NRR FIRE PROTECTION IMPROVEMENT PLAN

Background:

The Nuclear Regulatory Commission (NRC) has been attempting to apply its four outcome goals to the management of its fire protection program: Maintain safety, reduce unnecessary regulatory burden, increase public confidence, and improve efficiency and effectiveness, and has met with limited success. The difficulty stems from (1) the fact that we have prescriptive regulations that are subject to different interpretations and are not always able to be enforced in a clear and consistent way, and (2) the fact that licensees have varying degrees of specificity in their licensing basis and in some cases are substantially different, which can also lead to different interpretations of regulatory intent. In addition, attempts to employ risk-informed thinking in the area of fire protection have met with limited success because of the complexity of the technical issues and the lack of data upon which to draw conclusions.

The Office of Nuclear Reactor Regulation Fire Protection Improvement Program (NRR FPIP) continues to receive considerable feedback from a number of stakeholders. These include concerns with:

- The lack of progress in resolving circuit analysis issues (Attachment 1)
- The extended hiatus in circuit analysis inspection activity (Attachment 1)
- The lack of uniformity in our approach when manual actions are employed to meet 10 CFR Part 50, Appendix R III.G.2 (Attachment 2, Item 1)
- Our inspections which do not always take into account the current licensing basis at the facility being inspected or give credit for self assessments (Attachment 2, Item 2)
- The treatment of old design issues in the fire protection area and issue management in general (Attachment 2, Item 3)
- The application of Significance Determination Process (SDP) in the fire protection area (Attachment 2, Item 4)
- The apparent overuse of fire watches as compensatory measures (Attachment 2, Item 5)
- Concerns with the application of “Quantitative Fire Hazard Analysis Methods” in the inspection program, and testing of selected fire barrier materials (Attachment 2, Item 6)
- The NRC position on fire protection equipment included in the scope of License Renewal Application reviews (Attachment 2, Item 7)
- The lack of adequate guidance for advanced reactors in the fire protection area (Attachment 2, Item 8).

All of these concerns point to the need for a comprehensive Fire Protection Improvement Plan (FPIP) to manage staff efforts to improve the fire protection regulatory environment (Attachment 2, Item 9). The FPIP will be managed by the NRR’s Division of Systems Safety and Analysis (DSSA).

Plan Objectives:

While much progress has been made in a number of fire protection areas, including the issuance of a comprehensive Regulatory Guide, a proposed risk-informed and performance-based rule (Attachment 2, Item 10), closure of some longstanding issues such as hydrogen storage, and substantial improvements in inspector training, emerging challenges facing the fire protection program overshadow those accomplishments and reinforce the need for a clear and comprehensive improvement plan. This NRR FPIP is to start in October 2002.

The FPIP is being developed to consider and take appropriate actions in response to concerns and feedback from stakeholders regarding implementation of the fire protection program. The FPIP includes a list of fire protection improvement activities with milestones, schedules, and lead organizations identified. The first element of the FPIP has been proposed as a closure plan for the longstanding circuit analysis issue, and it is currently under management review. Some parts of the FPIP are described in Attachment 2 and others will be developed as resources permit.

The FPIP will combine the Circuit Analysis Resolution Plan, FP SDP Improvement Program with our rulemaking plans (NFPA-805), resolution to the issue of using manual action to meet 10 CFR 50, Appendix R, Section III.G.2, guidance development, and training initiatives to produce a comprehensive plan. In order to effectively manage the fire protection program consistent with other agency programs, it will also be necessary get old design issues into a satisfactory resolution process. Experience has shown that the Task Interface Agreement (TIA) process has not served us well when evaluating performance issues where the licensing basis was not clear, or when evaluating old design issues. The TIA process needs to be improved with decision logic that would enable more efficient application of limited resources for emerging fire protection issues that are identified in the ROP to determine if they represent actual performance deficiencies, preferably before they have triggered an inspection finding and a formal risk significance determination (Attachment 2, Item 3).

A pilot effort will be launched to resolve potential generic issues associated with gaseous suppression systems identified in the ROP (Attachment 2, Item 3). The pilot effort will employ new decision logic to require a prompt decision on the applicability of the current licensing basis, then move those issues which are not subject to enforcement into a backfit process, rulemaking process, or generic issue process, taking risk implications into consideration. The decision logic will provide for the issues to be prioritized so that resource application determinations can be made. The results of this pilot effort will be shared with the program office to be evaluated for acceptability as an approach for old design issues across the board, not just for fire protection issues. Other issues such as indeterminate circuit analysis aspects will be transferred to the Office of Research for consideration in the fire protection research plan.

The draft FPIP has three attachments. The first attachment covers the action plan to resolve the circuit analysis issue. The second attachment deals with other fire protection topics that have been identified by stake holders. The third attachment lists public meetings that have been held to resolve major fire protection issues. These attachments will be revised as necessary to update progress and identify new issues.

Fire Protection Improvement Plan
Proposed Circuit Analysis Resolution Plan (CARP)
Attachment 1

Develop and Obtain Management Approval of CARP	September - October 2002
Obtain Stakeholder Perspectives on CARP	January 2003
Staff and NRC Contractors Develop CARP Resolution	January - June 2003
Complete CARP Resolution and Begin Training NRC Staff and Stakeholders on Its Application	September 2003
Withdraw Circuit Analysis Enforcement Guide Memorandum (EGM)	October 2003

Fire Protection Improvement Plan
Other Topics
Attachment 2

Item 1 - Manual Actions:

Initiate Regulatory Information Summary (RIS)	November 2002
Prepare a proposed Rulemaking Plan	January 2003
Prepare an Interim Enforcement Policy Statement to support rulemaking	March 2003
Determine the appropriateness of symptom-based fire protection procedures	SPLB/TBD

Item 2 - Licensing Basis:

Engage NEI on the potential to establish common licensing basis for fire protection (Such as new NFPA 805)	February 2003
Consider a risk-informed approach to identify necessary corrective actions independent of the licensing basis	March 2003
Consider giving credit for self assessments	June 2003

Item 3 - Old Design Issues and Emerging Issues:

Collect emerging issues being developed in ROP	Continuous
Pilot new process with NRC stakeholders	October 2002 (Done)
Develop new process with decision logic to address emerging issues	January 2003
Establish periodic meeting schedule with NEI to discuss and prioritize emerging issues	November 2002
Enhance management controls on the inspector and technical staff interface	SPLB/TBD

Item 4 - Application of SDP:

Support SDP improvement program	As needed
Update fire frequency data base	October 2002 (Done)
Obtain SDP level training for selected FP engineers	November 2002
Evaluate a risk informed interpretation of fire suppression requirements	January 2003

Conduct table top exercises on draft FP SDP	May 2003
Issue revised FP SDP guidance	July 2003
Conduct training on revised FP SDP	August 2003
Develop fire brigade SDP for ROP use	December 2003

Item 5 - Use of Compensatory Measures (Predecisional)

Determine the appropriateness of fire watches being used for non-safety related issues	SPLB/TBD

Item 6 - RES - Quantitative Fire Hazards Evaluation and Fire Barriers:

Develop quantitative fire hazards analysis tools	Ongoing
Complete fire barrier test plan	December 2002

Item 7 - LRA Scoping Fire Protection Equipment:

Publish License Renewal Application (LRA) review criteria for scoping fire protection	November 2002 (In concurrence)

Item 8 - Advanced Reactors:

Advanced reactor- Revise SRP 9.5.1	December 2002

Item 9 - FPIP Development:

Complete the FPIP and obtain management concurrence	November 2002
Meet with stakeholders to discuss FPIP in workshop	November 2002

Item 10 - Risk Informed Rule:

Review and comment on NEI implementation guidance for NFPA 805 rulemaking	November 2002
Support NFPA 805 rulemaking	DSSA as needed
Issue Proposed Rule for Public comment	November 2002 (DRIP Lead)
75 day comment period on Proposed Rule ends	January 2003 (DRIP Lead)
All comments resolved with OGC assistance	April 2003 (DRIP Lead)
SPLB issues draft final package for internal NRR review and ADM review	June 2003 (SPLB Lead)
DSSA issues final rule package for inter-office concurrence	July 2003 (DSSA Lead)

ACRS and CRGR briefings	August 2003 (DRIP Lead)
NRR OD concurrence obtained	September 2003 (DRIP Lead)
SRM issued after Commission vote	TBD (DRIP Lead)
Final Rule published in Federal Register	January 2004 (DRIP Lead)

PUBLIC MEETINGS IN FIRE PROTECTION MAJOR PROGRAM AREAS 1998- 2002 ATTACHMENT 3		
SUBJECT AREA	**DATE**	**PURPOSE / COMMENTS**
Circuit Analysis	July 1, 1998	Presentation to ACRS on post-fire safe shutdown circuit analysis.
	July 23, 1998	NRC workshop for Public and Industry on post-fire safe shutdown circuit analysis (National attendance by public and industry).
	December 14, 1998	Meeting with NEI in fire-induced circuit failure assumptions for various cable configurations.
	March 25, 1999	NRC staff/NEI meeting to discuss fire-induced circuit failures.
	May 3/5, 1999	NEI Fire Protection From, Public Meeting. NRC discusses issue resolution and status. NEI discusses industry activity. RES presents their research on issue. Cleveland, Ohio.
	August 18/19, 1999	Meeting with BWROG to discuss circuit analysis issues.
	October 18/20, 1999	NEI Fire Protection From, Public Meeting. NRC discusses Resolution status. NEI presently Assessment Methodology St. Peterburg Florida.
	December 20, 1999	NRC staff/NEI meeting to discuss status of their post-fire safe shout down circuit analysis methodology development efforts.
	April 13, 2000	NRC staff/NEI meeting to discuss NEI 00-01 Rev A.
	May 25, 2000	Tele-conference with NEI to discuss preliminary staff comment on NEI 00-01-Rev A.
	July 21, 2000	Meeting with NEI to discuss Sandia Report, “Circuit Analysis, Failure Modes and Likelihood Analysis” and relates circuit analysis technical issues.
	July 26, 2000	NRC staff/BWROG/NEI on post-fire safe shutdown circuit analysis.

	October 3, 2000	NRC staff/NEI meeting on (Circuit Analysis) fire test protocols.
	February 4-7, 2001	NRC staff presentation on fire-induced circuit failure analysis, NEI Fire Protection Information Forum (General Industry attendance). Also, NEI status presentation on NEI 00-01.
	August 8, 2001	NRC staff/NEI meeting to discuss industry progress on circuit analysis resolution activities.
	October 22/25, 2001	NEI Fire Protection Information Forum, NRC presents status of Issues. Public Meeting Clearwater, FL.
	June 4, 2002	NEI and NRR staff present their view of NEI 00-01 Draft. Rev C. to ACRS Fire Protection Sub- Committee (Public Meeting TWFN).
	August 29/30, 2002	NEI Fire Protection Information Forum. NEI presents the results of pilot use of NEI 00-01. NRC staff present comments on the NEI 00-01 and NRC resolution plan.
	October 22, 2002	NEI explained the NEI 00-01 Rev-D to the staff (Public Meeting OWFN).
805 Rulemaking	January 16, 2002	Continue discussion of the NEI outline of implementing guidance for National Fire Protection Association (NFPA) standard NFPA 805. “Standard on Performance-based Fire Protection for LWR.”
	February 12, 2002	Continue discussion of the NEI outline of implementing guidance for National Fire Protection Association standard NFPA 805.Verify meeting status.
	February 26, 2002	Continue discussion of NEI outlines of implementing guidance for National Fire Protection standard NFPA 805, “Standard on performance - Base Fire Protection for Light Water Reactor Elec. Gen. Plants.”

	April 23, 2002	Continue discussions of issues raised in the NEI letter of April 9, 2002 concerning fire protection rulemaking language to adopt National Fire Protection Association (NFPA) standard NFPA 805.
	August 1, 2002	Continue the discussion of NEI outlines of implementing guidance for NFPA 805.
Manual Action	June 20, 2002	Follow-up discussion of May 16, 2002-letter on the use of manual actions to achieve a safe shutdown, to satisfy the requirement of Section lll.G.2 of Appendix R to 10CFR50.
	August 21,2002	SPLB met with ET, and received direction to proceed with rulemaking.
	August 29, 2002	SPLB presented description of "feasible manual actions" to public at NEI Fire Protection Information Forum in Seattle, WA.
	November 6, 2002	SPLB presented description of "feasible manual actions" to public at Licensing Workshop at Washington Terrace Hotel, D.C.
Fire Protection SDP	July 9, 2002	Discussion of the improvement initiative for the Fire Protection significance determination process (SDP) methodology.
	August 14, 2002	Discussion of the issues affecting the Phase 2 Fire Protection SDP methodology. Discussion of the possible approach for addressing each issue to develop improvements to the SDP methodology.
	September 4, 2002	The NRC staff and NEI discussed separate Phase 1 screening alternatives and the approaches were combined into a possible new Phase 1 screening process. Eleven issues for improving Phase 2 methodology were discussed and task leaders were assigned action plans for short and long term fixes to be presented at a workshop in November.

	September 14, 2002	An update of all overall SDP revision effort was presented at the FP Inspector Workshop in RIII. Three issues (i.e., fire scenario development, and fire barriers) were discussed with inspectors to mine resolution alternatives.