCKET NO.:

LAST ACTION

Licensee was requested by NRC letter of April 18, 1978 to provide alarms for the following conditions which the licensee has confirmed can result from normal routine periodic testing or maintenance:

- 1) Manual air shutoff valve placed in the closed position
- 2) Bus tie breaker between the D/G and its emergency bus placed in the test position.
- 3) Improper D/G governor droop setting.

RESPONSE

Licensee's response by letter of May 10, 1978 that:

- 1) It would install an alarm for the manual air shutoff valve placed in the closed position.
- 2) It would install an alarm for the bus tie breaker between the D/G and its emergency bus placed in test position.
- 3) It would either modify the procedure for D/G testing to preclude changing the D/G governor droop setting or install an alarm for improper droop setting.

NEXT ACTION

- 1) NRC should verify that the licensee has installed the alarm.
- 2) NRC should verify that the licensee has installed the alarm.
- 3) NRC should verify that the licensee has changed the operating test procedures for the droop setting or that an alarm has been added.

FINAL ACTION

- 1) NRC should review these actions and document the results of the review.
- 2) NRC should review these actions and document the results of the review.
- 3) NRC should review these actions and document the results of the review.

NOTE 1, June 13, 1978.

42. DRESDEN, UNITS 2, 3, & 2/3

DOCKET NO.: 50-234

SECOND DOCKET NO.: 50-249

LAST ACTION

Licensee was requested by NRC to list the D/G disabling conditions not clearly annunciated in the control room.

RESPONSE

Licensee responded by letter identifying the following conditions:

- 1) Manual air shutoff valve placed in the closed position.
- 2) Bus tie breaker between the D/G and its emergency bus placed in the test position.
- 3) Improper D/G governor droop setting.

NEXT ACTION

Licensee responded by letter of February 2, 1979 that:

- 1) It will install alarms for the manual air shutoff valve placed in the closed position.
- 2) It will install alarms for the bus tie breaker between the D/G and its emergency bus placed in test position.
- 3) It will install alarms for the incorrect droop settings.

FINAL ACTION

- 1) NRC should verify that the alarms have been installed and document the results of the review.
- 2) NRC should verify that the alarms have been installed and document the results of the review.
- 3) NRC should verify that the alarms have been installed and document the results of the review.

43. QUAD CITIES, UNITS 1 & 2

DOCKET NO.: 50-254

SECOND DOCKET NO.: 50-265

LAST ACTION

Licensee was requested by NRC to list the D/G disabling conditions not clearly annunciated in the control room.

RESPONSE

Licensee responded by letter of May 27, 1977 identifying the following conditions that:

- 1) Manual air shutoff valve placed in the closed position.
- 2) Bus tie breaker between the D/G and its emergency bus placed in the test position.
- 3) Improper D/G governor droop setting.
- 4) Control switch in the "STOP" position.
- 5) Local selector switch in the "LOCAL" position.
- 6) Did not provide information on manual shutdown lockout relay.

NEXT ACTION

1,2,3) The staff position is if these conditions can result from normal routine periodic testing or maintenance, they should be alarmed to clearly indicate a D/G automatic start is blocked.

4,5) The staff position is that this wording could be confusing. The D/G automatic start and automatic start blocked annunciators should be in separate windows.

6) Are the D/G's provided with a manual shutdown lockout relay? If a manual shutdown lockout relay exists, an alarm should be provided which is worded to clearly indicate the D/G is incapable of an automatic start when the relay is not reset.

FINAL ACTION

NRC should review all of the actions proposed by licensee and document the results of the review.

44. H. B. ROBINSON, UNIT 2

DOCKET NO.: 50-261

SECOND DOCKET NO.: 50-261

LAST ACTION

Licensee was requested by NRC letter to identify the disabling conditions not clearly annunciated in the control room.

RESPONSE

Licensee responded by letter identifying the following conditions that:

- 1) Shutdown relay not reset.
- 2) Local or remote control switches (2) not in automatic position.
- 3) D/G breaker trip lockout relay not reset.
- 4) Local manual D/G fuel rack mechanical lockout not reset.

RESPONSE

Licensee responded by letter of June 6, 1978 that:

1,3) There is not a common lockout relay associated with these conditions which shut down the D/G's. Instead, the D/G output breaker is tripped open and cannot be reclosed until the tripped relay target is reset manually. The alarm would be received on the alarm window labeled "EMERGENCY GENERATOR A/B AUTO-TRIP" as the breaker opened. The operator would have to either reset the trip signal or shut down the diesel.

2, 4) The "LOCAL/REMOTE SWITCH IN LOCAL" and the "FUEL RACK TRIP-ED" alarms will be removed from the windows marked "DIESEL TROUBLE" and put on the window for a disabling condition as described above for the applicable D/G condition. The window will be worded "DIESEL DISABLED". The window will not have reflash capability, as the diesel would be considered out of service when the first alarm condition is received.

FINAL ACTION

- 1) NRC should document the results of the review.
- 2) NRC should document the results of the review.
- 3) NRC should document the results of the review.
- 4) NRC should document the results of the review.

45. DAVIS-BESSE, UNIT 1

DOCKET NO.: 50-346

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC letter of March 6, 1979 to respond to the NRC staff positions that:

- 1) All shared annunciators for disability conditions should be able to be cleared until all abnormal conditions are corrected.
- 2) If a D/G is provided with a manual shutdown lockout relay, an alarm should be provided which is worded to clearly indicate the D/G is incapable of an automatic start when the relay is not set.
- 3) An alarm should be provided which clearly indicates when the D/G control switch is not in the automatic position.

RESPONSE

Licensee responded by letter of April 9, 1979 that:

- 1) Emergency D/G annunciators are in total compliance.
- 2) The annunciator window which alarms the condition that the safety lockout relay is not reset is presently inscribed "EMER DG TRBL TRIP". This will be reworded as "EMERG DG LOCKOUT-OUT AND TRBL TRIP".
- 3) The D/G voltage regulator control switch must be in the "ON" position for automatic operation. A signal will be added to the annunciator described above, which will cause it to alarm when the voltage regulator control switch is off.

NEXT ACTION

- 1) The NRC staff position is that disabling conditions should not be alarmed on the same annunciator as nondisabling conditions. The existing design should be modified to provide separate annunciators worded to clearly distinguish between these conditions.
- 2) The annunciator should be reworded "EMERG DG LOCK-OUT OR TRBL TRIP" as these are two separate conditions.
- 3) None.

FINAL ACTION

- 1) NRC should review the staff position with the licensee and document the results of the review.
- 2) NRC should review the wording on the annunciator and document the results.
- 3) None.

46. FARLEY

DOCKET NO.: 50-348

SECOND DOCKET NO.:

LAST ACTION

Licensee was requested by NRC to list the disabling conditions not clearly annunciated in the control room when the barring device is engaged.

RESPONSE

Licensee responded by letter of June 23, 1978 that the engaging handle for the barring device is locked out with the key under the cognizance of the shift foremen. When the handle is unlocked and manually engaged, the appropriate "DIESEL GENERATOR TROUBLE" annunciator will be activated on the emergency power board in the control room.

NEXT ACTION

The NRC staff position is that this condition is alarmed on a "D/G TROUBLE" window which is shared with other conditions which may not disable the D/G. It should be relocated to a window, such as "D/G SHUTDOWN", which will more clearly indicate that an automatic start is blocked.

FINAL ACTION

NRC should document the results of the review.

NOTE 1, August 17, 1978.