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NUCLEAR ENERGY INSTITUTE

7/24/03
68FR 43767
(3)

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September 15, 2003

Chief, Rules and Directives Branch
Division of Administrative Services
Office of Administration, Mail Stop T6-D59
U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: *Federal Register* Notice 68 FR 43767, July 24, 2003, Notice of Workshop on Issues Related to the Level of Programmatic Information Needed in a Combined License Application Submitted in Accordance with 10 CFR Part 52

The Commission's September 11, 2002, Staff Requirements Memorandum on programmatic ITAAC directed the NRC staff to seek stakeholder input and provide recommendations on the treatment of operational programs in combined license (COL) applications. We appreciated the opportunity on August 25 to discuss with the NRC staff the type and level of information on operational programs to be provided in COL applications and whether ITAAC may be necessary on one or more operational programs.

In disapproving the staff proposal that COL applications contain a broad set of ITAAC on operational programs, the Commission stated that ITAAC should not be necessary in "most, if not all" operational areas, and that "an ITAAC for a program should not be necessary if the program and its implementation are fully described in the application and found to be acceptable by the NRC at the COL stage."

In the enclosure to this letter, we use the fire protection program for a Westinghouse AP1000 standard plant to illustrate the type and level of information that should be sufficient to support a finding of program acceptability. The program description includes discussion of AP1000 COL action items and is augmented by information on the implementation of the fire protection program. The level of detail is equivalent in substance to the programmatic information that is maintained in current FSARs. The example reflects the type and level of information necessary to describe conformance with NRC regulations, applicable

E-RIDS = ADM-03
Add = J. Sebrosky (JMS3)

Template = ADM-013

regulatory guidance and applicable NRC review standards. It is our view that this information is that which is necessary and sufficient at time of COL to provide reasonable assurance that operational programs will meet NRC requirements and provide adequate protection of public health and safety. However, this view is significantly different from that discussed by the staff during the August 25 workshop.

Based on the August 25 discussions and draft material made available on the NRC website, the staff is narrowly focused on the meaning of the phrase "fully described" as used in the SRM. This has led the staff to conclude that "fully described" means that procedure-level information is required to be provided or available to the NRC to support review of a COL application.

We disagree strongly with the staff's conclusion. It is not necessary to provide procedure-level information to support the findings required for COL, nor is it practical for COL applicants to develop such information prior to COL issuance. We do not believe the Commission intended by its SRM that for NRC to grant a COL without ITAAC on programs, a COL applicant must provide more operational program information than that which is "necessary and sufficient" for the NRC staff to make its reasonable assurance finding(s) on the acceptability of the programs. We expect the NRC will make these findings, as it has in the past, based on information describing how applicant programs conform or will conform to NRC requirements, applicable regulatory guidance and applicable NRC review standards.

At this point, we see two possible paths forward. Further public meetings may be productive if the purpose of those discussions is to establish the type and level of information that is "necessary and sufficient" for the NRC staff to make its reasonable assurance finding(s) on the acceptability of the programs, and to understand the basis therefore. However, further discussions would not be productive if based on the staff interpretation that by "fully described" the Commission meant that procedure-level information must be provided for COL. If the staff remains focused on the interpretation of "fully described" and procedure-level information, we recommend that clarification be immediately sought from the Commission on its intent regarding the type and level of operational program information that COL applicants should provide such that operational areas may be resolved at COL without ITAAC.

The industry is focused on achieving the intent of Part 52 to resolve as many issues as possible before the plant is constructed and to limit the scope of the post-construction hearing to those issues that by their nature could not have been resolved sooner. The Commission has stated that ITAAC should not be necessary

for "most, if not all" operational areas and that the "maximum number of programmatic issues" should be resolved at time of COL issuance. Clearly these are not matters that by their nature cannot be resolved before the post-construction hearing, and we hold strongly to the view that there should be no ITAAC on operational programs.

Please note that the enclosure also provides responses to specific NRC staff comments during the August 25 workshop.

If you have any questions regarding the industry perspective or wish to discuss this matter further, please contact me (202-739-8128 or rls@nei.org) or Russ Bell (202-739-8087 or rjb@nei.org).

Sincerely,

R. Simard

Ron Simard

Enclosures

c: James E. Lyons, NRC/NRR
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Industry Perspective on Program Information to be Provided in Combined License Applications

The following statements from the Commission's September 11, 2002, SRM on SECY-02-0067 provide the framework for determining the extent to which ITAAC may also be necessary on operational programs.

- ITAAC should not be necessary for "most, if not all," of the 14 representative operational programs identified in SECY-02-0067
- The "maximum number of programmatic issues" should be resolved at time of COL issuance
- "...ITAAC for a program should not be necessary if the program and its implementation [*i.e.*, how it is to be implemented] are fully described in the COL application and found acceptable"

Importantly, the SRM also provided for separation of the NRC's reasonable assurance findings (RAF) at COL based on description of operational programs from the later verification of program implementation as part of NRC inspections prior to operation.

Key Issues

The NRC staff has interpreted the SRM's use of the term "fully described" to mean that ITAAC on programs are unnecessary only if the COL applicant meets some unspecified higher standard for COL application content concerning operational programs. In its July 1 proposal based on the fire protection program, and as discussed in an August 25 public meeting, the staff has concluded that "fully described" means that procedure-level information is required to be provided or available to the NRC to support review of a COL application.

We disagree strongly with the staff conclusion. It is not necessary to provide procedure-level information to support the findings required for COL. We do not believe the Commission intended by its SRM that for NRC to grant a COL without ITAAC on programs, a COL applicant must provide more operational program information than that which is "necessary and sufficient" for the NRC staff to make its reasonable assurance finding(s) on the acceptability of the programs. We expect the NRC will make these findings, as it has in the past, based on information describing how applicant programs conform or will conform to NRC requirements, the SRP and applicable regulatory guidance. This issue is of central importance to prospective applicants because it is not practical for COL applicants to develop procedure-level information prior to COL issuance.

As discussed at the August 25 public meeting on this topic, two key questions need to be addressed to determine the nature of operational information that must be provided in COL applications or otherwise available for NRC review.

1. What will provide reasonable assurance that operational programs, such as Fire Protection, will meet NRC requirements and provide adequate protection of the public health and safety?

2. What type and level of information on program implementation is needed to support NRC reasonable assurance finding(s) at COL?

Reasonable assurance findings on programs at COL

Reasonable assurance findings at COL should be based on whether the regulatory process ***as a whole*** provides the necessary assurance of conformity with NRC requirements. For both current and future plants, there is a spectrum of NRC requirements and authority that provide reasonable assurance of adequate protection of public health and safety at the time of licensing and throughout the term of a license, including (in the case of fire protection),

- General Design Criterion 3 and NRC regulations, such as 10 CFR 50.48
- The license itself, including technical specifications and the standard Fire Protection license condition
- NRC enforcement authority

Recognition and credit for the regulatory process as a whole is particularly important under Part 52 with respect to operational programs, because most programs will not be implemented at the time of COL issuance. Compliance with NRC requirements and NRC oversight thereof assure adequate implementation of operational programs prior to plant operation and throughout the term of the license. Thus, program implementation, and NRC inspection thereof, is not necessary to support reasonable assurance findings at COL.

It is important to note that the spectrum of NRC requirements and enforcement authority is more than adequate to assure compliance and safety without the addition of ITAAC on programs. Programmatic ITAAC would provide no additional assurance and thus would not contribute to NRC reasonable assurance findings at COL.

Necessary and Sufficient Program Information for COL

The type and level of operational program information needed to support NRC reasonable assurance finding(s) at COL depend on the timing of operational program implementation. Operational programs required by NRC regulation will

be described in COL applications. COL applications will contain information on operational programs that is equivalent in substance to that contained in current FSARs, including descriptions of how programs conform or will conform with NRC requirements, the Standard Review Plan and applicable regulatory guidance.

In addition, implementing procedures will be prepared and available for NRC inspection for certain programs to be implemented at or before COL issuance, such as the Construction QA, Construction Fitness for Duty and Part 21 programs.

Because most operational programs, including the Fire Protection, Radiation Protection, Security and Training programs, are not required to be implemented immediately upon COL issuance, COL applications will also provide information on the timing of program implementation. For example, Fire Protection Programs will be implemented and procedures will be available to support NRC inspection of program implementation prior to receipt of first fuel on site, or fuel load, as appropriate.

Fire Protection Program Example

Attachment 1 provides an illustration of the information that we envision would be provided in a COL application that references the AP1000 standard design. As indicated in the example, a COL application based on the AP1000 DCD will address all standard design and COL applicant SRP review areas and would include:

- Sections 9.5.1.1 through 9.5.1.8 (based on the section numbering scheme of the generic DCD)
- Plant-specific fire protection analyses
- Updated table of SRP conformance, including COL applicant items

In addition, the example includes a new section 9.5.1.9 on FP Program Implementation that would be included in a COL application to present FP Program description and information on the timing of program implementation. FP Program information will be consistent with generic DCD and SRP; exceptions will be specifically identified. The information provided in Section 9.5.1.9 of the example is similar to information provided in the site-specific FSAR addendum for the Callaway plant.

Specifically, new Section 9.5.1.9 on FP Program Implementation would:

- Identify that the FP Program will be implemented by procedures to be developed later (after COL issuance)
- Provide FP Program description on which NRC would base a reasonable assurance finding

- Address new requirements and regulatory guidance, e.g., RG 1.189, as appropriate
- Identify that FP procedures will be developed and available to support NRC inspection of program implementation prior to receipt of first fuel on site, or fuel load, as appropriate

Program Description vs. Procedures

Consistent with the above, Fire Protection Program information will be provided that is equivalent in substance to that contained in current FSARs, including description of how programs conform or will conform with NRC requirements, the Standard Review Plan and applicable regulatory guidance. This information will describe

- Program objectives and defense in depth philosophy
- Program attributes and required functions
- Personnel qualifications and training requirements
- Program quality assurance and administrative controls

Information to be delineated in procedures developed after the COL is issued will include:

- Titles and numbers of FP personnel
- Organizational relationships
- Firefighting strategies and procedures for each fire area in the plant
- Forms and records to be maintained

As discussed above and on August 25, it is neither practical for COL applicants to provide, nor is it necessary for the NRC staff to review, procedure-level information to support reasonable assurance findings at COL. The information contained in typical Fire Protection Program procedures is beyond that necessary for the staff to complete program reviews in accordance with the SRP. For example, typical Fire Protection Program procedures delineate the individual responsibilities and functions of all key Fire Protection Program personnel. This detailed information is not necessary to support COL review of an applicant's Fire Protection Program in accordance with the SRP. What is important for the NRC staff to establish at COL is that an appropriately senior manager will be responsible for implementation and maintenance of the Fire Protection Program and that he or she will have the authority and resources to do so. Section 9.5.1.9 of the attachment reflects the level of program description that a COL applicant would be expected to provide.

Fire Protection Program procedures must be developed and made available for review when it is time for the NRC staff to inspect Fire Protection Program implementation prior to operation. As indicated by Fire Protection Inspection

Procedure 64704, NRC review of detailed procedures is important to enable the staff to understand how program requirements are being met and to verify the adequacy of implementation. However, these implementation details are not necessary prior to COL issuance to support licensing reviews based on the SRP and the associated reasonable assurance findings on program acceptability.

Training – Another Example of an Operational Program

The Training Program is typical of operational programs in general in terms of the definition of program objectives, organization, administrative controls, etc. Like the Fire Protection Program, implementing procedures will be developed after COL issuance in parallel with plant construction and the hiring of plant staff. We and the NRC staff could have easily chosen Training instead of Fire Protection as the example program used to better understand this issue.

As part of the current Part 52 rulemaking, the NRC staff has proposed to clarify COL application content requirements concerning the Training Program required by 10 CFR 50.120. In the Supplementary Information for this rulemaking, the NRC clearly recognizes the difference between "describing" the Training Program in the COL application and the need to "establish and implement" the program prior to operation (including writing procedures). Specifically, the NRC states:

> ...the Commission is proposing to revise in its entirety the language in current § 52.78, which is being re-designated as § 52.209. The proposed rule provides that the application must "describe" the training program required by § 50.120. In addition, the proposed rule states that the training program described in the application must be "established, implemented and maintained" no later than eighteen (18) months prior to the scheduled date for initial loading of fuel, as provided for in § 52.231(a). By "established [and] implemented", the Commission intends to distinguish between the requirement to merely "describe" the training program in the application, versus the requirement for the combined license holder to establish (*e.g.*, establish a training organization, fill staff positions, write procedures, *etc.*) and implement (*i.e.*, perform training of applicable operating plant personnel in accordance with § 50.120) the training program.

We agree with the distinction identified in the Part 52 proposed rule between "describing" programs in the COL application and "establishing and implementing" them prior to plant operation. There is no basis to treat the FP Program any differently from the Training Program as described above.

Responses to NRC staff comments during the August 25 workshop:

1. At one point, we noted that the staff has already acknowledged that at least some operational programs would not have ITAAC, including the Maintenance Rule and ISI/IST Programs, as these programs will be implemented after fuel load. If the staff can make their reasonable assurance findings without ITAAC or procedure-level information on these programs, we asked why the staff feels that ITAAC are needed on other programs. Part of the staff response was that license conditions are envisioned on such programs, in lieu of ITAAC.

2. We disagree that license conditions will be necessary on any operational programs, with the exception of the start-up test program as discussed in our November 20, 2001, white paper on ITAAC verification and related issues. The Maintenance Rule and ISI/IST Programs, like other operational programs, are required by regulation. Full and proper implementation of these programs, like other operational programs, is assured by required compliance with NRC requirements and NRC oversight thereof. These programs have been implemented at existing plants without license conditions. The Commission's September 11, 2002, SRM recognizes the existing enforcement authority of the NRC with regard to assuring proper program implementation prior to operation. We do not understand why the staff feels that license conditions – or ITAAC – are necessary on operational programs required by regulation.

3. The staff explained at one point that their position that procedure-level information on operational programs should be provided with COL applications was based, at least in part, on the expectation that new units would be proposed at existing sites. Therefore, the staff expectation is that COL applicants would have available and could provide program procedures for the existing units. This is not the case. As we responded during the workshop, with the exception of the Fitness for Duty Program, most programs have design dependencies. These man-machine interface issues are typically addressed at the procedure level, such that procedures for the existing units could not be provided to support NRC review of a COL application for a standard plant.

4. Moreover, the COL applicant may wish to implement standard programs and procedures that are optimized for the particular standard design selected, or applicants may be prohibited by state regulators from using the programs or procedures of existing units. In either case, the procedures for the existing units would not be provided to support NRC review of such COL applicant programs. We expect however, that the NRC staff would take into consideration when making its reasonable assurance finding the COL applicant's demonstrated ability to implement programs on existing units at the proposed site or other site in accordance with NRC requirements.

5. The NRC staff asked if the industry's opposition to ITAAC on operational programs was motivated primarily by the desire to reduce litigation risk

associated with the post-construction hearing. The scope of the post-construction hearing corresponds to the scope of ITAAC, and so, as a general matter, the risk of litigation increases as the scope of ITAAC increases. This increase would be non-linear to the extent that additional ITAAC do not contain objective acceptance criteria. The industry fully accepts the litigation risk associated with the required scope of ITAAC; prospective applicants will weigh this risk and many other factors in making their business decision on a new nuclear plant project. We oppose ITAAC that are neither required nor necessary because such ITAAC add undue regulatory burden in the form of increased litigation risk in the post-construction hearing. As discussed above, ITAAC on programs are not required to support reasonable assurance findings at COL or to assure adequate protection of public health and safety prior to operation.

The industry is focused on achieving the intent of Part 52 to resolve as many issues as possible before the plant is constructed and to limit the scope of the post-construction hearing to those issues that by their nature could not have been resolved sooner. The Commission has stated that ITAAC should not be necessary for "most, if not all" operational areas and that the "maximum number of programmatic issues" should be resolved at time of COL issuance. Clearly these are not matters that by their nature cannot be resolved before the post-construction hearing, and there should be no ITAAC on operational programs.

Summary

We do not believe the Commission intended by its September 11, 2002, SRM that for NRC to grant a COL without ITAAC on programs, a COL applicant must provide more operational program information than that which is "necessary and sufficient" for the NRC staff to make its reasonable assurance finding(s) on the acceptability of the programs. Thus, we conclude that programs are "fully described" for purposes of a COL application if the information provided is necessary and sufficient to support NRC reasonable assurance findings on program acceptability, i.e., that programs meet NRC requirements (or will meet NRC requirements when fully implemented).

Most operational programs will not be implemented at time of COL; COL applications will describe the programs that will be developed and implemented. We expect that program descriptions similar to those contained in current FSARs will be sufficient to support reasonable assurance findings by the NRC staff.

Adequacy of operational program implementation is assured by required compliance with the license and NRC requirements and associated NRC oversight and enforcement. Reasonable assurance findings at COL should be based on consideration of the licensing process as a whole.

COMBINED LICENSE APPLICATION
PLANT AP1000-1
FSAR SECTION 9.5.1, "FIRE PROTECTION SYSTEM"

The following is an example of the information that would be expected to be submitted in a COL applicant's FSAR, Section 9.5.1, "Fire Protection System". The example was developed to provide a basis for discussion with the NRC on program information to be included in a COL application in response to the July 1, 2003, proposal. The hypothetical COL application references the Westinghouse AP1000 Design Control Document (DCD), Revision 0, which is essentially the same as the AP600 DCD approved by the NRC. The following information supplements the generic DCD with plant specific information for the Fire Protection System and Fire Protection Program. Program information is based, in part, on the Callaway FSAR Site Addendum, Section 9.5.1, and is augmented to address the COL information items in the AP1000 DCD Section 9.5.1.8.

In general, the COL applicant would be responsible for confirming the applicability of the approved standard design information, including references; addressing new requirements and guidance (such as Regulatory Guide 1.189, as appropriate); and identifying any deviations from the approved standard design. For this example, it was assumed that there are no deviations from the approved design and that there is no operating unit at the site. Also for this example, references are made to FSAR Appendix 9A, Chapter 17, and Table 9.5-2, "Compliance with Regulatory Guide 1.189." That information has not been generated for this example but would be included in an actual application. Some COL Information Items are identified that would best be addressed in site specific supplements to tables that are part of the generic DCD. Site specific information was not developed for this example. [FP-4, 5] With those exceptions, the following example represents the information that would be provided for Section 9.5.1 of an FSAR.

At the point where the description provided addresses one or more COL information items from the generic DCD, including "WA" items from AP1000 Table 9.5.1-1, the specific items addressed are identified in brackets.

9.5.1 Fire Protection System

9.5.1.1 Design Basis

9.5.1.1.1 Safety Design Basis

The information in the AP1000 DCD for this section is applicable to and complete for Plant AP1000-1. There are no deviations from the information in that section and no further information is required.

9.5.1.1.2 Power Generation Design Basis

The information in the AP1000 DCD for this section is applicable to and complete for Plant AP1000-1. There are no deviations from the information in that section and no further information is required.

9.5.1.1.3 Non-Safety Related Containment Spray Function

The information in the AP1000 DCD for this section is applicable to and complete for Plant AP1000-1. There are no deviations from the information in that section and no further information is required.

9.5.1.2 System Description

9.5.1.2.1 General Description

The information in the AP1000 DCD for this section is applicable to and complete for Plant AP1000-1. There are no deviations from the information in that section and no further information is required.

9.5.1.2.1.1 Plant Fire Prevention and Control Features

Architectural and Structural Features

The information included in the AP1000 DCD for this section is confirmed to be applicable to Plant AP1000-1. Additionally, fire exit routes from all areas of the plant will be clearly marked prior to implementation of the Fire Protection Program as discussed in Section 9.5.1.9. [WA-56]

Plant Arrangement

The information in the AP1000 DCD for this section is applicable to and complete for Plant AP1000-1. There are no deviations from the information in that section and no further information is required.

Electrical Cable Design, Routing and Separation

The information in the AP1000 DCD for this section is applicable to and complete for Plant AP1000-1. There are no deviations from the information in that section and no further information is required.

Control of Combustible Materials

The information included in this section of the AP1000 DCD is confirmed to be applicable to Plant AP1000-1. Subsection 9.5.1.9.4 of this section describes the

programmatic controls for combustible materials that will be established and implemented for the fire protection program.

Control of Radioactive Materials

The information included in this section of the AP1000 DCD is confirmed to be applicable to Plant AP1000-1. Subsection 9.5.1.9.5 of this section summarizes the programmatic controls for radioactive materials in fire related emergencies that will be established and implemented for the fire protection program.

9.5.1.2.1.2 Fire Detection

The information in the AP1000 DCD for this section is applicable to and complete for Plant AP1000-1. There are no deviations from the information in that section and no further information is required.

9.5.1.2.1.3 Fire Water Supply System

The information in the AP1000 DCD for this section is applicable to and complete for Plant AP1000-1. There are no deviations from the information in that section and no further information is required.

9.5.1.2.1.4 Automatic Fire Suppression Systems

The information in the AP1000 DCD for this section is applicable to and complete for Plant AP1000-1. There are no deviations from the information in that section and no further information is required.

9.5.1.2.1.5 Manual Fire Suppression Systems

The information in the AP1000 DCD for this section is applicable to and complete for Plant AP1000-1. There are no deviations from the information in that section and no further information is required.

9.5.1.2.2 System Operation

The information in the AP1000 DCD for this section is applicable to and complete for Plant AP1000-1. There are no deviations from the information in that section and no further information is required.

9.5.1.2.3 Component Description

The information in the AP1000 DCD for this section is applicable to and complete for Plant AP1000-1. There are no deviations from the information in that section and no further information is required.

9.5.1.3 Safety Analysis (Fire Protection Analysis)

The information included in this section of the AP1000 DCD is applicable to Plant AP1000-1. FSAR Appendix 9A supplements the Generic DCD with the fire protection analysis of site-specific fire areas. [FP-2]

9.5.1.4 Testing and Inspection

The information included in this section of the AP1000 DCD is applicable to Plant AP1000-1. Subsection 9.5.1.9.6 provides information on testing and inspection programs for plant operation that will be established and implemented for the fire protection program.

9.5.1.5 Instrumentation Applications

The information in the AP1000 DCD for this section is applicable to and complete for Plant AP1000-1. There are no deviations from the information in that section and no further information is required.

9.5.1.6 Personnel Qualification and Training

The information in the AP1000 DCD for this section is applicable to Plant AP1000-1. Subsection 9.5.1.9.7 summarizes qualification and training programs that will be established and implemented for the fire protection program.

9.5.1.7 Quality Assurance

The information in this section of the AP1000 DCD is applicable to Plant AP1000-1. Chapter 17 of the FSAR describes the QA program and its application to fire protection. [WA-35]

9.5.1.8 Combined License Information

Section 9.5.1.8 of the AP1000 DCD identifies information to be addressed in a COL application referencing the AP1000 generic DCD. The generic DCD also includes Table 9.5.1-1 that provides a point-by-point comparison of the design to the provisions of BTP CMEB 9.5-1. Items in that table identified as "WA" (will address) are left to the COL applicant to address.

Table 9.5-1 (attached) identifies where the COL information item is addressed for each of the "WA" items in the AP 1000 generic Table 9.5.1-1. The text of this section is annotated with a parenthetical identification of the WA item at the point where it is addressed.

9.5.1.9 COL Fire Protection Program Implementation

This section discusses the elements of the Fire Protection Program that are the responsibility of the COL applicant and outside the scope of the AP1000 DCD. Many of these elements are typically finalized during the plant construction period. Since this application is for a COL authorizing both construction and operation, a full description of the operations phase program procedures is included in the application. The description reflects a typical organization of fire protection procedures; actual plant procedures may be organized differently.

In accordance with BTP CMEB 9.5-1, C.1.e (1) [WA 26], the fire protection program described in this section will be fully operational for buildings storing new fuel and adjacent fire areas that could affect the fuel storage area prior to receipt of new fuel. In accordance with BTP CMEB 9.5-1, C.1.e (2) [WA 27], the fire protection program described in this section will be fully operational prior to initial fuel loading.

9.5.1.9.1 Fire Protection Program

The Plant AP1000-1 Fire Protection Program will be established to ensure that a fire will not prevent safe shutdown of the plant and will not endanger the health and safety of the public. Fire protection at the plant will use a defense-in-depth concept that includes fire detection, extinguishing systems and equipment, administrative controls and procedures, and trained personnel. [WA 2]

9.5.1.9.1.1 Fire Protection Program Criteria

The Plant AP1000-1 Fire Protection Program is based on the criteria of several industry and regulatory documents. The level of compliance with Regulatory Guide 1.189 is described in Table 9.5-2 (future). NFPA Standards No. 4, No. 4A, No. 6, No. 7, No. 8. and No. 27 was used as guidance in development of the Fire Protection Program. [WA-10] Any updates to the list of exceptions to the NFPA Standards will be processed by a change to this document and shown in a revision to Table 9.5.1-3 (future). [FP-4] Table 9.5-1 provides a cross-reference to information addressing compliance with BTP CMEB 9.5-1. Note that attached Table 9.5-1 does not include items addressed by or not applicable to the AP1000 standard design.

9.5.1.9.1.2 Responsibilities

A senior manager reporting to the Chief Nuclear Officer will be responsible for the Plant AP1000-1 Fire Protection Program. Assigning the responsibilities at that level will provide the authority to delegate responsibility and to obtain the resources and assistance necessary to meet Fire Protection Program objectives. [WA-1, 3] The relationship of this manager and other personnel with fire

protection responsibilities will be shown on organization charts in the appropriate procedures. [WA-5]

The assigned senior manager will be responsible for the following:

1) Ensuring that programs and periodic inspections are implemented to:

   a) Minimize the amount of combustibles in safety-related areas
   b) Determine the effectiveness of housekeeping practices
   c) Assure the availability and acceptability of the following:

      i) Fire Protection System and components
      ii) Manual fire fighting equipment
      iii) Emergency breathing apparatus
      iv) Emergency lighting
      v) Communication equipment
      vi) Fire barriers including fire rated walls, floors and ceilings, fire rated doors, dampers, etc., fire stops and wraps, and fire retardant coatings.

   d) Assure prompt and effective corrective actions are taken to correct conditions adverse to fire protection and preclude their recurrence.

2) Ensuring that periodic maintenance and testing of fire protection systems, components, and manual fire fighting equipment is conducted, test results are evaluated, and the acceptability of systems under test is determined in accordance with established plant procedures. [WA-29]

3) Designing and selecting equipment related to Fire Protection.

4) Reviewing and evaluating proposed work activities to identify potential transient fire loads.

5) Managing the Plant Fire Brigade, including:

a) Developing, implementing and administering the Fire Brigade Training Program.
b) Scheduling and conducting fire brigade drills.
c) Critiquing fire drills to determine how well training objectives are met.
d) Performing a periodic review of the fire brigade roster and initiating changes as needed.
e) Maintaining the fire training program records for members of the fire brigade and other personnel.
f) Ensuring that sufficient fire brigade personnel are identified at the beginning of each shift.

6) Developing and conducting the Fire Extinguisher Training Program

7) Implementing a program for indoctrination of personnel gaining unescorted access to the protected area in appropriate procedures which implement the fire protection program.

8) Implementing a program for instruction of personnel on the proper handling of accidental events such as leaks or spills of flammable materials.

9) Preparing procedures to meet possible fire situations in the plant and for assuring assistance is available for fighting fires in radiological areas.

10) Implementing a program that controls and documents inoperability of fire protection systems and equipment. This program should also initiate proper notifications and compensatory actions when inoperability of any fire protection system or component is identified.

11) Developing and implementing preventive maintenance, corrective maintenance, and surveillance test fire protection procedures.

12) Ensuring plant modifications, new procedures and revisions to procedures associated with fire protection equipment and systems that have significant impact on the Fire Protection Program are reviewed by an individual who possesses the qualifications of a fire protection engineer. [FP-1, WA-4, 6]

9.5.1.9.2 Fire Brigade

9.5.1.9.2.1 General

Plant AP1000-1 is designed and the Fire Brigade organized to be self sufficient with respect to fire fighting activities. The Fire Brigade is organized to deal with fires and related emergencies that could occur. It consists of a Fire Brigade Leader and a sufficient number of team members to be consistent with the equipment that must be put in service during a fire emergency.

A sufficient number of members of each shift crew receive fire brigade training and physical examinations and are therefore qualified to be fire brigade members. The assigned Fire Brigade members for any shift shall not include the Shift Supervisor and any other members of the minimum shift operating crew necessary for safe shutdown of the unit and any other personnel required for other essential functions during a fire emergency. Fire Brigade members for a shift will be designated in accordance with established procedures at the beginning of the shift. [WA-31]

The Fire Brigade Leader and at least two brigade members per shift shall have sufficient training in, or knowledge of, plant safety-related systems to understand the effect of fire and fire suppressants on safe shutdown capacity.

The minimum equipment provided for the AP1000-1 Plant Fire Brigade consists of personal protective equipment such as turnout coats, boots, gloves, helmets, emergency communications equipment, portable lights, portable ventilation equipment and portable extinguishers. Self-contained breathing apparatus (SCBA) approved by NIOSH are provided for selected fire brigade, emergency repair and control room personnel. [WA-32, 33, 111, 180] Additional SCBAs will be provided near the personnel containment entrance for the exclusive use of the Fire Brigade. [WA-174] The Fire Brigade Leader will have ready access to keys for any locked fire doors. [WA-52]

The on-duty Shift Supervisor has responsibility for taking certain actions based on an assessment of the magnitude of the fire emergency. These actions include safely shutting down the plant, making recommendations for implementing the Emergency Plan, notification of emergency personnel and requesting assistance from off-duty personnel. Emergency Plan consideration of fire emergencies will include the guidance of Regulatory Guide 1.101. [WA-30]

To qualify as a member of the Fire Brigade, an individual must meet the following criteria:

1) Be available to answer fire alarms,
2) Has attended the required training sessions for the position he occupies on the Fire Brigade,
3) Has passed an annual physical exam. [WA-7, 34]

9.5.1.9.2.2 Fire Brigade Training

A training program will be established to assure that the capability to fight fires is developed and documented. The program will consist of classroom instruction supplemented with periodic classroom retraining, practice in fire fighting, and fire drills. Classroom instruction and training will be conducted by qualified individuals knowledgeable in fighting the types of fires that could occur within the plant and its environs and using on-site fire fighting equipment. [WA-9]

9.5.1.9.2.2.1 Classroom Instruction

Fire Brigade members receive classroom instruction in fire protection and fire fighting techniques; prior to qualifying as members of the fire brigade. This instruction will include:

1) Identification of flammable materials and substances along with their location within the plant and its environs.

2) Identification of the types of fires that could occur within the plant and its environs.
3) Identification of the location of onsite fire fighting equipment and familiarization with the layout of the plant including ingress and egress routes to each area.
4) The proper use of onsite fire fighting equipment and the correct method of fighting various types of fires.
5) Review of each individual's responsibilities under the Fire Protection Program.
6) Proper use of communication, lighting, ventilation, and emergency breathing equipment.
7) Fire Brigade Leader direction and coordination of fire fighting activities.
8) Toxic and radiological characteristics of expected combustion products.
9) Proper methods of fighting fires inside buildings and confined spaces.
10) Review of fire fighting procedures and procedure changes.
11) Review of fire protection-related plant modifications and changes in fire fighting plans.

9.5.1.9.2.2.2 Retraining

Classroom refresher training will be scheduled on an appropriate frequency to assure retention of initial training.

9.5.1.9.2.2.3 Practice

Practice sessions will be held for fire brigade members on the proper method of fighting various types of fires. These sessions will be scheduled on an appropriate frequency and will provide brigade members with experience in actual fire extinguishment and the use of emergency breathing apparatus.

9.5.1.9.2.2.4 Drills

Fire brigade drills will be conducted on an appropriate frequency. Drills will be either announced or unannounced. Training objectives will be established prior to each drill and reviewed by plant management. Drills will be critiqued on the following points:

1) Assessment of fire alarm effectiveness.
2) Assessment of time required to notify and assemble the fire brigade.
3) Assessment of the selection, placement and use of equipment.
4) Assessment of the Fire Brigade Leader's effectiveness in directing the fire fighting effort.
5) Assessment of each Fire Brigade member's knowledge of fire fighting strategy, procedures, and use of equipment.
6) Assessment of the Fire Brigade's performance as a team.

Performance deficiencies identified, based on these assessments, will be used as the basis for additional training and repeat drills.

9.5.1.9.3 Administrative Controls

Administrative controls for the Fire Protection Program are implemented through plant administrative procedures. These procedures will be available for review and inspection prior to implementation of the program. Industry publications NFPA 4, 4A, 6, 7, 8 and 27 will be used as guidance in developing those procedures. [WA-10]

9.5.1.9.4 Control of Combustible Materials, Hazardous Materials and Ignition Sources

The control of combustible materials at Plant AP1000-1 will be defined by administrative procedures. Those procedures will impose the following controls:

1) Prohibit the storage of combustible materials (including unused ion exchange resins) in safety-related areas or establish designated storage areas with appropriate fire protection. [WA-230]
2) Govern the handling of and limit transient fire loads such as flammable liquids, wood and plastic materials in buildings containing safety-related systems or equipment.
3) Assign responsibility to the appropriate supervisor for reviewing work activities to identify transient fire loads.
4) Govern the use of ignition sources by use of a flame permit system to control welding, flame cutting, brazing and soldering operations. A separate permit will be issued for each area where such work is done.
5) Minimize waste, debris, scrap, and oil spills resulting from a work activity in the safety-related area while work is in progress and remove the same upon completion of the activity or at the end of each work shift.
6) Govern periodic inspections for accumulation of combustibles and to ensure continued compliance with these administrative controls.
7) Govern the use and storage of acetylene-oxygen and other compressed gasses in safety-related areas. [WA-80, 228, 229]
8) Govern the use and storage of hazardous chemicals. [WA-231]

9.5.1.9.5 Control of Radioactive Materials

As discussed in the AP1000 DCD, the plant is designed with provisions for sampling of liquids that may contain radioactivity and may be drained to the environment. Plant operating procedures will require such liquids to be collected and sampled prior to discharge. Liquid discharges will be required to be below activity limits prior to discharge. [WA-71]

9.5.1.9.6 Testing and Inspection

Testing and inspection requirements will be imposed through administrative procedures. Maintenance or modifications to the Fire Protection System will be subject to inspection to assure conformation to design requirements. Installation of portions of the system where performance cannot be verified through preoperational tests, such as penetration seals, fire retardant coatings, cable routing, and fire barriers will be inspected. Inspections will be performed by individuals knowledgeable of fire protection design and installation requirements. Inspection and testing procedures will address the identification of items to be tested or inspected, responsible organizations for the activity, acceptance criteria, documentation requirements and signoff requirements.

Fire Protection materials subject to degradation (such as fire stops, seals and fire retardant coatings will be visually inspected periodically to assure they are not degraded or damaged. Fire hoses will be hydrostatically tested in accordance with NFPA-1962. Hoses stored in outside hose stations will be tested annually and interior standpipe hoses will be tested every 3 years. [WA-157]

The Fire Protection System will be periodically tested in accordance with plant procedures. Testing will include periodic operational tests and visual verification of damper and valve positions. [WA-149] Fire doors and their closing and latching mechanisms will also be included in these procedures. [WA-50]

9.5.1.9.7 Personnel Qualification and Testing

A Fire Protection Engineer will be responsible for formulation and implementation of the Fire Protection Program. This individual will have completed not less than six years of engineering experience, three of which shall have been in a responsible position in charge of fire protection engineering work. [WA-6] This individual will report to the senior manager described in Section 9.5.1.9.1.2. Qualification and training for Fire Brigade members is discussed in Section 9.5.1.9.2.

Qualification and training of other plant personnel involved in the Fire Protection program will be governed by plant qualification procedures. These classifications include Training personnel, Maintenance personnel assigned to work on the Fire Protection system, and Operations personnel assigned to operate and perform testing. [WA-8]

9.5.1.9.8 Fire Doors

Fire doors separating safety-related areas will be provided with closing mechanisms and will be inspected semiannually to verify that the closing

mechanisms are operable. Watertight and missile resistant doors are not provided with closing mechanisms.

Fire doors separating safety related areas will normally be closed and latched. Fire doors that are locked closed will be inspected weekly to verify position. Fire doors that are closed and latched will be inspected daily to assure that they are in the closed position. [WA51]

TABLE 9.5-1
COL INFORMATION ITEMS

AP1000 "COL Items" (Section 9.5.1.8, including "WA" Items in Table 9.5.1-1)	BTP CMEB 9.5-1 Section	Text Reference
Section 9.5.1.8 Items FP-1) COL applicant to address qualification requirements for individuals responsible for development of FP Program, training, admin procedures, etc.	NA	9.5.1.9.1 (12)
FP-2) COL applicant to provide site-specific fire protection analysis information for the yard area, admin. Building, etc.	NA	FSAR Appendix 9.5A (later)
FP-3) COL Applicant to address BTP CMEB 9.5-1 issues from Table 9.5.1-1	See Table 9.5-1 ("WA") items below	
FP-4) COL applicant to address update of list of NFPA exceptions after DC	NA	9.5.1.9.1.1
FP-5) COL Applicant to provide analysis to demonstrate that operator actions for minimizing probability of spurious ADS actuation can be accomplished within 30 minutes of fire detection	NA	FSAR Appendix 9.5A (later)
Table 9.5.1-1 Items (WA) 1) Direction of FP Program; availability of personnel.	C.1.a(1)	9.5.1.9.1.2
2) Defense-in-depth concept; objective of fire protection program.	C.1.a(2)	9.5.1.9.1
3) Management responsibility for overall fire protection program; delegation of responsibility to staff.	C.1.a(3)	9.5.1.9.1.2
4) The Staff should be responsible for: a) Fire protection program requirements. b) Post-fire shutdown capability. c) Design, maintenance, surveillance, and quality assurance of fire protection features. d) Fire prevention activities. e) Fire brigade organization and training f) Prefire planning	C.1.a(3)	9.5.1.9.1.2(12)

AP1000 "COL Items" (Section 9.5.1.8, including "WA" Items in Table 9.5.1-1)	BTP CMEB 9.5-1 Section	Text Reference
5) The organizational responsibilities and lines of communication pertaining to fire protection should be defined through the use of organizational charts and functional descriptions.	C.1.a(4)	9.5.1.9.1.2
6) Personnel qualification requirements for fire protection engineer, reporting to the position responsible for formulation and implementation of the fire protection program.	C.1.a(5)(a)	9.5.1.9.7
7) The fire brigade members' qualifications should include a physical examination for performing strenuous activity, and the training described in position C.3.d. (WA 34)	C.1.a(5)(b)	9.5.1.9.2.1
8) The personnel responsible for the maintenance and testing of fire protection systems should be qualified by training and experience for such work.	C.1.a(5)(c)	9.5.1.9.7
9) The personnel responsible for the training of the Fire Brigade should be qualified by training and experience for such work.	C.1.a(5)(d)	9.5.1.9.2.2
10) The following NFPA publications should be used for guidance to develop the FP program: No. 4, No. 4A, No. 6, No. 7, No. 8 and No. 27.	C.1.a(6)	9.5.1.9.1.1 9.5.1.9.3
11) On sites where there is an operating reactor and construction or modification of other units is underway, the superintendent of the operating plant should have the lead responsibility for sit fire protection.	C.1.a(7)	N/A
14) Fires involving facilities shared between units should be considered.	C.1.b	N/A
15) Fires due to man-made, site-related events that have a reasonable probability of occurring and affecting more than one reactor unit should be considered.	C.1.b	FSAR Appendix 9.5A (later)

AP1000 "COL Items" (Section 9.5.1.8, including "WA" Items in Table 9.5.1-1)	BTP CMEB 9.5-1 Section	Text Reference
22) Fire protection systems should retain their original design for potential man-made, site-related events that have a reasonable probability of occurring at a specific plant site.	C.1.c(4)	FSAR Appendix 9.5A (later)
26) The fire protection program for buildings storing new reactor fuel and for adjacent fire areas that could affect the fuel storage area should be fully operational before fuel is received at the site.	C.1.e(1)	9.5.1.9
27) The fire protection program for an entire reactor unit should be fully operational prior to initial fuel loading in that unit.	C.1.e(2)	9.5.1.9
28) Special considerations for the fire protection program on reactor sites where there is an operating reactor and construction or modification of other units is underway.	C.1.e(3)	N/A
29) Establishing administrative controls to maintain the performance of the fire protection system and personnel.	C.2	9.5.1.9.3 9.5.1.9.2(2)
30) The guidance of RG 1.101 should be followed as applicable.	C.3.a	9.5.1.9.2.1
31) Establishing site brigade: minimum number of Fire Brigade member on each shift, qualifications of fire brigade members, competence of brigade leader.	C.3.b	9.5.1.9.2.1
32) The minimum equipment provided for the brigade should consist of turnout coats, boots, gloves, hard hats, emergency communications equipment, portable ventilation equipment, and portable extinguishers.	C.3.c	9.5.1.9.2.1
33) Recommendations for breathing apparatus for Fire Brigade, damage control, and Control Room personnel.	C.3.c	9.5.1.9.2.1
34) Recommendations for Fire Brigade training program.	C.3.d	9.5.1.9.2.1

AP1000 "COL Items" (Section 9.5.1.8, including "WA" Items in Table 9.5.1-1)	BTP CMEB 9.5-1 Section	Text Reference
35) Establishing quality assurance (QA) programs by applicants and contractors for the fire protection systems for safety-related areas; identification of specific criteria for quality assurance programs.	C.4	9.5.1.7 and FSAR Chapter 17
50) Fire doors should be inspected semi-annually to verify that automatic hold-open, release, and closing mechanisms and latches are operable.	C.5.a(5)	9.5.1.9.6
51) Alternative means for verifying that fire doors protect the door opening as required in case of fire.	C.5.a(5)	9.5.1.9.8
52) The fire brigade leader should have ready access to keys for any locked fire doors	C.5.a(5)	9.5.1.9.2.1
56) Fire exit routes should be clearly marked.	C.5.a(7)	9.5.1.2.1.1
71) Water drainage from areas that may contain radioactivity should be collected, sampled and analyzed before discharge to the environment.	C.5.a(14)	9.5.1.9.5
80) Use of compressed gases in buildings should be controlled.	C.5.d(2)	9.5.1.9.4(7)
111) A portable radio communications system should be provided for use by the fire brigade and other operations personnel required to achieve safe plant shutdown.	C.5.g(4)	9.5.1.9.2
149) All valves in the fire protection system should be periodically checked to verify position	C.6.c(2)	9.5.1.9.6
157) Fire hoses should be hydrostatically tested in accordance with NFPA 1962. Hoses stored in outside hose houses should be tested annually. The interior standpipe hose should be tested every 3 years.	C.6.c(6)	9.5.1.9.6

AP1000 "COL Items" (Section 9.5.1.8, including "WA" Items in Table 9.5.1-1)	BTP CMEB 9.5-1 Section	Text Reference
174) Self contained breathing apparatus should be provided near the containment entrances for firefighting and damage control personnel. These units should be independent of any breathing apparatus provided for general plant activities.	C.7.a(2)	9.5.1.9.2.1
180) Breathing apparatus for main control room operators should be readily available	C.7.b	9.5.1.9.2.1
225) Cooling towers should be of non-combustible construction or so located and protected that a fire will not affect any safety related systems or equipment.	C.7.q	Appendix 9.5A (later)
228) Gas (acetylene-oxygen) cylinder storage locations should not be in areas that contain or expose safety-related systems or the fire protection systems that protect those systems.	C.8.a	9.5.1.9.4(7)
229) A permit system for use of acetylene-oxygen gases in safety related areas should be required.	C.8.a	9.5.1.9.4(7)
230) Unused ion exchange resins should not be stored in areas that contain or expose safety-related equipment.	C.8.b	9.5.1.9.4(1)
231) Hazardous chemicals should not be stored in areas that contain or expose safety-related equipment.	C.8.c	9.5.1.9.4(8)