Region III Fire Protection Workshop Summary
NRC Region III Offices, Lisle, IL
January 2 and 3, 2001

Executive Summary

On January 2-3, 2001, 18 members of the regional staff attended a workshop organized and facilitated by Plant Systems Branch (SPLB) staff at the Region III office to discuss the current NRC fire protection inspection program. The workshop was brought together at the request of Region III to work on problem areas identified in the inspection program. Topics discussed included: licensing basis, the inspection procedure, the significance determination process, fire induced circuit failures, fire modeling and manual actions. The meeting included a video conference with SPLB and Inspection Branch (DRIP) management to discuss the future of the fire protection inspection program.

Action Items

1) Establish enforcement basis for findings against 10CFR50 Appendix A, GDC 3. (SPLB)
2) Use consistent threshold for TIA resolution, which is acceptable to regions. Also, a list of 'generic issues' should be maintained. (SPLB)
3) Develop a risk rating tool for evaluating risk implications of manual actions. (SPSB)
4) Develop screening tools to estimate fire growth and damage. (SPLB)
5) Provide flexibility in the inspection procedure cable/raceway separation review. (DRIP)
6) Provide consistent interpretation to all regions in the area of associated circuits inspection abeyance. (SPLB)
7) Review feasibility of contractor support to assist with fire protection inspections. (SPLB)
8) Provide guidance with respect to the requirement to perform the entire inspection procedure. (DRIP)
9) Arrange periodic fire protection workshops with the regional fire protection staff for training and to discuss emerging issues. (SPLB with assistance of the Regions)

Meeting Summary

1. Interpretation of "adverse effect" to the safe shutdown capability in the context of licensees that choose to modify the existing fire protection program.

Most licensees have a license condition in which they may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire. Triennial fire protection inspections are identifying instances in which licensees are modifying NRC approved fire protection features without prior Commission approval. In most cases, licensees have substituted manual operator actions for classical fire protection features that can no longer be considered functional. In a number of instances, licensees evaluated the changes using the 50.59 process. Using this process to review such changes does not require a rigorous comparison of the original shutdown methodology to the new methodology to ensure the new method does not add appreciable risk to the plant. For example, some licensees are removing all

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Thermo-lag fire barrier material, compensating with numerous operator actions as equivalent to the original fire barriers, and saying the changes do not "adversely affect" safe shutdown because additional operator actions do not prevent safe shutdown. The NRC has not yet developed sufficient PRA risk evaluation tools to evaluate potential increases in risk that may result from added manual operator actions. The inspectors need better guidance and/or NRR position as to how to evaluate "adverse effects" when licensees are replacing classical fire protection features with manual operator actions.

We request that NRR provide an interpretation of the term "adverse affect" to aide regional inspectors in evaluating the acceptability of licensee's replacement of fire protection features with operator actions.

2. **During the workshop, we were reminded of the need to inspect GDC-3 related fire protection features (relating to defense-in-depth principles) and the adequacy of fire protection features provided for structures, systems and components (SSCs) important to safety. It was pointed out to the regional inspectors that the triennial fire protection inspection should evaluate all aspects of the licensee's "defense in depth" approach to fire protection and should not concentrate solely on an evaluation of licensee safe shutdown capabilities. However, in discussing this issue it became clear that there is insufficient guidance available to regional inspectors regarding the basis of enforcement of findings against GDC-3.**

As a part of some licensee's fire protection plans, licensees had received an Appendix A (of BTP 9.5-1) review which evaluated measures taken by the licensee to incorporate GDC 3 design principles and requirements. During that review, licensees committed to install fire protection features for SSCs "important to safety." Fire protection triennial Inspections have revealed that some licensees are reducing fire protection features which were agreed upon during the Appendix A review. The reason for these reductions in the fire protection programs was that the fire areas under consideration have safe shutdown methods which meet Appendix R requirements. Licensee have concluded that since reducing the Appendix A type requirements have no "adverse effect" on safe shutdown capability, there is no need to maintain the Appendix A requirements. NRR staff participating in the workshop indicated that licensees can not remove design measures intended to satisfy GDC 3 by stating that they meet Appendix R and therefore do not have to meet Appendix A fire protection requirements. NRR staff stated that this prohibition is included in 50.48. However, inspectors were not clear as to the enforceable technical requirement that would support identification of a reduction in an approved fire protection program as a violation of GDC 3 or Appendix A of BTP 9.5-1.

For both of the issues discussed above, inspectors need guidance on how to evaluate licensee's changes to their approved fire protection program. The fire protection program is a part of the SAR; therefore, the 50.59 /safety evaluation appears to be the appropriate change mechanism. However, the seven questions typically asked in a 50.59/safety evaluation do not adequately address fire protection issues. When licensees are challenging the regional inspectors' interpretation of the above regulations, inspectors need an agreed upon NRC position to ensure that all regions are consistently interpreting enforceable aspects of the inspection program.

We request that NRR provide guidance on how to evaluate a licensee's changes to the fire protection program that had been accepted by the NRC as meeting GDC3 and related Appendix A of BTP 9.5-1. Please include an interpretation of the term "important to safety" as related to fire protection requirements. Also, please include examples of appropriate and inappropriate application of 50.59 safety evaluations to fire protection program changes.

3. **Headquarters does not accept TIAs on green (*low*-risk significant) SDP findings. These findings continue to come up; what should regions do?**

There were perceptions that headquarters does not accept TIAs on green (non-risk significant) SDP findings. The risk significance of the issues may be low; however, some instances involved compliance issues in which the licensee strongly disagreed with the inspectors. NFPA code compliance has been handled by establishing NRR as Authority Having Jurisdiction. In the example of Hemyc fire wrap, a TIA was rejected by NRR because headquarters decided to resolve the issue another way. However, four months have passed an no resolution has been provided. At the regions, inspectors are faced with numerous unresolved items which will require technical assistance from headquarters to ensure consistent interpretation of NRC regulations and to bring closure to the issues. The regions track these items and regularly review their status. During the video conference with Headquarters, NRR responded that TIAs would not be considered inappropriate for all low risk issues but the resolution effort should be at the lowest level possible where consistent treatment of technical issues could be ensured.

We request that NRR recommend a method for resolving low-risk issues identified during triennial fire protection inspections. The NRR method for resolving these issues should preferably include tracking numbers, assigned accountability, actions to be taken, and due dates. A Web site or other method for regions to readily track status would be helpful.

4. **Development of screening tools by NRR to estimate fire growth and fire damage.**

The development of credible fire scenarios is an area that has been highly challenging to regional inspectors implementing the triennial fire protection procedure. Regional inspectors do not have sufficient expertise or tools to develop credible fire scenarios. Workshop participants appreciated Mark Salley's efforts in the development of templates for estimating the extent and significance of fire damage. Continued development of this tool by Mark will result in the generation of a template which will be more quantitative and less qualitative. The new SDP will include improved credible fire scenario development guidance. Mark indicated that a partially developed product should be available in the near future.

We request that NRR develop the new fire scenario tools and provide guidance and training to the regions.

5. **Proposed changes to the inspection procedures.**

Element 3 of the current triennial inspection procedure (IP) instructs the inspectors to verify that safety-related and non safety-related cables for selected post fire safe shutdown equipment in selected fire areas have been identified and analyzed. Asking for cable/raceway information pertaining to the protected train components for that area is a more complete and encompassing approach. This could result in inspectors questioning the adequacy of cable protection for cables that run outside of the selected fire zones. Unfortunately, such an approach is specifically excluded from this inspection procedure, because by its nature, the components for the protected train should fall outside of the fire areas being inspected.

We request that NRR provide feedback on the appropriateness of inspecting electrical circuits that run outside of the selected fire areas.

6. Definitions of associated circuits

The term 'associated circuit' is still not clearly understood. The NRC is currently suspending inspection and enforcement on spurious actuations of associated circuits. However, different regions have different interpretations as to what is or is not an associated circuit and what is a protected circuit. During discussions of this issue during the workshop, it was apparent that different interpretations exist internally within NRR, as well. Workshop participants consider it essential that the regions have a clear criteria for what is and is not inspectable in the area of associated circuits and protected circuits. For example, RIII thought that a protected HPI pump's normally open discharge MOV would be a protected circuit, but RII had considered it an associated circuit. Also, RIII thought that the HPI pump minimum flow valve would be an associated circuit but RII had considered it a protected circuit.

We request that NRR provide an interpretation of the term "associated circuit" and include examples of circuits that are required to be protected from fire damage and those that must be considered as associated circuits.

7. Future contractor support for fire protection inspections

Due to the complexity of fire protection inspections, contractors were accompanying the inspectors during the first two fire protection inspections in each region. This was to help train regional inspectors who were not familiar with safe shutdown portions of the procedure. After the two inspections were completed in each region, the contractor support ended. However, the regional inspectors are by no means experts in safe shutdown analysis after two inspections. Some regions would like to have more contractor or headquarters support on future inspections to ensure that we are properly trained.

Some regions have routinely utilized contractors to support the engineering design inspections because not all regional inspectors possess design engineering background. This philosophy should apply to fire protection until inspectors are adequately trained.

8. Program office type questions

It was unclear whether inspectors are required to perform the entire inspection procedure or only a portion of the procedure. Some regions are walking down the safe shutdown procedures and some are reviewing only a portion of the safe shutdown procedures. We need clear expectation from the program office. The current inspections are driven by the preset number of hours and not by the inspection procedures. There is a perceived pressure to stay within the maximum allowed hours of 240 and no more. The structure of the current inspection should not pre-determine or dictate how many hours we actually need to complete the procedure. The inspection procedure does not state the expected number of hours for documentation and preparation and the licensees are challenging the unlimited hours of preparation and documentation.

We request that NRR provide additional guidance on the appropriate performance and costs of the triennial fire protection inspections; including walking down procedures; total hours of direct inspection effort and preparation / documentation; and other costs that are billable to the licensees.

9. Periodic meeting and/or training for fire protection

The regions see the need to get together periodically to discuss emerging issues such as licensees' implementation of NFPA 805, NEI's fire test of cables, issues from the inspection program, etc.

10. Fire brigade performance evaluation

The requirement to witness a fire drill and inspect the fire brigade was removed from the triennial fire protection inspection module. As such, the fire brigade response is being considered fully adequate in the SDP by default during the triennial fire protection inspection. This mis-application of credit for fire brigade performance in the SDP is not being addressed. In addition, a part of the technical bases for not having area-wide suppression was the quick response from fire brigades. However, the inspectors are not required to validate that justification. The resident inspectors were required to do this portion of the inspection during their annual inspection. The inspectors identified that additional training was needed to the resident inspectors so they can adequately review the fire brigade performance.

Attendees:

Regional Attendees:

George Hausman, RIII	Gerald Wiseman, RII	Ray Mullikin, RIV	Doris Chyu, RIII
McKenzie Thomas, RII	Darrell Schrum, RIII	Zelig Falevits, RIII	Robert Schin, RII
Ronald Gardner, RIII	Ronald Langstaff, RIII	Sonia Burgess, RIII	Ram Bhatia, RI
Claude Johnson, RIV	Rebecca Nease, RIV	Leonard Cheung, RI	John Grobe, RIII
Michael Parker, RIII	Kenneth O'Brien, RIII	Robert Daley, RIII	

Headquarters Attendees:

J. S. Hyslop, SPSB	Mark Salley, SPLB	Dan Frumkin, SPLB	Phil Qualls, SPLB

Headquaters Videoconference Attendees:

Leon Whitney, SPLB	John Hannon, SPLB	Doug Coe, DIPM	Ed Connell, SPLB