EPRI

MONITORING RELIABILITY FOR THE MAINTENANCE RULE

EPRI Technical Bulletin 96-11-01

November 1996

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Attachment 3

EPRI TECHNICAL BULLETIN 96-11-01
MONITORING RELIABILITY FOR THE MAINTENANCE RULE

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David Worledge ARM
November, 1996

Background

Most nuclear plant licensees have chosen to monitor the number of functional failures or maintenance preventable functional failures for systems, structures, or components that require reliability to be monitored under paragraph (a)(2) of 10CFR50.65, the maintenance rule. In four out of the first five maintenance rule baseline inspections, potential violations of 10CFR50.65 have been found that relate to the way reliability is being monitored. Specifically, the inspection findings have found that there is not an adequate link between the performance criteria expressed in terms of failures per operating cycle, and IPE/PSA assumptions and data. Licensees have expressed concern that the solution to this conflict will require them to track the number of demands experienced by each standby SSC with a failure performance criterion, and to monitor the probability of failure-on-demand, rather than simply to monitor the number of failures.

This technical bulletin describes a process, and its technical basis, that would address the NRC concerns by establishing a quantitative relationship between the performance criteria and PSA data, without requiring that demands be tracked, and which would justify the practice of monitoring failures. The process has been described before, in the EPRI report TR-106280, "Insights From EPRI Maintenance Rule Projects, of May 1996, Section 6. "Technical Basis for Performance Criteria".

Outline of the Link to PSA

It will be demonstrated, below, that it is not technically possible to monitor an individual SSC's reliability by monitoring the number of failures and demands that it experiences over a time as short as one operating cycle (exceptions: Emergency Diesel Generators, because they are tested monthly, and other SSC's with very frequent test or demand schedules). The reason is that any estimate of the probability of failure-on-demand from such data will be too uncertain to draw useful conclusions from it as to whether the probability of failure-on-demand is in reasonable consonance with the value used in the IPE/PSA. Reasonable estimates can be made but only by increasing the time duration to include a greater number of tests, and/or by including data on the performance of other similar SSC's from other trains, systems, or other units in the same plant (site). Such estimates are very suitable for PSA purposes but will not serve 10CFR50.65 which requires individual SSC's to be monitored over single operating cycles.

The recent response from Mr. Frank J. Miraglia, NRC Acting Director of the Office of Nuclear Reactor Regulation to Mr. Ralph E. Beedle, Senior Vice President and Chief Nuclear Officer of the Nuclear Energy Institute, dated October 22, 1996, contains a number of qualifications that indicate that the required consistency with IPE/PSA assumptions can be achieved by the EPRI-recommended process for establishing performance criteria on reliability, despite the impossibility of directly monitoring the probability of failure-on-demand.

Mr. Miraglia notes that although a clear link to IPE/PSA assumptions is required, this may be achieved by using the results of monitoring to confirm the performance or condition in the IPE/PSA. He also notes that the NRC does not expect highly sophisticated or rigorous analyses to demonstrate this confirmation, but a reasonable and appropriate basis with some consideration of demands for standby systems and service times for normally operating systems.

Estimating the Probability of Failure-on-Demand

If r failures are experienced in n tests, the best estimate of the probability of failure-on-demand, P, is P=r/n. In a period of two years an SSC that is tested quarterly would experience only 8 test demands. For longer periods between tests, the number of tests is smaller. More tests might be included for operational reasons, for preparing the SSC for testing, or as post maintenance functional tests. Consequently, the number of legitimate demands for an SSC that is tested quarterly is not likely to exceed about 20 per cycle. Some SSC's covered by 10 CFR 50.65 are tested much less frequently than quarterly so that their estimates of reliability might need to be based on four tests, or even fewer.

Page 4 shows results calculated using the binomial distribution for an SSC that experiences up to 5 failures in 10 tests. Page 5 shows similar results for 20 tests. The binomial distribution is universally acknowledged as the correct model for devices that experience random failures with a constant probability of failure at each demand (e.g. tossing a coin), as assumed by many IPE/PSA's. The results for both 10 and 20 test demands include two charts. The first chart shows the ratio of the value "best estimate plus two standard deviations" to the best estimate. The second shows the ratio of the upper 80% and 90% confidence limits to the best estimate. These ratios indicate the degree of precision with which statements can be made about the probability of failure-on-demand.

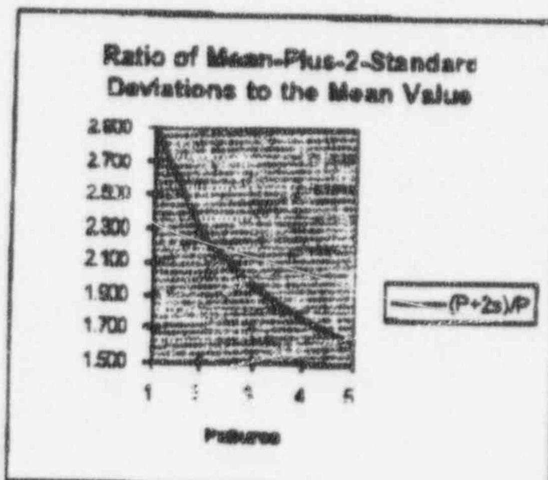
Although the tables and charts show results for up to 5 failures it should be remembered that the expected number of failures for nuclear plant SSC's over a period of a year or two will be close to zero. The expected number of failures is just the IPE value for the probability of failure-on-demand times the number of demands. This number will typically be of order 0.1 (~ 0.01x10), or less. This means that, in agreement with experience, the actual number of failures on a specific SSC over one operating cycle is

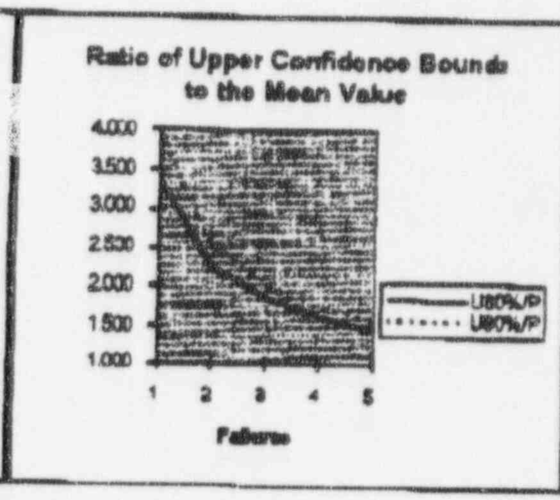
mostly zero, with occasionally one, or possibly two failures occurring. It is the results for one failure that are the main focus of attention here because two failures will be recommended as being unacceptable and constituting an exceedance of the performance criterion.

Standard Deviations and Confidence Bounds for 1 to 5 Failures in 10 Test Demands

10 Tests(=n)	r	s	P=r/n	r	(P+s)/P	r	(P+2s)/P
Number of failures = r	1	0.085	0.1	1	1.849	1	2.697
Estimate of prob. of failure on demand = P = r/n	2	0.126	0.2	2	1.632	2	2.265
	3	0.145	0.3	3	1.483	3	1.966
	4	0.155	0.4	4	1.387	4	1.775
s is the standard deviation in P	5	0.158	0.5	5	1.316	5	1.632

r	L 80%	U 80%	P=r/n	U80%/P	U80/L80	U90%	P=r/n	U90%/P
1	0.01	0.337	0.1	3.370	33.70	0.394	0.1	3.940
2	0.055	0.45	0.2	2.250	8.18	0.507	0.2	2.535
3	0.116	0.552	0.3	1.840	4.76	0.607	0.3	2.023
4	0.188	0.646	0.4	1.615	3.44	0.697	0.4	1.743
5	0.267	0.733	0.5	1.466	2.75	0.778	0.5	1.556

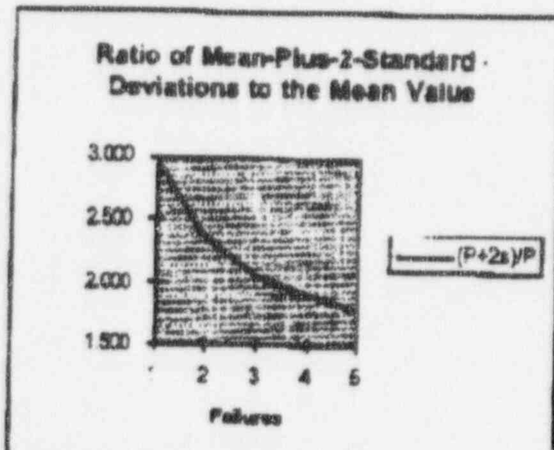


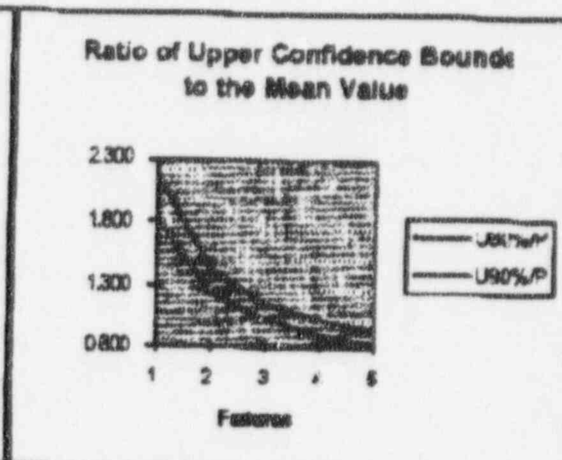


Standard Deviations and Confidence Bounds for 1 to 5 Failures in 20 Test Demands

20 Tests(=n)	r	s	P=r/n	r	(P+s)/P	r	(P+2s)/P
Number of failures = r	1	0.049	0.05	1	1.975	1	2.949
Estimate of prob. of failure on demand = P = r/n	2	0.067	0.1	2	1.671	2	2.342
	3	0.080	0.15	3	1.532	3	2.065
	4	0.089	0.2	4	1.447	4	1.894
s is the standard deviation in P	5	0.097	0.25	5	1.387	5	1.775

r	L 80%	U 80%	P=r/n	U80%/P	U80/L80	U90%	P=r/n	U90%/P
1	0.006	0.182	0.1	1.820	30.33	0.215	0.1	2.150
2	0.027	0.245	0.2	1.225	9.07	0.283	0.2	1.415
3	0.056	0.304	0.3	1.013	5.43	0.344	0.3	1.147
4	0.09	0.361	0.4	0.903	4.01	0.401	0.4	1.003
5	0.127	0.415	0.5	0.830	3.27	0.456	0.5	0.912





If zero, one, or two failures occur, both the mean-plus-two-standard deviations limit, as well as the upper confidence limits, permit estimates of the probability of failure-on-demand that extend a factor of 2 to 4 above the best estimate. Even wider constraints apply below the best estimate as can be seen from the ratio of the upper 80% bound to the lower 80% bound, which is greater than 30 if one failure is observed, and is 8 or 9 if 2 failures are observed.

These results show that the observance of zero, one or two failures in 10 or 20 tests provides a poor capability to constrain the value of the probability of failure-on-demand; the discriminating power is so weak that it could not be used sensibly in any monitoring scheme. If more than 20 test demands are accumulated the precision improves, so that at least the occurrence of two failures begins to be a practical predictor of the probability of failure-on-demand.

The conclusion is that even if demands were tracked, they could not be used to provide useful estimates of the probability of failure-on-demand in the monitoring processes of the maintenance rule. Of course, after several operating cycles have passed, the precision for any individual SSC will improve if all the data for the whole period since the start of the rule is pooled together. However, this will only provide an estimate of the average performance over the whole period and still will not indicate the performance over the most recent cycle.

Expected Number of Failures

The situation is not quite hopeless, however, because a quantitative link with the IPE/PSA value can be obtained by asking what that value implies about the probability of actually observing a specific number of failures, rather than asking the question the other way round, as above. The binomial density function gives a simple way to calculate the probability of 0, 1, 2, or more failures. For r failures in n demands this function is (note that P is distinct from $P_n(r)$):

$$P_n(r) = \frac{n!}{r!(n-r)!} \cdot P^r \cdot (1-P)^{(n-r)}$$

So that:

$$P_n(0) = (1-P)^n$$

$$P_n(1) = nP(1-P)^{(n-1)}$$

$$P_n(2) = \frac{n(n-1)}{2} \cdot P^2 \cdot (1-P)^{(n-2)}$$

where P is the probability of failure-on-demand used in the PSA.

The following table shows the probability of observing zero failures when 10 and 20 tests are performed.

Number of Tests	Probability of Zero Failures	
	When IPE/PSA Value is P=0.01	When IPE/PSA Value is P=0.001
10	90.4%	99.0%
20	81.8%	98.0%

The following table shows the probability of observing a single failure when 10 and 20 tests are performed.

Number of Tests	Probability of One Failure	
	When IPE/PSA Value is P=0.01	When IPE/PSA Value is P=0.001
10	9.1%	1.0%
20	16.5%	2.0%

Although the first table above shows that zero failures is by far the most likely outcome in each case, it can be seen that there is a 1% to almost 20 % chance of observing one failure.

The chance of observing two failures, however, is much smaller than the chance of observing a single failure. The following table shows the probability of observing exactly two failures when 10 and 20 tests are performed.

Number of Tests	Probability of Two Failures	
	When IPE/PSA Value is P=0.01	When IPE/PSA Value is P=0.001
10	0.4%	0.0045%
20	1.6%	0.019%

The results show that for most cases of interest a single failure is many times more likely than two failures.

We have seen that even when the underlying probability of failure-on-demand is in the range 0.01 to 0.001, one failure will be experienced by 1% to 16% of SSC's in one cycle. We have also seen that the best estimates of the probability of failure-on-demand from this experience are in the range 0.05 to 0.1, and reasonable upper bounds are 0.2 to 0.4 .

This means that a monitoring process that tried to estimate P on the basis of these results can be incorrect by a factor of 20 to 400. This is further evidence that trying to estimate the reliability from the number of failures and demands is an unsuitable way to address maintenance effectiveness.

Performance Criterion on Failures

From this analysis it can be seen that single failures can easily occur given the likely PSA input values and the large number of SSC's that are being monitored, but that two failures should be quite rare. This conclusion applies for a wide range of values of the number of tests and IPE/PSA values of the probability of failure-on-demand. The conclusion becomes less valid as the probability of failure-on-demand approaches 0.1 (the chance of two failures becomes significant), and as it decreases below 0.001 (the chance of one failure becomes less than 1%). However, the conclusion will remain valid for a large fraction of the SSC's in the maintenance rule.

The conclusion supports performance criteria such as "1 failure can occur, 2 failures is an exceedance", or "2 failures can occur, 3 failures are an exceedance". The specifics of such criteria should always be checked against the actual IPE/PSA value and the number of legitimate demands to be expected in one operating cycle. This is the vital link with the IPE/PSA assumption. However, it must be stressed that if the criteria are set according to these requirements *they will remain appropriate criteria for a wide range of values of the number of demands (e.g. from 0 to more than 20 demands)*. There will be no added value in closely monitoring the number of demands unless it exceeds a minimum of at least 20 (the minimum number depends on the IPE/PSA value; for P=0.001 the minimum would be many hundreds of demands). As shown earlier in this paper, for small numbers of demands there is no way to make use of the exact number when only 0, 1 or 2 failures are likely to occur.

Summary

It is not possible to monitor the reliability of most SSC's over a period as short as two years. This is because, even if the exact number of demands were known, a result of 0, 1, or 2 failures would not permit meaningful bounds to be placed on the probability of failure-on-demand for the purpose of comparison with the IPE/PSA input value. This conclusion depends mostly on the low values of the number of failures involved, and much less on the number of demands, providing this is below about 20. The conclusion is not sensitive to whether standard deviations or confidence bounds are used. It is not sensitive to the value of confidence assumed (two-sided 80%, and 90% bounds in the calculations above), and thus is not sensitive to whether one-sided or two sided bounds are used.

Instead, the chance of observing 0, 1, or 2 failures can be calculated using the IPE/PSA input value, and the expected number of legitimate demands. A failure criterion should be selected that acknowledges that possibly 1, or in some instances 2 failures might occur, consistent with the IPE/PSA input value, but that the chance of additional failures should be very much less. One failure can occur randomly within an operating cycle even when preventive maintenance is performed effectively, because many factors concerning service conditions and rates of degradation can not be known with certainty. However, if two failures occur, such performance criteria would indicate that these failures are very unlikely to be random events, and probably represent a trend toward poor performance requiring appropriate cause analysis and corrective action.

In most cases the *estimated* number of demands is quite sufficient for this calculation because the above conclusions will remain true for a wide range of numbers of demands. No added value is provided to the maintenance rule monitoring process by deriving a detailed knowledge of the number of demands.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 29, 1994

Mr. Ray Ng, Manager
Licensing and Performance Based Regulation
Nuclear Energy Institute
SUITE 300
1776 EYE ST NW
WASHINGTON DC 20006-3706

SUBJECT: FINAL NRC STAFF REVIEW OF QUESTIONS AND ANSWERS FROM THE AUGUST 1993 NUMARC MAINTENANCE WORKSHOPS

The NRC staff has completed its review of the questions and answers documented by NEI from the Maintenance Workshops held in Atlanta and St. Louis in August 1993. Based on the staff's attendance at the workshops and subsequent discussions with NEI representatives, the staff agrees that the written answers prepared by NEI are appropriate responses to the questions from the workshops.

The NRC staff believes that making these questions and answers available to the industry will promote a better understanding of the maintenance rule. However, licensees using these questions and answers as guidance should understand that because some of the questions were very specific in nature the answers to those questions may be very limited in their applicability to other licensees with different plant or equipment configurations. Licensees are cautioned to use the entire set of questions and answers as an aid in understanding the intent of the maintenance rule and not rely on individual answers to provide the final determination of acceptability.

In commenting on the answers to the questions, the staff used the best information available at the time of its review. The staff's responses could change as more experience is gained during the implementation of the rule. Therefore, licensees should understand that these answers represent the staff's current thinking and that information gathered during future site visits, future workshops, or other activities prior to the implementation date of the rule, July 10, 1996, may affect these answers. Licensees who need guidance should refer to the rule, 10 CFR 50.65, and the Regulatory Guide 1.160, which represent official NRC positions and to NUMARC 93-01, which was endorsed by the staff in Regulatory Guide 1.160.

Licensees should note that some questions have been revised or combined with other questions from the workshop to clarify or illustrate an issue. Therefore the questions may differ slightly from those asked at the workshops.

Attachment 4

186, 234, 68 Stat. 955, 83 Stat. 444, as amended (42 U.S.C. 2233, 2282); sec. 206, 88 Stat. 1246 (42 U.S.C. 5846). Sections 2.600–2.606 also issued under sec. 102, Pub. L. 91–190, 83 Stat. 853 as amended (42 U.S.C. 4332). Sections 2.700a, 2.719 also issued under 5 U.S.C. 554. Sections 2.754, 2.760, 2.770 also issued under 5 U.S.C. 557. Section 2.790 also issued under sec. 103, 68 Stat. 936, as amended (42 U.S.C. 2133) and 5 U.S.C. 552. Sections 2.800 and 2.808 also issued under 5 U.S.C. 553. Section 2.809 also issued under 5 U.S.C. 553 and sec. 29, Pub. L. 85–256, 71 Stat. 579, as amended (42 U.S.C. 2039). Subpart K also issued under sec. 189, 68 Stat. 955 (42 U.S.C. 2239); sec. 134, Pub. L. 97–425, 96 Stat. 2230 (42 U.S.C. 10154). Appendix A also issued under sec. 6, Pub. L. 91–560, 84 Stat. 1473 (42 U.S.C. 2135). Appendix B also issued under sec. 10, Pub. L. 99–240, 99 Stat. 1842 (42 U.S.C. 2021b et seq.).

2. Section V.F. of Appendix C is revised to read as follows:

Appendix C—General Statement of Policy and Procedure for NRC Enforcement Actions

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V. Enforcement Actions * * *

F. Reopening Closed Enforcement Actions

If significant new information is received or obtained by NRC which indicates that an enforcement sanction was incorrectly applied, consideration may be given, dependent on the circumstances, to reopening a closed enforcement action to increase or decrease the severity of a sanction or to correct the record. Reopening decisions will be made on a case-by-case basis, are expected to occur rarely, and require the specific approval of the Deputy Executive Director for Regional Operations.

* * * * *

Dated at Washington, DC, this 17th day of March 1988.

For the Nuclear Regulatory Commission.

Samuel J. Chilk,

Secretary of the Commission.

[FR Doc. 88-6333 Filed 3-22-88; 8:45 am]

BILLING CODE 7590-01-M

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10 CFR Part 50

Final Commission Policy Statement on Maintenance of Nuclear Power Plants

AGENCY: Nuclear Regulatory Commission.

ACTION: Final policy statement.

SUMMARY: The Commission believes safety can be enhanced by improving the effectiveness of maintenance programs throughout the nuclear industry. The Commission is proceeding with rulemaking consistent with this belief. This Policy Statement is being issued to provide guidance to the industry while the rulemaking proceeds.

EFFECTIVE DATE: This Final Policy Statement is effective March 23, 1988.

FOR FURTHER INFORMATION CONTACT: Jack W. Roe, Director, Division of Licensee Performance and Quality Evaluation, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 492-1004.

Policy

Background

The Commission has a program to continually evaluate the operational performance of nuclear power plants. Analysis of operational events has shown that, in some cases, nuclear power plant equipment is not being maintained at a level which ensures, with a high degree of reliability, that the equipment will perform its intended function when required. A limited NRC examination of nuclear power plant maintenance programs has found a wide variation in the effectiveness of these programs. Inadequate maintenance at some plants has been a significant contributor to plant reliability problems and, hence, is of safety concern. The Commission believes safety can be enhanced by improving the effectiveness of maintenance programs throughout the nuclear industry. The Commission is proceeding with rulemaking consistent with this belief. This Policy Statement is being issued to provide guidance to the industry while the rulemaking proceeds.

Policy Statement

It is the objective of the Commission that all components, systems and structures of nuclear power plants be maintained so that plant equipment will perform its intended function when required. To accomplish this objective, each licensee should develop and implement a maintenance program which provides for the periodic evaluation, and prompt repair of plant components, systems, and structures to ensure their availability.

Definition of Maintenance

The Commission defines maintenance as the aggregate of those functions required to preserve or restore safety, reliability, and availability of plant structures, systems, and components. Maintenance includes not only activities traditionally associated with identifying and correcting actual or potential degraded conditions, i.e., repair, surveillance, diagnostic examinations, and preventive measures; but extends to all supporting functions for the conduct of these activities. These activities and functions are listed below under "Activities Which Form the Basis of a Maintenance Program."

Maintenance Programs

Each commercial nuclear power plant should develop and implement a well-defined and effective program to assure that maintenance activities are conducted to preserve or restore the availability, performance and reliability of plant structures, systems, and components. The program should clearly define the components and activities included, as well as the management systems used to control those activities. Further, the program should include feedback of specific results to ensure corrective actions, provisions for overall program evaluation, and the identification of possible component or system design problems.

Activities Which Form the Basis of a Maintenance Program

An adequate program should consider:

- Technology in the areas of
  - —Corrective maintenance,
  - —Preventive maintenance,
  - —Predictive maintenance,
  - —Surveillance;
- Engineering support and plant modifications;
- Quality assurance and quality control;
- Equipment history and trending;
- Maintenance records;
- Management of parts, tools, and facilities;
- Procedures;
- Post-maintenance testing and return-to-service activities;
- Measures of overall program effectiveness;
- Maintenance management and organization in the areas of
  - —Planning,
  - —Scheduling,
  - —Staffing,
  - —Shift coverage,
  - —Resource allocation;
- Control of contracted maintenance services;
- Radiological exposure control (ALARA);
- Personnel qualification and training;
- Internal communications between the maintenance organization and plant operations and support groups;
- Communications between plant and corporate management and the maintenance organization.

Maintenance recommendations or requirements of individual vendors should receive appropriate attention in the development of the maintenance program.

Attachment 5

Future Commission Action

The Commission intends this Policy Statement to provide guidance to the industry in improving maintenance programs for their power reactor facilities. The Commission will continue to enforce existing requirements including those that address maintenance practices and will take whatever action that may be necessary to protect health and safety.

The Commission expects to publish a Notice of Proposed Rulemaking in the near future that will establish basic requirements for plant maintenance programs. We believe that the contents and bounds of the proposed rule will fall within the general framework described in this Policy Statement.

Consideration will also be given to industry-wide efforts that already have been initiated. We encourage interested parties to provide their views on this important subject to the Commission, even at this early stage of the rulemaking process. Any notice of proposed rulemaking that is published will provide, of course, a period for public comment on its contents.

Dated at Washington, DC, this 17th day of March, 1988.

For the Nuclear Regulatory Commission.

Samuel J. Chilk,

Secretary of the Commission.

[FR Doc. 88-6334 Filed 3-22-88; 8:45 am]

BILLING CODE 7590-01-M

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket Number 86-ANE-21; Amdt. 39-5869]

Airworthiness Directives; General Electric (GE) CT7-5A, -5A1, and -5A2 Turbopropeller Engines as Installed in Saab-Fairchild SF340A Aircraft

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD) which requires the installation of a second overspeed protection system on certain GE CT7-5A series turbopropeller engines as installed in Saab-Fairchild SF340A aircraft. This AD also supersedes AD 86-10-51, Amendment 39-5473 (51 FR 44439; December 9, 1986). This AD is needed to prevent engine power turbine (PT) overspeed and resulting uncontained failure caused by reaction of the fuel control to an erroneous PT speed signal during ground operation with the bottoming governor (BG) enabled.

DATES: *Effective*—May 9, 1988.

Compliance Schedule—As prescribed in the body of the AD.

Incorporation by Reference—Approved by the Director of the Federal Register as of May 9, 1988.

ADDRESSES: The applicable service bulletins (SB's) may be obtained from Dowty Rotol Limited, Cheltenham Road East, Gloucester, England GL2 9QH; General Electric Company, 1000 Western Avenue, Lynn, Massachusetts 01910; and Saab-Scania AB, S-581 88, Linkoping, Sweden.

A copy of each SB is contained in Rules Docket Number 86-ANE-21, in the Office of the Regional Counsel, Federal Aviation Administration, New England Region, 12 New England Executive Park, Burlington, Massachusetts 01803, and may be examined between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Barbara Garian, Engine Certification Branch, ANE-141, Engine Certification Office, Aircraft Certification Division, Federal Aviation Administration, New England Region, 12 New England Executive Park, Burlington, Massachusetts 01803; telephone (617) 273-7086.

SUPPLEMENTARY INFORMATION: A proposal to amend Part 39 of the Federal Aviation Regulations (FAR) to include a new AD requiring the installation of a second overspeed protection system on certain GE CT7-5A series turbopropeller engines as installed in Saab-Fairchild SF340A aircraft was published in the Federal Register on October 16, 1987, (52 FR 38456).

The proposal was prompted by an engine PT overspeed and resulting uncontained failure caused by reaction of the fuel control to an erroneous PT speed signal during ground operation with the BG enabled.

Since this condition is likely to exist or develop on other engines of the same type design, a new AD is being issued that requires installation of a second overspeed protection system on GE CT7-5A series turbopropeller engines as installed in Saab-Fairchild SF340A aircraft. This AD also requires incorporation of engine BG deactivation switches in the power lever quadrant to prevent an adverse yaw condition in the aircraft that could occur due to a mismatched aircraft power condition resulting from an uncommanded power increase of one engine. This would also prevent the crew from misinterpreting the uncommanded power increase of one engine as a failure of the other engine. This AD supersedes AD 86-10-51, Amendment 39-5473 (51 FR 44439; December 9, 1986).

Interested persons have been afforded an opportunity to participate in the making of this amendment. No comments were received. Accordingly, the proposal is adopted without change.

AD 86-10-51, Amendment 39-5473 (51 FR 44439), issued November 18, 1986, requires that the engine BG be disabled when the aircraft power lever is positioned in the beta range (below flight idle). The AD was needed to prevent PT overspeed and resulting uncontained failure caused by reaction of the fuel control to an erroneous PT speed signal during ground operation with the BG enabled.

AD 86-10-51 provides interim instructions to prevent PT overspeed and uncontained failure. Since these instructions require special aircraft and engine operating procedures which increase crew workload and invalidate the constant torque on takeoff function the FAA has determined that a second overspeed protection system with an improved level of safety precludes the need for these interim instructions and returns the aircraft and engine to pre-AD 86-10-51 operation.

Conclusion

The FAA has determined that this regulation affects 107 aircraft all of which are in compliance with this AD. Therefore, I certify that this action (1) is not a "major rule" under Executive Order 12291; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979); (3) does not warrant preparation of a regulatory evaluation as the anticipated impact is minimal; and (4) will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Engines, Air transporation, Aircraft, Aviation safety, Incorporation by reference.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me, the Federal Aviation Administration (FAA) proposes to amend Part 39 of the Federal Aviation Regulations (FAR) as follows:

PART 39—[AMENDED]

1. The authority citation for Part 39 continues to read as follows:

cc: Mr. Ralph Beedle
Senior Vice President
and Chief Nuclear Officer
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Washington, DC 20006-3708

Mr. Alex Marion, Director
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scheduled surveillance, the structure may not meet its design basis. The structure should remain in the (a)(1) category until the degradation and its cause have been corrected.

NEI stated that they plan on revising their own industry guidance document, NEI 96-03, "Industry Guidance Document for Monitoring Structures," in the near future.

Perceived Prescriptiveness in MR Inspections

Some licensee representatives initially thought that MR baseline inspections would only look at performance issues. After several NRC MR baseline inspections, they understood that the NRC staff's MR baseline inspection efforts were focused on program and performance issues. NEI has the perception that MR implementation was not going as smoothly as anticipated. NEI stated their desire to make MR implementation an excellent example of a successfully implemented risk-informed, performance based rule which other rules in the future could follow. They expressed concern that NRC inspectors are questioning expert panel decisions.

The NRC staff stated that the MR has both performance based and compliance based aspects. The staff agreed that MR baseline inspections have focused on MR program issues as was always intended and necessary. Licensees were using the guidance contained in NUMARC 93-01, Rev 0; however, some licensees took certain exceptions to NUMARC 93-01 to implement their program and each of these MR program exceptions had to be reviewed based on its own merits. The inspectors are appropriately questioning the bases for expert panel decisions and other MR related decisions. The headquarters oversight of MR baseline inspections is meant to ensure inspectors permit licensees maximum flexibility in implementing the MR.

The NRC staff stated that the MR is one of the first performance based regulations. Industry and the NRC have very little experience with these type of regulations. The MR baseline inspections have been somewhat focused on program issues because the staff believes that it needs to assess whether licensees have established adequate programs to consistently implement MR requirements. The staff expects that once a licensee has demonstrated that their MR program implementation is adequate, then NRC inspections would focus on performance issues. This is also the current inspection method employed by NRC site resident inspectors to verify compliance to the MR.

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