



Commonwealth Edison
 One First National Plaza, Chicago, Illinois
 Address Reply to: Post Office Box 767
 Chicago, Illinois 60690 - 0767

870
 8114

November 30, 1989

DSOG 1/1
 B. MORRIS

NOV 31 1989

Regulatory Publications Branch
 DFIPS
 Office of Administration
 U.S. Nuclear Regulatory Commission
 Washington, DC 20555

S4FR 33983
 8/17/89
 (7)

Subject: Draft Regulatory Guide DG-1001,
 "Maintenance Programs for Nuclear Power Plants"

Reference: Bill M. Morris, Director, Division of Regulatory Applications,
 Letter on Maintenance Program Draft Regulatory Guide
 Dated August 1, 1989.

These comments are submitted on behalf of Commonwealth Edison Company in response to the request of the U.S. Nuclear Regulatory Commission (NRC) for comments contained in the referenced letter on the subject Draft Regulatory Guide. In addition to the comments submitted herein, the Commonwealth Edison Company concurs with and endorses the comments submitted by the Nuclear Management and Resources Council, Inc. (NUMARC) on the subject.

It is the position of the Commonwealth Edison Company that an effective maintenance program is a precept for the utilities that operate and maintain nuclear power plants. An effective maintenance program enhances both the safety aspects and the economic benefits to the utility, its customers and the general public. It is also the position of the Commonwealth Edison Company that NRC action in the form of a separate maintenance rule, regulatory guide, or policy statement is redundant to existing regulations and, therefore, unnecessary. Sufficient flexibility exists under the current regulations and enforcement policies to improve the standards of those utilities which demonstrate and ineffective maintenance program.

Commonwealth Edison has had a commitment to an effective maintenance program for many years. In 1983, as the subtleties of maintenance activities on operational safety became more fully realized, our maintenance program was formalized through the issuance of our first Conduct of Maintenance Directive. This early document proved to be too narrow in scope, only directing the activities performed by the maintenance department. To improve the effectiveness of the maintenance programs at our six nuclear stations, a task force was formed in November of 1986. Through review, self-assessments and the commitment of upper level station and corporate management, a new directive, based on the INPO "Guidelines for the Conduct of Maintenance at Nuclear Power Stations" (INPO 85-038), was issued. The program endorsed by the Commonwealth Edison directive has been favorably reviewed during the NRC Maintenance Team Inspections (MTI) at three of four of our sites inspected to date. The program at the fourth station had not been developed to the extent necessary for review. Based on our own internal assessment of their performance, the two remaining stations should be reviewed favorably when they receive their MTI.

8912180224 391130
 PDR REGGD
 01. XXX C PDR

The upgrade of our maintenance programs is a massive undertaking. The new directive, issued in March of 1988, will require until December of 1991 to be fully implemented. Our current estimate of the total cost to develop and implement the new directive is 24.5 million dollars. An additional 5 million dollars will be required each year for program maintenance costs. Because the benefits of an effective maintenance program will exceed these costs, it is prudent for us to continue with the implementation of this program.

The introduction of a prescriptive regulatory guide at this time is likely to significantly affect the momentum of our current maintenance program improvement efforts. The effect will be to divert our present focus and priorities and potentially have a negative impact on safety and reliability as we try to meet a redundant, yet significantly different set of implementation criteria. Every attempt at mandating licensee performance improvement, especially in areas of such global reach (e.g., Equipment Qualification and Fire Protection), has introduced years of uncertainty and many false starts in the process. If we are to make effective use of our resources, we cannot afford to be diverted from our present pro-active course.

With this in mind, we believe that the industry and NRC should be striving to agree upon meaningful and easily understood maintenance performance indicators so that attention can be directed at areas of concern without attempting to prescribe the form that subsequent management action should take. Such an approach would have the corollary affect of promoting the full realization of the benefits perceived achievable by the NRC without introducing unnecessary costs to licensees where, based on current performance, such additional costs would not be justified.

We have reviewed the Regulatory Analysis in support of Draft Regulatory Guide DG-1001 and conclude that the analysis is weak. Based on the information presented, it can only be concluded that the analysis is subjective and based on obsolete assessments. The repeated use of factors of two is technically unsound in the context of risk assessment. The "scaling" associated with the "cases" on page 2.8 is unfounded. The use of WASH-1400 release categories is questionable due to their obsolescence. The associated source terms and event classifications are conservative to the extent that they result in distorted risk portrayals. The use of NUREG 1150 for baseline risk depiction is also flawed since that document employs the Source Term Code Package for a large measure of its risk values. It is well known that this package is grossly conservative. Finally, the use of risk values in an absolute sense (see Risk Reduction Summary, p. 2.13), is employed but considered unacceptable according to the NRC. The philosophy employed in this regulatory analysis would not be considered acceptable by the NRC if used by a utility in support of a proposed action.

The last general point that we wish to make, and one that consumed considerable time in the NUMARC meetings, is in regards to the broad and ill-defined scope of the regulatory guide. The term "significantly" is used throughout the draft regulatory guide, yet no where is "significantly" defined. Without this definition, the regulatory guide can be interpreted to include all structures, systems, and components within the plant, regardless of their impact on safety. This is an unwarranted extension of requirements that can only detract attention and resources from safety. If a regulatory guide must be promulgated, and if it must include a focus beyond the safety-related umbrella into balance of plant; then a graded approach to its application is necessary.

This approach must correlate "significantly" to the relative importance to safety of structures, systems, and components in determining the level of maintenance required.

In conclusion, we believe that the Commonwealth Edison Company, as well as the rest of the industry, has made substantial progress in the last few years and has ongoing initiatives in place to continue the trend. We encourage the NRC to reconsider the need for a regulatory guide that is, in most areas, redundant to existing regulation and has the potential to adversely affect existing good maintenance programs and to jeopardize the success of these ongoing initiatives. We believe that meaningful and easily understood performance indicators can be successfully employed to focus attention through existing regulations to correct areas of weak performance.

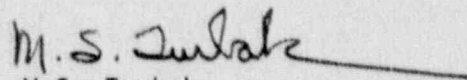
In addition to these general comments, our submittal includes the following attachments.

Attachment A - Response to Request for Input by the Commission

Attachment B - Detailed Comments on the Draft Regulatory Guide

We appreciate the opportunity to comment on the draft regulatory guide and welcome the opportunity to discuss our comments further with the appropriate NRC personnel.

Sincerely,



M.S. Turbak
Performance Improvement Manager

Attachments

0367k-3

ATTACHMENT A

RESPONSE TO REQUEST FOR INPUT BY THE COMMISSION

The following comments are in response to your solicitation for input on the five questions contained in the Reference. Because of Commonwealth Edison's active participation in the NUMARC Ad Hoc Advisory Committee on the Draft Regulatory Guide, our comments will parallel those of NUMARC.

QUESTION 1. What level of detail should be included in the regulatory guide?

RESPONSE: Any regulatory guide must specify the intended end result to be achieved in detailed and absolute terms. At the same time, the methodologies specified for implementation must be general to allow sufficient flexibility to assure that new ideas or methodologies are not stifled.

The draft regulatory guide is very general in scope yet specific in the requirements for implementation. For example, the draft regulatory guide is very general as it applies to structures, systems and components whose failure would "significantly" impact plant safety or security. Nowhere in the draft regulatory guide is "significantly" quantified. Without that quantification, the extent of the requirements is not known and, therefore, programs cannot be developed with any degree of certainty. Conversely, the draft regulatory guide is specific in determining the management tools to be used for implementation of the program. Programs which promote the use of quantitative goals are but one of many management philosophies that have proven effective. To prescribe to the extent that quantitative goals must be used in maintenance programs may stifle the development of more effective management tools.

QUESTION 2. Is the scope of systems, structures, and components covered by the regulatory guide appropriate?

RESPONSE: It is difficult to comment on this question because, as stated above, the scope of the draft regulatory guide has not been defined in quantifiable terms. It is recommended that the scope of the equipment addressed by the regulatory guide be determined by each utility and included in the utility's maintenance program as a result of an appropriate technical assessment. The benefit of this approach is that an equipment data base is specific for each plant and can be revised as experience dictates. Additionally, individual interpretation as to the equipment to be included in the data base would be minimized. This is not intended to indicate that all the equipment in the data base has a prescribed maintenance approach (preventive, predictive, or corrective) or other equipment that is not in the data base should not be maintained. The intent is to converge regulatory and industry emphasis on a known set of important equipment. This approach does not lessen ultimate licensee responsibility for safe and reliable operation and maintenance of the plant.

QUESTION 3. What criteria could be used to determine that a maintenance program is fully effective and additional improvement is not essential from a safety standpoint?

RESPONSE: The implied minimal level of maintenance performance above which safety is ensured is indeterminate. The regulatory process and industry programs and control, in the aggregate when appropriately implemented, monitored, and adjusted on an on-going basis, ensure safety.

The parameter of importance is the protection of the health and safety of the public. To this end, criteria which measure the amount of degradation to the required level of protection due to maintenance activities are an indicator of the maintenance program effectiveness. For example, the number of hours that a safety system is unavailable due to inadequate preventive maintenance can easily be tabulated. If the unavailable time exceeds a threshold value, indicating an unacceptable degradation in the level of protection, then corrective action is warranted. Individual structure, system, or component weaknesses, identified in this manner by the utility, regulators, or industry groups, can be corrected as they are identified. The weaknesses identified by this method, when reviewed by this method, when reviewed in the aggregate, would identify programmatic weakness in need of correction. Other indicators are possible, but they must be a measure of the true impact on the health and safety of the public.

QUESTION 4. Is it appropriate to use quantitative goals, which are described in Regulatory Position 3 of the draft regulatory guide, directed toward achieving a satisfactory level of performance in plant maintenance programs consistent with the level achieved by the top performing U.S. plants of similar design?

RESPONSE: It may be counter productive to specify, through a regulatory guide, the use of one particular management tool, i.e., goals, at the exclusion of all others. Other management programs may prove to be more effective than quantitative goals. The prudent requirement is that there is a management program in place and that it can demonstrate effectiveness.

QUESTION 5. What quantitative measures would be appropriate for such goals? Should they be at the plant level, system level, component level, or some combination thereof?

RESPONSE: The use of quantitative measures in a goals program is the method for measuring the effectiveness of the implementation of an action plan. No matter what program, goals or any other, is selected to achieve a satisfactory level of performance, measures must be established to determine the programs effectiveness.

Whether the goals are set at the plant level, system level, component level, or some combination thereof is strictly a function of the objective to be achieved. Objectives are established to correct a condition wherein the actual performance does not meet the expected performance. The correction of the difference between actual and expected performance becomes the goal. If the deficiency exists at the plant level, then the goal must be set at the plant level. Similarly, if the deficiency exist at the system or component level, then the goals must be set at those levels.

ATTACHMENT B

DETAILED COMMENTS ON THE DRAFT REGULATORY GUIDE

In addition to the comments provided in the transmittal letter and in Attachment A, Commonwealth Edison offers the following detailed comments on the draft regulatory guide.

A. INTRODUCTION

In the first paragraph, the second sentence beginning with "Maintenance requirements for..." contains the phrase "...significantly impact..." to define the scope of BOP equipment to be included under this regulatory guide. This phrase is not defined within the draft regulatory guide. Lacking a quantifiable definition, the scope of the draft regulatory guide may be interpreted to include all BOP equipment. It is not clearly established or certain that all BOP structures, systems and components have a role, either directly or via "impact" to safety-related systems, in nuclear plant safety or security. Absent such a showing, the extension to all BOP equipment is unwarranted. Clearly by making such an extension without careful assessment of the need for each item, the NRC forces a dilution of industry resources and may dilute our focus on safety or security without a concurrent increase in maintenance effectiveness or equipment performance.

It is possible to use PRA technology to identify which BOP structures, systems, and components have "significant impact" and to prioritize these items within the Nuclear Steam Supply System or security systems to allow realistic maintenance resource allocations. This still would not be a trivial task, and would involve plant-specific evaluations. It would involve a "living assessment" effort, but it would be useful in terms of evaluating plant safety and security. The IPE (PRA) effort currently underway in the industry can provide the forum for this assessment. We believe that a plant model that integrates safety, security and BOP systems, structures, and components is necessary to define the scope of the draft regulatory guide.

We conditionally concur with the position put forth in the second paragraph. The condition is that the scope of the regulatory guide is defined with specificity.

B. DISCUSSION

The second paragraph begins with a sentence which contains the phrase; "...actions required to prevent the degradation or failure of...". Degradation is not preventable. It can be monitored and controlled, but only when the degradation is detectable. Failure is not preventable. A maintenance program can only minimize the potential for failure to occur. To be accurate, the phrase should read; "...actions required to minimize the potential for the degradation or failure of ...".

The third paragraph addresses the flexibility inherent in the draft regulatory guide. It is our feeling that the draft regulatory guide is too flexible in scope and too specific in implementation. The concern with the flexibility in scope is as stated above.

The concern with the specificity in the implementation is that the requirements are too prescriptive. For example, the regulatory guide would prescribe the use of goals to monitor the effectiveness of the maintenance program. There may be other management tools which are equally or more effective, yet they are not addressed by the regulatory guide. The requisite parameter is the effectiveness of the maintenance program. How it is monitored is immaterial and should not be specified. Rather, the requirement that effectiveness is to be monitored as part of the maintenance program should be specified.

C. REGULATORY POSITION

1. SUMMARY OF AN EFFECTIVE MAINTENANCE PROGRAM

In the first paragraph, the second sentence should be restated to read; "Fundamentally, the maintenance program should rely on sound preventive and predictive maintenance and should utilize corrective maintenance when appropriate". The rationale for this is that the potential for error, safety system actuation, exposure, contamination, cost increases, plant transients and trips while at power, must be considered in the determination of whether corrective, predictive, or preventive methods of maintenance will be specified.

In the first paragraph, the third sentence is dependent on the definition of the term "significantly impact" which does not appear in the draft regulatory guide. A plant contains between 30,000 and 150,000 components depending on the design of the plant and the definition of a component. As stated above, it would be counter productive to include all of those components under the umbrella of the regulatory guide. Utility maintenance programs include all plant equipment (safety and non-safety equipment). The application and extent of specific preventive, predictive or corrective maintenance is determined as a result of regulatory and design requirements imposed, as well as individual utility considerations of safety, reliability, ALARA principles, and cost. Correction of degrading, degraded, or failed equipment is achieved on a basis that is consistent with restoring the design basis functions or providing a required administrative control or the equivalent on a schedule determined by the utility.

The second paragraph uses the terms "significantly affect" and "significantly challenges", but these terms are not defined in quantifiable terms. Without that definition, the scope of the regulatory guide becomes a contest of opinions.

The third paragraph requires the use of a program of goals and objectives. A program of this type is a management tool to be used in conjunction with other management tools as appropriate. It is unusual for a specific management program to be specified at the exclusion of all others. The methodology that is chosen to implement or monitor utility action are typically not specified by regulatory documents. The germane requirement is that the utility can demonstrate an effective maintenance program, by whatever means, and the means employed to achieve a successful end result, are immaterial.

1.1 ESTABLISH OVERALL POLICY, GOALS, AND OBJECTIVES

The third sentence states; "Quantitative goals related to these objectives should be established as one means to measure the progress of the maintenance program in achieving its objectives." Quantitative goals are means to measure the progress of the maintenance program, but may not be the means of choice. Latitude must be given to the utility to establish the means to measure progress that is in keeping with the utilities management prerogatives.

Additionally, no data base or criteria exists that would allow a utility to set component quantitative goals. The information available in the NPRDS for some components allows the comparison of failure rates, but does not provide any indication of the inherent design reliability of a component. Although theoretically achievable, establishing goals and objectives on all, most, or many components is not achievable without extensive dilution of engineering resources for an indeterminate gain. In cases where a specific problem needs to be addressed a root cause analysis and long term corrective action plan is more appropriate.

1.2 CONDUCT OF MAINTENANCE

The entire paragraph should be replaced with; "The conduct of maintenance activities in the plant should be documented, as necessary, to provide for systematic, coordinated, and accurate implementation." This working provides clear direction to the utilities without imposing prescriptive methodologies for accomplishing the task.

1.3 MONITOR AND ASSESS EFFECTIVENESS AND PERFORMANCE

The entire paragraph should be replaced with; "The effectiveness of maintenance activities should be evaluated by assessing the performance of the plant." This working provides clear direction to the utilities without imposing prescriptive methodologies for accomplishing the task.

1.4 OBTAIN FEEDBACK ON THE PROGRAM AND TAKE CORRECTIVE ACTION

The first sentence should be written to read; "A feedback mechanism should be an integral part of the maintenance program to assure that timely corrective actions are taken if quantitative and qualitative assessments indicate improvement is needed." This wording provides clear direction to the utilities without imposing prescriptive methodologies for accomplishing the task.

2. OVERALL MAINTENANCE POLICY

If a policy statement is developed, this section should be contained in that policy statement and deleted from the regulatory guide. Although the overall maintenance policy requirements are a necessary element of a maintenance program, they are inappropriate for the inclusion in a rule or a regulatory guide. The Maintenance Team Inspections have not identified the lack of an overall maintenance policy as a concern.

Additionally, if this section is retained, then the last sentence of the first paragraph should be written; "Implementation and control of maintenance should be achieved by establishing written procedures for the scope, objectives, and conduct of maintenance, by defining responsibilities, and by periodically observing and assessing performance commensurate with importance to safety."

The first sentence of the third paragraph should be written; "The written policies should be communicated, as appropriate, to all plant personnel involved in maintenance, including the maintenance staff and craftsmen."

3. ESTABLISHING GOALS AND OBJECTIVES

As stated previously, this section requires the use of a program of goals and objectives. A program of this type is a management tool to be used in conjunction with other management tools as appropriate. It is unusual for a specific management program to be expressly required at the exclusion of all others. The methodology that is chosen to implement or monitor utility action are typically not specified by regulatory documents. The germane requirement is that the utility can demonstrate an effective maintenance program, by whatever means. The means employed to achieve a successful end result is immaterial.

3.2 GOALS

The second sentence of the first paragraph encourages the use of a plant-wide "integrated" information system. It is not necessary for the information system to be "integrated" to be effective. This term should be deleted from the sentence. This sentence also encourages the use of the NPRDS data system, but no others. In some cases, utilities may be able to utilize other data bases more effectively. Therefore, the sentence should be expanded to recognize the use of other data bases.

The second paragraph again raises our concern over the requirement for use of goals as a specific management tool at the exclusion of all the other tools available to management. It also raises our concern over the use of the term "significant" without bounding its definition.

In many cases throughout the draft regulatory guide, the requirements are directed at performing certain actions to ensure goals and objectives are met. Instead, maintenance actions should be performed to ensure the plant operates in a safe and reliable manner. Focusing on goals and objectives may lead to incorrect or inadequate decisions in order to satisfy a goal or objective.

The draft regulatory guide indicates maintenance programs will be reviewed based on goals and objectives established for the station. The draft regulatory guide further states; "In general, goals should be established with the objective of achieving a level of performance consistent with that achieved by the top-performing U.S. plants of similar design." Although these ideas have merit, the following problems exist:

1. Who are the best performers in the eyes of the NRC?
Through our experience, it is not unusual for plants to move into and out of the best performer category in maintenance. Therefore, goal setting could result in attempting to lock onto a moving target. In addition, should the top-performing plant change to one with a radically different configuration, size, age, or culture than that of the previous plant, a whole new approach to achieving top-performer status would have to be taken. Measures should be established based on excellence in achieving safe and reliable operations rather than on another plants performance.

2. Section 3.2 is unclear in its discussion of goals. Particularly the first sentence which states; "Information or parameters, indicative of the degree to which the goals for maintenance established in Regulatory Position 3 are being met, should be monitored." Also, Section 3.2 states; "Extensive goals at the component level are not expected." However, this statement appears to contradict a later sentence that states; "Different goals for different structures, systems, and components are acceptable commensurate with safety and security significance." Also the draft regulatory guide states that equipment history should be compared against the goals. Equipment history is component based and, therefore, this statement appears also to be contradictory.
3. The last paragraph in Section 3.2 contains the following sentence; "This method of establishing and using goals will help ensure that equipment whose performance as a result of maintenance has the potential to impact safe operation of the plant is specifically identified and monitored." This sentence is very unclear, even when interpreted in the context of the rest of Section 3.2.

4. CONDUCT OF MAINTENANCE

Delete the second paragraph, beginning; "The remainder of..." It is redundant to other sections of the draft regulatory guide.

4.1 PLANT ORGANIZATION AND MANAGEMENT FOR MAINTENANCE

No comments on this section.

4.1.1 MAINTENANCE MANAGEMENT AND ORGANIZATION

If a policy statement is developed, this section should be contained in the policy statement and deleted from the regulatory guide. The Maintenance Team Inspections have not identified maintenance management and organization as a problem, nor is it likely that a performance based evaluation would result in an identified problem. The management structure of a utility is an inappropriate element of regulatory guidance unless it is reasonably linked to public health and safety.

4.1.2 COMMUNICATION

If a policy statement is developed, this section should be contained in the policy statement and deleted from the regulatory guide. The Maintenance Team Inspections have not identified communication as a problem, nor is it likely that a performance based evaluation would result in an identified problem. The management structure of a utility is an inappropriate element of regulatory guidance unless it is reasonably linked to public health and safety.

4.1.3 STAFFING

If a policy statement is developed, this section should be contained in the policy statement and deleted from the regulatory guide. The Maintenance Team Inspections have not identified staffing as a problem, nor is it likely that a performance based evaluation would result in an identified problem. The management structure of a utility is an inappropriate element of regulatory guidance unless it is reasonably linked to public health and safety.

4.2 MAINTENANCE PERSONNEL QUALIFICATION AND TRAINING

If a policy statement is developed, this section should be contained in the policy statement and deleted from the regulatory guide. The Maintenance Team Inspections have not identified maintenance personnel qualification and training as problem, nor is it likely that a performance based evaluation would result in an identified problem. The management structure of a utility is an inappropriate element of regulatory guidance unless it is reasonably linked to public health and safety. Additionally, the NRC has previously endorsed the industry training accreditation approach as implied through the industry INPO National Academy program.

The second sentence should be written; "The training portion of the program should include such elements as classroom and on-the-job training..."

The training and qualification of contract personnel should be based on the work to be performed and the apprentice and journeyman training provided to the craftsmen. It is not necessary for contractors of limited work scope to meet all the station training criteria for unsupervised station personnel.

This paragraph states that contract personnel should be "trained and qualified", but does not allow for the acceptable option of being properly supervised or that the vendor may train and qualify workers to an acceptable level which would not require supervision.

4.3.1 ENGINEERING IN SUPPORT OF MAINTENANCE

The second sentence should be written; "Engineering support may be provided by corporate or site engineers or by other technically qualified personnel." An engineering degree is not necessarily required to provide technical support.

The fourth sentence should be written; "Root cause of significant unplanned events.. and to minimize potential for recurrence as appropriate." This change will limit the scope of the requirement to a manageable level.

The fifth sentence should be written; "...test requirements, test equipment and procedures should be considered in all maintenance activities." Not all of the listed attributes need to be incorporated into effective maintenance activities.

The last sentence uses the word "timely". "Timely" should be defined to allow decisions for long term implementation when appropriate.

4.3.2 CONTROL OF VENDORS AND CONTRACTED MAINTENANCE SERVICES

In the first sentence of the first paragraph change the word "plant" to "utility". In the last sentence of the last paragraph, change the phrase "engineering justification" to "technical review".

4.3.3 CONTROL OF RADIOLOGICAL EXPOSURE

The paragraph should be written; "Radiological exposure control during maintenance activities should be defined in the appropriate utility ALARA program." There is no need to redefine an existing requirement.

4.3.4 QUALITY ASSURANCE AND QUALITY CONTROL OF MAINTENANCE ACTIVITIES

The last word of the first sentence should be deleted and replaced with, "in accordance with an approved QA plan per 10CFR50 Appendix B requirements". The next sentence can then be deleted.

4.3.5 MANAGEMENT OF PARTS, TOOLS, AND FACILITIES

If a policy statement is developed, this section should be contained in the policy statement and deleted from the regulatory guide. Although the text describes a cost element that is necessary for maintenance program, it does not directly affect public health or safety and has not been identified as a generic area of concern by the NRC Maintenance Team Inspections.

4.3.6 CONTROL OF CALIBRATION AND TEST EQUIPMENT

In the first sentence, delete the word "Proper". In the second sentence, delete the word "clearly". In the last sentence, delete the word "effectively". A standard measure does not exist for these words and the subjectivity implied increases the potential for interpretation problems.

4.4 MAINTENANCE PROCEDURES

In the second sentence, the words "should provide systematic guidance to the craftsman" should be deleted as the intent is covered by the rest of the sentence.

Additionally, the word "sound" should be deleted from the second sentence because it is subjective and a standard for measurement does not exist as stated.

In the last sentence, delete the words "as well as where they are to be located." Location is not relevant to public health and safety.

4.5 PLANNING AND SCHEDULING

If a policy statement is developed, this section should be contained in the policy statement and deleted from the regulatory guide. Although the planning and scheduling function is important to the costs effectiveness, it has not been demonstrated that public health and safety is impacted.

The text of this section uses the subjective terms "accurate", "timely", "effective", and "systematic". The use of these terms should be avoided to lessen the probability of interpretation problems that may be encountered.

Additionally, the text addresses how a program should be constructed without establishing what results are to be achieved.

4.6 TYPES OF MAINTENANCE

The second sentence should be deleted. It is redundant to the first sentence.

The last sentence should be written; "The licensee should develop a maintenance program that includes the option of preventive (predictive) and corrective maintenance for appropriate application to selected equipment." The benefit of maintaining a balance of preventive and corrective maintenance techniques is uncertain. The determination of appropriate maintenance should include the option for equipment repair or replacement upon failure and at a time determined by the licensee.

4.6.1 PREVENTIVE MAINTENANCE

In the first sentence, "systematically" should be deleted and "preventing" should be replaced with, "minimizing the potential for".

The fourth sentence should be written; "The frequency of preventive maintenance should consider predictive maintenance results, vendor recommendations, ALARA considerations, and performance monitoring."

The next to the last sentence, if left as written, could have a major impact on engineering resources and result in a volumes of documentation. Maintenance programs and selected preventive or corrective methods applied to plant equipment are the sum of design requirements, experience, and evaluation of vendor recommendations have not been documented in the past.

The last sentence should be written; "The scheduling or deferral of preventive or corrective maintenance should consider the importance of the degraded function and appropriate alternatives."

4.6.2 CORRECTIVE MAINTENANCE

The words in the third sentence could imply an in-depth analysis of every failure. The scope of this section should be limited to that equipment which fulfills the definition of significant. The focus of this section should be that the root cause of the degradation of that equipment is identified and that the appropriate action is taken to eliminate adverse consequences. The inclusion of examples of degraded conditions, appropriate assessment, and corrective action into this section could minimize the potential for interpretation differences.

4.6.3 PREDICTIVE MAINTENANCE

Predictive maintenance should be considered a type of preventive maintenance and included under the Preventive Maintenance section. In the fourth sentence, the word "preclude" should be replaced with "minimize the potential for."

4.6.4 MAINTENANCE SURVEILLANCE

The term "maintenance surveillance" is not clear. The draft regulatory guide addresses history and trending and predictive maintenance data collection, but "maintenance surveillance" is not defined. It does not appear that the draft regulatory guide is addressing technical specification surveillances, regulatory, required surveillances, etc, but rather, it is introducing a new type of surveillance exclusive to maintenance activities.

4.7 WORK CONTROL PROCESS

If a policy statement is developed, this section should be contained in the policy statement and deleted from the regulatory guide. Although the work control process function is important to the cost effectiveness, it has not been demonstrated that public health and safety is impacted.

Additionally, the function of post maintenance testing to verify the equipment is capable of performing its design function as stated is too broadly applied. The maintenance performed may not affect a significant portion of the equipment or it may be impossible to test the capability of the equipment to perform all of its intended functions. Post maintenance testing should provide assurance that the maintenance was properly performed. When necessary, appropriate portions of surveillance procedures or operability testing should be specified.

5. MONITORING AND ASSESSMENT OF EFFECTIVENESS

If a policy statement is developed, this section should be contained in the policy statement and deleted from the regulatory guide. Although the monitoring and assessment of the effectiveness function is important to the cost, it has not been demonstrated that public health and safety is impacted.

6. FEEDBACK AND CORRECTIVE ACTIONS

This Section is redundant to Sections 1.3 and 1.4 and should be combined into those sections.

6.1 FEEDBACK

This Section is redundant to Section 1.4 and should be combined in that Section.

6.2 CORRECTIVE ACTION

This Section is redundant to Section 1.4 and should be combined in that Section.

6.3 TIMELINESS

This section should be deleted because there is no standard to measure "timeliness".