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RECIP. NAME    RECIPIENT AFFILIATION  
BUTLER, W.R.    Project Directorate I-2

SUBJECT: Forwards application for amends to Licenses NPF-14 & NPF-22,  
consisting of proposed Amends 129 & 81.

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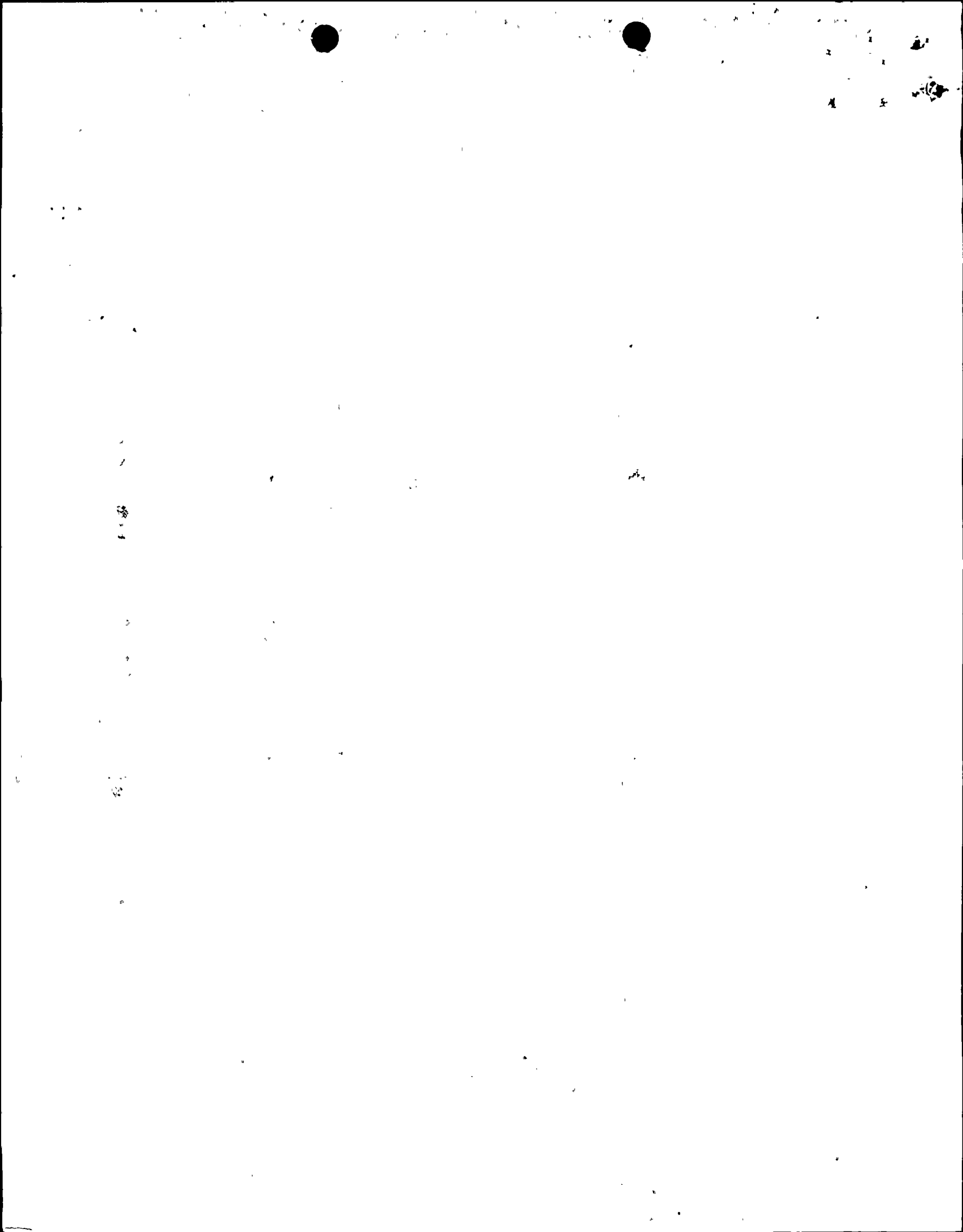
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MAR 16 1990

Director of Nuclear Reactor Regulation  
Attention: Dr. W.R. Butler, Project Director  
Project Directorate I-2  
Division of Reactor Projects  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION  
PROPOSED AMENDMENT 129 TO NP4-14 AND  
PROPOSED AMENDMENT 81 TO NPF-22  
DIESEL GENERATOR TECHNICAL SPECIFICATIONS  
PLA-3362

Docket Nos. 50-387  
and 50-388

FILES A17-2/R41-2

Dear Dr. Butler:

Pursuant to 10CFR50.90 Pennsylvania Power & Light Co. requests amendments, in the form of Technical Specification changes, to Operating Licenses NPF-14 and NPF-22 for Susquehanna Steam Electric Station Units 1 and 2. Marked-up revisions to affected Technical Specification pages are included as Attachment 1 to this PLA.

BACKGROUND

During September and October of 1989, Susquehanna experienced two diesel generator overpressure events. As a result, a task team was formed for the purpose of performing a root cause analysis of the events. On January 5, 1990 the team issued its first report wherein diesel generator testing (per Technical Specifications) was identified as a potential root cause.

In particular, the report concluded that surveillance testing may be straining the engines to their limits which is causing engine degradation.

DESCRIPTION OF CHANGES

The proposed changes (Refer to Attachment 1 for marked-up pages) modify the technical specifications by eliminating the quick loading requirement during monthly testing and by incorporating footnotes which allow the diesels to be prelubed and prewarmed prior to surveillance testing. Additionally, load testing requirements have been modified to include a load range rather than a specific load.

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3.8.1.1.b - The footnote associated with this statement has been revised for clarity.

3.8.1.1, ACTION a - This action has been reformatted for clarity. In addition, two wording revisions are proposed. First, language has been incorporated to stipulate that if Surveillance Requirement 4.8.1.1.2.a.4 has been performed in 24 hours prior to entering the ACTION then credit can be taken for that test. Second, if the entrance into the ACTION is a result of an inoperable ESS transformer then only those diesel generators associated with the inoperable transformer need to be tested.

3.8.1.1, ACTION b

This ACTION has been reformatted for clarity.

ACTION b.2 is new wording and has been footnoted. The proposed wording is the same as previously discussed under ACTION a.2, i.e. taking credit for a successful diesel test.

3.8.1.1, ACTIONS c, d, e and f

These ACTIONS have been reformatted for clarity.

ACTIONS c, e and f have been footnoted to indicate that a diesel generator test performed under any of these ACTIONS (c, e or f) can be considered a successful test under ACTION a or b.

ACTION c.2 has also been revised to indicate exemption from this ACTION when a diesel generator is removed from service for the purpose of preplanned preventative maintenance.

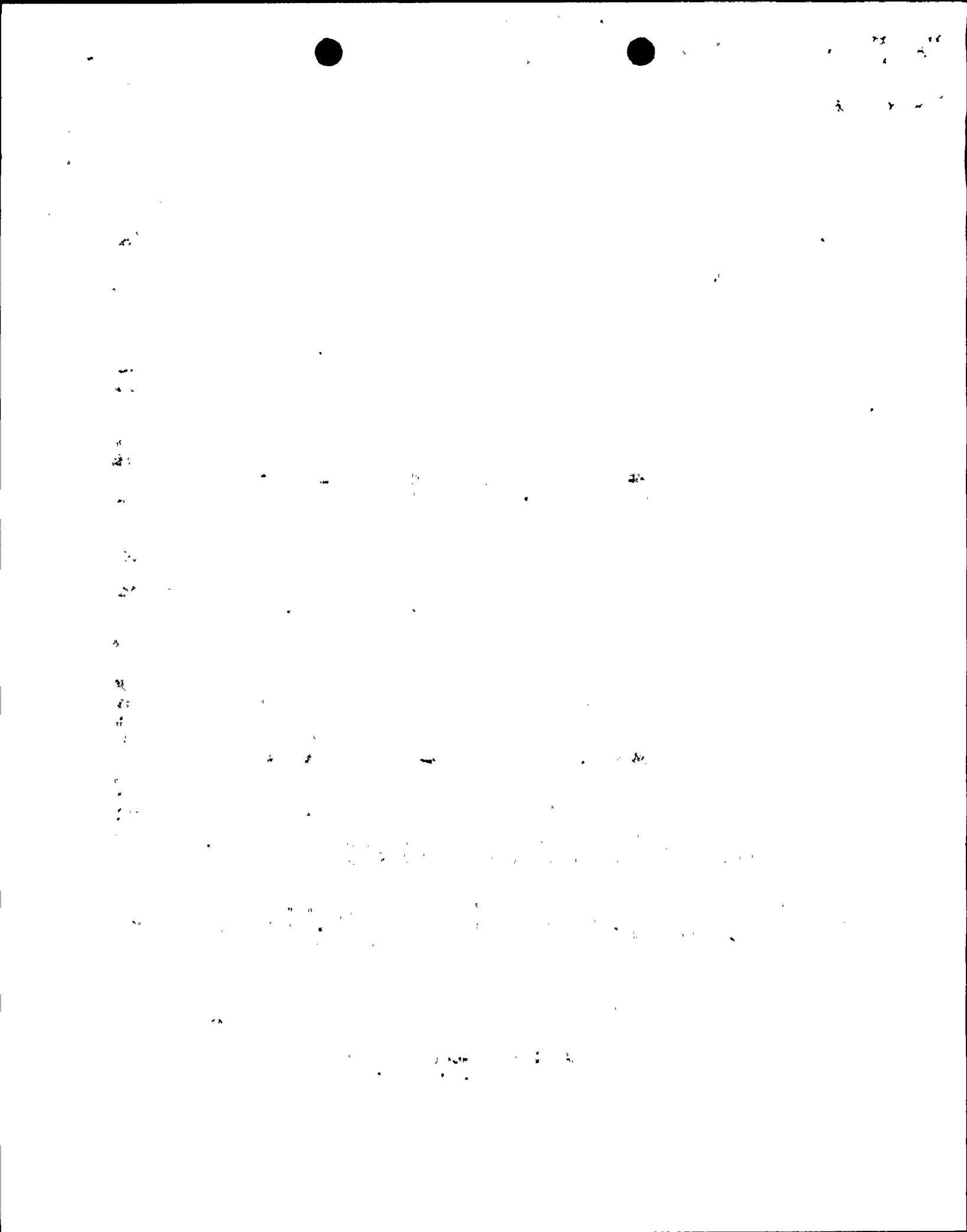
Surveillance 4.8.1.1.2.a.4

This surveillance is revised to correct typographical errors.

Also, the surveillance has been footnoted to allow this test to be preceded by a prelube period in accordance with vendor recommendations.

Surveillance 4.8.1.1.2.a.5

This test has been revised to eliminate 'quick' loading of the engine. In addition, footnotes have been incorporated to allow the engine to go through a warmup period prior to loading and to allow a load range in lieu of a specific load.



Surveillance 4.8.1.1.2.d.4, 4.8.1.1.2.d.5, and 4.8.1.1.2.d.6

These surveillances have been revised to incorporate the footnote which allows prelubing prior to performing the test.

Surveillance 4.8.1.1.2.d.7

This test has been modified by incorporating load ranges, associated footnotes, and the footnote which allows pre-warming.

Surveillance 4.8.1.1.2.d.8

This surveillance in its present form is being deleted. In its place will be a requirement to perform the hot restart within 5 minutes after the engine has reached operating temperatures and pressure.

Surveillance 4.8.1.1.2.e

Surveillance revised to incorporate footnote which allows the diesel generator to be prelubed prior to testing.

Surveillance 4.8.1.1.3.a.4 & 5

Surveillance 4.8.1.1.3 addresses testing for diesel generator E. These surveillances are being revised consistent with the testing for diesels A-D. Surveillance 4.8.1.1.3.a.4 is an editorial change to change the \* to a # for clarity. The new footnotes for prelube, prewarming and load ranges, use the \*, therefore existing #'s are being changed to #'s.

In addition to the editorial change, Surveillance 4.8.1.1.3.a.5 is also revised to eliminate the quick start load requirement which is consistent with the changes to Surveillance 4.8.1.1.2.a.4.

Surveillance 4.8.1.1.3.d.2, 3 & 4

Editorial changes to make the existing \* to #.

Surveillance 4.8.1.3.d.6

The testing under this surveillance is footnoted to allow prelubing and prewarming prior to testing.

Also, Surveillance 4.8.1.1.3.d.6.b.iv).a had a footnote which is no longer applicable so it has been deleted.

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Table 4.8.1.1.2-1

This Table is revised to represent the testing frequency based on the number of failures in the last 20 valid tests, not the last 100.

SAFETY ASSESSMENT

3.8.1.1 Action a.

With an offsite circuit inoperable, the concern is loss of the other offsite circuit. Under this scenario, it is imperative for the diesels to operate. To ensure they will, the technical specifications presently require each diesel generator be tested within 24 hours after one offsite circuit is declared inoperable. Because entrance into the ACTION is not a result of a degraded condition of any diesel generator it is appropriate to take credit for a successful test performed within 24 hours prior to declaring the offsite circuit inoperable.

Similarly, an offsite circuit is defined as the circuit coming from the offsite power source, the two startup transformers (T-10 or T-20), and the four ESS transformers down to the feeder breakers on each of the eight station busses. Under the present Technical Specifications if an ESS transformer fails, the offsite circuit is declared inoperable and all of the diesel generators would be tested. However, when an ESS transformer fails, only four of the eight busses are impacted and only the diesels associated with those four busses should be tested.

The loss of an ESS transformer represents a certain level of degradation of power sources however the requirement to test all diesel generators is not consistent with that level of degradation.

3.8.1.1 Action b

Under this ACTION it is important to ensure that the reason for a diesel being inoperable is not common mode. This is accomplished by testing the other remaining three diesels - which is the number of diesel generators required for safe shutdown of the units during a DBA. However testing an engine 24 hours prior to or preceding the event which caused entrance into the ACTION provides the same level of confidence that the machine will be able to perform its intended safety function. Similarly, as presently written, this ACTION does not take credit for diesel generator 'E'. Given a diesel failure and provided diesel E is available, it is unlikely this ACTION would ever be in force long enough for the 24 hour requirement to be exercised.

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The footnote allows the ACTION to be waived if a diesel generator is removed from service for purposes of preplanned preventative maintenance. Under this scenario, there is no failure of a machine hence no reason to suspect a common mode failure. Therefore there is no reason to subject OPERABLE diesels to testing.

#### 3.8.1.1 Actions c, d, e and f

ACTION c addresses a loss of one offsite circuit and loss of one diesel generator. The ACTION requires one of those sources to be returned to OPERABLE status within 12 hours however each of the remaining operable diesel's must be tested within eight hours. If at hour 12, the offsite circuit is rendered OPERABLE, ACTION c would no longer be applicable and as ACTION c.4 indicates the other inoperable source is returned to OPERABLE status in accordance with 3.8.1.1 ACTION a or b. Under the scenario presented here, when ACTION a or b is invoked it should not be necessary to test the OPERABLE diesels again. This is excessive testing and may actually degrade the reliability of those machines.

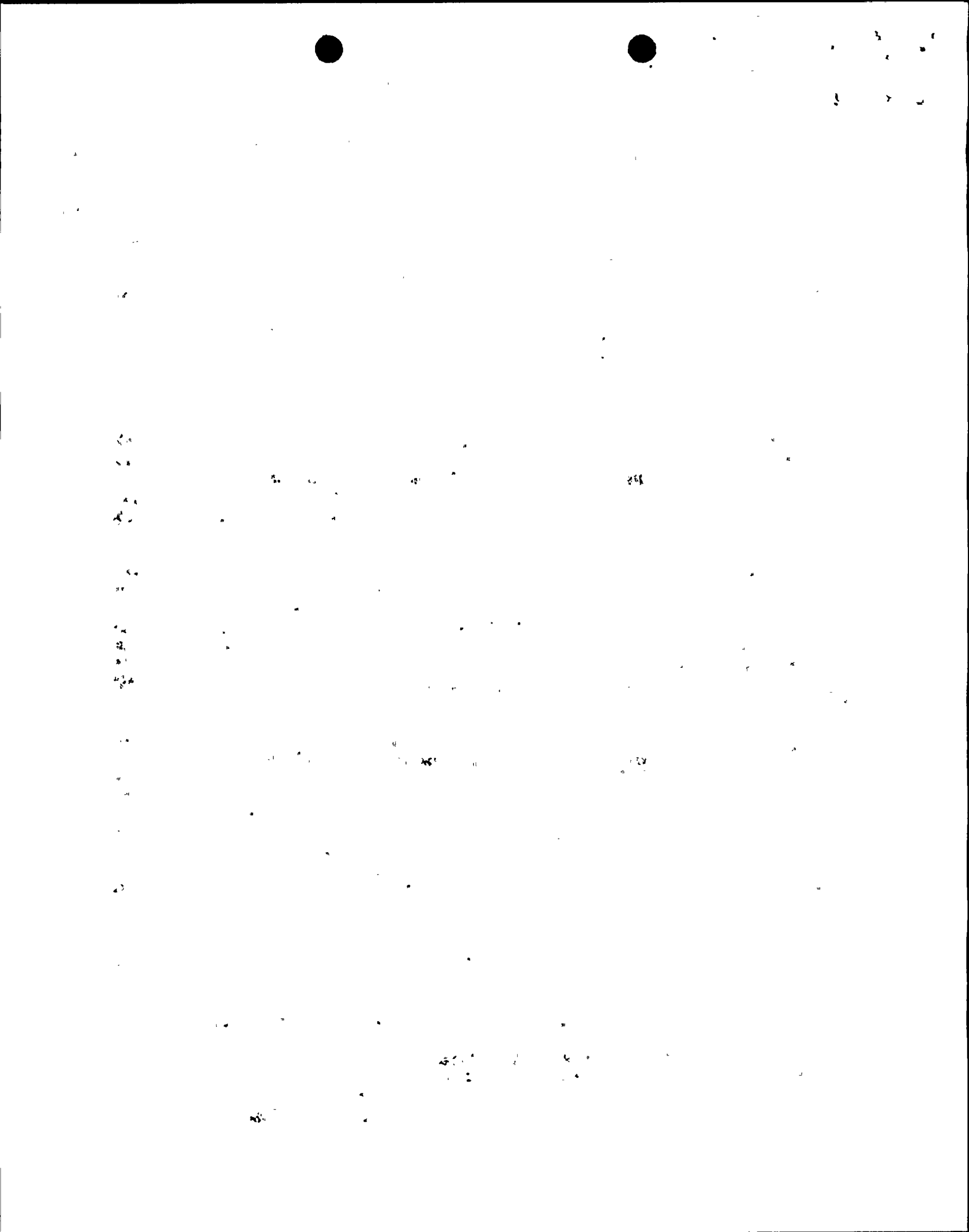
The same applies to the other ACTIONS (d, e and f).

#### Surveillance 4.8.1.1.2.a.5

Quick loading of 'cold' engines has been determined to be a contributor to diesel generator failures. The test will confirm the diesel can accept load in a manner which does not overstress the machine, but still provides the same level of confidence that the diesel will perform its intended function.

The purpose of specifying a load range in lieu of the engine load rating, is in recognition that when performing its intended function the engine may have less than 4000 KW of load. Also, a load range avoids routine overloading of the diesel generator, which will contribute to improved reliability.

The footnotes which allow prelubing and prewarming, and the change to Table 4.8.1.1.2-1 are consistent with the guidance of Generic Letter 84-15. Additionally we have determined they will result in improved reliability of the diesels.



#### NO SIGNIFICANT HAZARDS EVALUATION

The proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated. The diesel generators are not addressed in the accident analyses other than in a design basis assumption which is that shutdown of the Units during an accident must be accomplished utilizing three diesels. The proposed changes will enhance diesel reliability and availability thereby reducing the probability of a common mode failure which ensures the validity of the accident analysis assumptions. Although the proposed testing reduces the conservatism in the Tech Specs by modifying the load requirements, previous testing and the fact that the new load ranges envelope worst case accident loads, provides assurance that the diesels will perform their intended function and therefore will not significantly increase the consequences of accidents previously evaluated.

The proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated. As noted above, the accident analyses consider a diesel generator failure as a single failure. The proposed changes do not create any new testing methods, and the existing test requirements are being modified to decrease the probability of a common mode failure. Therefore the proposed changes do not create the possibility of a new or different event.

The proposed changes do not involve a reduction in the margin of safety. The revised testing requirements will reduce the current levels of stress and wear on the engines, thereby reducing the potential for premature diesel failures. Test results to date provide clear evidence that the diesel generators are capable of handling the currently described worst case conditions. This, combined with the proposed testing which provides continued assurance that the worst case accident loads will be enveloped, results in no significant decrease in the margin of safety.

#### IMPLEMENTATION

PP&L is requesting that these proposed amendments be handled on an exigent basis as defined in 10CFR50.91. This requires the licensee to provide a reason for the exigency, why it cannot be avoided, and to show that the request was made in a timely manner.

The reason for exigency is the impact that the proposed changes have on diesel generator reliability. During September and October of 1989 two diesel generator overpressurization events occurred at Susquehanna Steam Electric Station. On January 5, 1990 PP&L's



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analysis of those events was issued and one of the potential root causes identified was the manner in which the diesel generators are tested. We concluded that quick starting and loading of the diesels was a contributor to engine degradation. The proposed changes will eliminate what we believe are contributors to that degradation therefore the modified specifications are required on an exigent basis. Similarly, the diesel generators happen to be entering their 18 month surveillance testing, which increases the importance of having their review and approval performed on an expedited basis. With respect to the timeliness, PP&L has only recently completed its thorough investigation of the diesel events and discussions with the Staff.

Any questions on this proposal should be directed to D.J. Walters (215) 770-6536.

Very truly yours,



H. W. Keiser

Attachment

cc: NRC Document Control Desk (original)  
NRC Region I  
Mr. M. C. Thadani, NRC Project Manger  
Mr. G. S. Barber, NRC Resident Inspector

