
Task HF4: Procedures (Rev. 7)

This task was developed to provide assurance that plant procedures were adequate and could be used effectively. The objective was to provide procedures that would guide operators in maintaining plants in a safe state under all operating conditions, including the ability to control upset conditions without first having to

diagnose the specific initiating event. This objective was to be met by: (1) developing guidelines for preparing, and criteria for evaluating, EOPs, normal operating procedures, and other procedures that affect plant

safety; and (2) upgrading the procedures, training the operators in their use, and implementing the upgraded procedures. This task was divided into five distinct items as discussed below.

ITEM HF4.1: INSPECTION PROCEDURE FOR UPGRADED EMERGENCY OPERATING PROCEDURES DESCRIPTION

Criteria to evaluate and inspect EOPs by the regions were prepared by NRR and OIE and published as an OIE Temporary Instruction (TI). Similar criteria and inspection modules were to be developed when the guidelines for the upgrading of other procedures were completed.

In December 1982, Supplement 1 to NUREG-0737¹ was issued as Generic Letter 82-33² with a requirement for each plant to submit a Procedures Generation Package (PGP) as a part of the effort to upgrade EOPs; the generic letter also indicated that the NRC would audit upgraded EOPs on a selective basis. In 1984, the NRC began auditing upgraded EOPs. After conducting several audits, the staff issued Information Notice

No. 86-64³ to advise the industry that there were indications that many licensees were not appropriately developing and implementing upgraded EOPs. Based on the deficiencies identified in the Information Notice, the staff concluded that some licensees might not have appropriately developed and implemented upgraded EOPs in accordance with their PGPs. The staff decided to: (1) continue with its audit program to further determine the

scope and safety significance of the deficiencies identified in the Notice;⁴ and (2) conduct inspections at all plants to evaluate the implementation of licensee commitments to develop and implement upgraded EOPs.

CONCLUSION

This issue was given a high priority ranking and pursued by the staff. In June 1986, the staff prepared TI 2515/79 which contained criteria for inspecting how well licensees were complying with their PGP commitments. In April

¹ NUREG-0737, "Clarification of TMI Action Plan Requirements," U.S. Nuclear Regulatory Commission, November 1980, (Supplement 1) January 1983.

² Letter to All Licensees of Operating Reactors, Applicants for Operating Licenses, and Holders of Construction Permits from U.S. Nuclear Regulatory Commission, "Supplement 1 to NUREG-0737, Requirements for Emergency Response Capability (Generic Letter No. 82-33)," December 17, 1982. [ML031080548]

³ Information Notice 86-64, "Deficiencies in Upgrade Programs for Plant Emergency Operating Procedures," U.S. Nuclear Regulatory Commission, August 14, 1986 [ML031250068], (Supplement 1) April 20, 1987 [ML082840492].

⁴ Information Notice 86-64, "Deficiencies in Upgrade Programs for Plant Emergency Operating Procedures," U.S. Nuclear Regulatory Commission, August 14, 1986 [ML031250068], (Supplement 1) April 20, 1987 [ML082840492].

1987, the staff issued a supplement to its first Information Notice⁵ based on evaluations from 6 additional plants. In early 1988, the staff suspended its program to evaluate licensees' compliance with programmatic requirements (i.e., PGPs) and redirected its efforts to focus more on the technical adequacy and useability of the

EOPs. Lessons learned by the staff from its inspection program for EOPs were published in NUREG-1358.⁶

TI 2515/92,⁷ "Emergency Operating Procedures Team Inspections," contains guidance for conducting these inspections. Based on the results from this inspection program of 28 plants, NRR was responsible for developing a program of inspections for the remaining plants. Thus, this issue was RESOLVED and no new requirements

were established.⁸

ITEM HF4.2: PROCEDURES GENERATION PACKAGE EFFECTIVENESS EVALUATION DESCRIPTION

To evaluate the effectiveness of the NRC's long-term program for upgrading EOPs, the staff audited the implementation of PGPs at selected plants. PGPs describe a plant's program for adapting generic technical guidelines to develop the technical content of plant-specific EOPs and applying human factors principles to produce EOPs that are useable by operators. Six audits were performed and additional audits were planned before an assessment of the program was completed.

Based on input from sources including PGP implementation audits, staff PGP reviews, and license examiners, the staff identified problems that plants were experiencing with implementing their PGPs. To alert the industry

to these problems, the staff issued Information Notice No. 86-64.⁹ Progress by the industry in addressing the problems identified in the Notice were to be monitored by inspections, additional PGP implementation audits, and through continued dialogue with the industry.

CONCLUSION

This item was related to increasing the staff's knowledge, certainty, and understanding of safety issues in order to increase its confidence in assessing levels of safety and, therefore, was classified as a Licensing Issue.

As a part of the improvements to NUREG-0933, the NRC staff clarified in SECY-11-0101, "Summary of Activities

Related to Generic Issues Program," dated July 26, 2011,¹⁰ that the Generic Issues Program will not

⁵ Information Notice 86-64, "Deficiencies in Upgrade Programs for Plant Emergency Operating Procedures," U.S. Nuclear Regulatory Commission, August 14, 1986 [[ML031250068](#)], (Supplement 1) April 20, 1987 [[ML082840492](#)].

⁶ NUREG-1358, "Lessons Learned from the Special Inspection Program for Emergency Operating Procedures," U.S. Nuclear Regulatory Commission, April 1989.

⁷ NUREG-1358, "Lessons Learned from the Special Inspection Program for Emergency Operating Procedures," U.S. Nuclear Regulatory Commission, April 1989.

⁸ Memorandum for V. Stello from T. Murley, "Final Resolution of Generic Issue (GI) HF4.1, Inspection Procedure for Upgraded Emergency Operating Procedures," October 17, 1988. [8811070169]

⁹ Information Notice 86-64, "Deficiencies in Upgrade Programs for Plant Emergency Operating Procedures," U.S. Nuclear Regulatory Commission, August 14, 1986 [[ML031250068](#)], (Supplement 1) April 20, 1987 [[ML082840492](#)].

¹⁰ SECY-11-0101, "Summary of Activities Related to Generic Issues Program," July 26, 2011. [[ML111590814](#)]

pursue any further actions toward resolution of licensing and regulatory impact issues. Because licensing and regulatory impact issues are not safety issues by the classification guidance in the legacy Generic Issues Program, these issues do not meet at least one of the Generic Issues Program screening criteria and do not warrant further processing in accordance with Management Directive 6.4, "Generic Issues Program," dated November 17,

2009.¹¹ Therefore, this issue will not be pursued any further in the Generic Issues Program.

ITEM HF4.3: CRITERIA FOR SAFETY-RELATED OPERATOR ACTIONS

DESCRIPTION

A safety evaluation standard was to be developed to screen licensee proposals to place additional burdens upon operators. Licensees proposing to resolve severe accident issues or other generic safety issues by adding to EOPs and training, in lieu of hardware fixes, were expected to utilize the standard to verify that the additional burdens placed upon operators did not overload the operators, and that the additional operator responsibilities were adequately covered in procedures and training. This standard was to be applied to any licensee proposing to add additional operator responsibilities as part of the resolution of a generic safety issue; the staff did not anticipate that it would be applied retroactively to DBAs or existing EOPs. The standard would not impose requirements upon plant design or operation directly, but could narrow the range of options available to resolve

other issues. The likely form of the standard was believed to be an SRP¹² Section.

CONCLUSION

This item was covered in Issue B-17.

ITEM HF4.4: GUIDELINES FOR UPGRADING OTHER PROCEDURES

DESCRIPTION

On the basis of efforts to evaluate the quality of, and the problems associated with, existing plant procedures, NRR evaluated the need to develop technical guidance for use by the industry in upgrading normal operating procedures and abnormal operating procedures (AOPs) similar to what the staff completed for EOPs. The staff was to perform a regulatory analysis to determine whether regulatory action for other plant procedures was warranted and, if so, develop formal regulatory requirements.

CONCLUSION

This issue was given a high priority ranking and RESOLVED with no new requirements.¹³ The staff prepared a summary of good practices that licensees could use in performing any voluntary upgrade of procedures.¹⁴ In

an RES evaluation,¹⁵ it was concluded that consideration of a 20-year license renewal period did not affect the resolution.

¹¹ Management Directive 6.4, "Generic Issues Program," U.S. Nuclear Regulatory Commission, November 17, 2009.

¹² NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," U.S. Nuclear Regulatory Commission, (1st Ed.) November 1975, (2nd Ed.) March 1980, (3rd Ed.) July 1981.

¹³ Memorandum for J. Taylor from E. Beckjord, "Resolution of Human Factors Generic Issue 4.4, 'Guidelines for Upgrading Other Procedures,'" July 29, 1993. [9502070331]

¹⁴ "Approaches to Upgrading Procedures in Nuclear Power Plants," Pacific Northwest Laboratory, August 1994. [9507280167]

¹⁵ Memorandum for W. Russell from E. Beckjord, "License Renewal Implications of Generic Safety Issues (GSIs) Prioritized and/or Resolved Between October 1990 and March 1994," May 5, 1994. [9406170365]

ITEM HF4.5: APPLICATION OF AUTOMATION AND ARTIFICIAL INTELLIGENCE DESCRIPTION

The level of automation possible within the nuclear industry spans a range of possibilities from the fully manual, with locally operated valves, to the fully automated, employing artificial intelligence (AI). The nuclear industry is basically at the one-switch one-valve end of that range. The reliability of AI for safety-related uses was unproven; however, evidence from other industries suggested that there can be significant savings in operating costs as well as an enhancement in safety with increased automation of operator actions. Reducing the menial level workload of operators could provide better low-level control and fewer operator errors. Such automation can

also free operators to concentrate on the cognitive level of operations. The subject of automation and AI affects control room design, operating procedures, and other operator aids, staffing, and training. The staff was to investigate the benefits and hazards of increased automation in the nuclear industry and consider incentives to encourage the movement toward automation as a means of increasing plant safety.

CONCLUSION

This item was covered in Item HF5.2.

