

## **Enclosure 2**

**M170023**

**Revised Response, GEH Proposed Resolution of Item #17**

**ABWR DCD Revision 6 Markups**

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Table 1.8-21 Industrial Codes and Standards\* Applicable to ABWR (Continued)

Code or Standard Number	Year	Title
[H-46855B	1979	Human Engineering Requirements for Military Systems, Equipment and Facilities] <sup>(5)</sup>
[HDBK-217	Latest Edition	Reliability Prediction of Electronic Equipment] <sup>(3)</sup>
[HDBK-251	Latest Edition	Reliability/Design: Thermal Applications] <sup>(3)</sup>
[HDBK-759A	1981	Human Factors Engineering Design for Army Material] <sup>(5)</sup>
STD-282	1956	Filter Units, Protective Clothing Gas-Mask Components and Related Products: Performance-Test Methods
[STD-461C	1987	Electromagnetic Emission and Susceptibility Requirements for the Control of Electromagnetic Interference] <sup>(3)(4)</sup>
[STD-462	1967	Measurement of Electromagnetic Interference Characteristics] <sup>(3)(4)</sup>
[STD-1472D	1989	Human Engineering Design Criteria for Military Systems, Equipment and Facilities] <sup>(5)</sup>
[STD-1478	1991	Task Performance Analysis] <sup>(5)</sup>
<b>Others</b>		
ASCE 7	1988	Minimum Design Loads for Buildings and Other Structures
ERDA 76-21	1976	Testing of Ventilation Systems, Section 9 of Industrial Ventilation Systems
[IEC 801-2	1991	Electronic Capability for Industrial-Process Measurement and Control Equipment] <sup>(3)</sup>
[IEC 880	1986	Software for Computers in the Safety Systems of Nuclear Power Stations] <sup>(3)(4)</sup>
[IEC 964	1989	Design for Control Rooms of Nuclear Power Plants, Bureau Central de la Commission Electrotechnique Internationale] <sup>(5)</sup>
[ISO 7498	1984	Open Systems Interconnection-Basic Reference Model, as the Data Link Layer and Physical Layer] <sup>(3)</sup>
NEI 00-01	2009	Guidance for Post Fire Safe Shutdown Circuit Analysis, Rev. 2
NEI 06-12 R2	2006	B.5.b Phase 2 & 3 Submittal Guideline
NEI 12-01	2012	Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities
NEI 12-02	2012	Industry Guidance for Compliance with NRC Order EA-12-051, "To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation"
<del>NEI 12-06 R0</del>	<del>2012</del>	<del>Diverse and Flexible Coping Strategies (FLEX) Implementation Guide</del>
NEI 14-01 R0	2014	Emergency Response Procedures and Guidelines for Beyond Design Basis Events and Severe Accidents
NEI 91-04 R1	1994	Severe Accident Issue Closure Guidelines

Table included in package for completeness. There are no proposed changes.

**Table 1.8-22 Experience Information Applicable to ABWR (Continued)**

No.	Issue Date	Title	Comment
1370	9/89	Resolution of USI A-48	Subsection 19B.2.18
1275	2/91	Volume 6, Operating Experience Feedback Report Solenoid Operated Valve Problems	
1339	6/90	Resolution of Generic Safety Issue 29: Bolting Degradation of Failure in Nuclear Power Plants	Subsection 19B.2.62
CR-3922	1/85	Survey and Evaluation of System Interaction Events and Sources, Vol. 1, 2	Subsection 19B.2.59
CR-4261	3/86	Assessment of Systems Interactions in Nuclear Power Plants	Subsection 19B.2.59
CR-4262	5/85	Effects of Control System Failures on Transients, Accidents at a GE BWR, Vol. 1 and 2	
CR-4387	12/85	Effects of Control System Failures on Transient and Accidents and Core-Melt Frequencies at a GE BWR	
CR-4470	5/86	Survey and Evaluation of Vital Instrumentation and Control Power Supply Events	
CR-5055	5/88	Atmospheric Diffusion for Control Room Habitability Assessment	Subsection 19B.2.40
CR-5088	1/89	Fire Risk Scoping Study: Investigation of Nuclear Power Plant Fire Risk, Including Previously Unaddressed Issues.	
CR-5230	4/89	Shutdown Decay Heat Removal Analysis: Plant Case Studies and Special Issues	
CR-5347	6/89	Recommendations for Resolution of Public Comments on USI A-40	Subsection 19B.2.14
CR-5458	12/89	Value-Impact Assess for Candidate Operating Procedure Upgrade Program	
CR-4674	84/89	Precursors to Potential Severe Core Damage Accidents: Series	
SECY-11-0124	9/11	Recommended Actions to be Taken Without Delay from the Near-Term Task Force Report	Subsection 13.5.3.2
<b>Commission Order</b>			
EA-12-049	3/12	Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events	
EA-12-051	3/12	Issuance of Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instruments	

## 13.5 Plant Procedures

### 13.5.1 Administrative Procedures

Out of ABWR Standard Plant scope.

### 13.5.2 Operating and Maintenance Procedures

Out of ABWR Standard Plant scope.

### 13.5.3 COL License Information

#### 13.5.3.1 Plant Operating Procedures Development Plan

A Plant Operating Procedures Development Plan shall be generated which establishes:

- That the scope encompassed by the procedures development process includes those operating procedures defined in Subsection 13.5.3.4, which direct operator actions during normal, abnormal and emergency operations, including consideration of plant operations during periods when plant systems/equipment are undergoing test, maintenance or inspection.
- The methods and criteria for the development, verification and validation, implementation, maintenance and revision of procedures. The methods and criteria shall be in accordance with TMI Items I.C.1 and I.C.9.

#### 13.5.3.2 Emergency Procedures Development

In addition to the above, for Emergency Procedures development, the plan shall establish:

- That a writer's guide shall be developed and implemented which defines the process for developing emergency procedures. The writer's guide shall contain objective criteria which will require that the emergency procedures developed are consistent in organization, style, content and usage of terms.
- The form and content of the documentation describing the emergency procedure development activity results which includes, but is not limited to: (1) the objectives of the emergency procedure development process, (2) the methods employed during emergency procedure development, (3) deviations from generic technical guidelines approved by the NRC and (4) discussion of any design change recommendations and/or negative implications that the current design may have on safe operation as a result of emergency procedures development plan implementation.
- The procedure development will integrate the Emergency Operating Procedures (EOPs), Severe Accident Management Guidelines (SAMGs), ~~FLEX Support Guidelines (FSGs)~~ and Extensive Damage Mitigation Guidelines (EDMGs) by using the following guidance:

- Industry (BWROG) guidance as endorsed by applicable NRC regulatory guides consistent with the Task Force recommendation as described in SECY-11-0124 (Reference 13.5-9).
- Plant Specific Technical Guidelines (PSTGs), EOPs and SAMGs development activities using as inputs the standard ABWR guidelines (DCD) and generic industry guidance per NEI 91-04, Revision 1, Severe Accident Issue Closure Guidelines (Reference 13.5-10), which includes the industry commitment to incorporate severe accident strategies into the overall accident management program.
- EDMGs development as described in NEI 06-12, Reference 13.5-11.
- ~~– FSGs development as described in NEI 12-06, Reference 13.5-12.~~
- The EOPs, EDMGs, ~~FSGs~~ and SAMGs will be integrated in a cohesive, effective and useable manner as described in NEI 14-01, Emergency Response Procedures and Guidelines for Beyond Design Basis Events and Severe Accidents (Reference 13.5-13) ← 12

### 13.5.3.3 Implementation of the Plan

Implementation of the Plant Operating Procedures Development Plan shall establish:

- Procedures which are consistent with the requirements of 10 CFR Part 50 and the TMI requirements described in NUREG-0737 and Supplement 1 to NUREG-0737.
- Requirements that the procedures developed shall include, as necessary, the elements described in ANSI 18.7/ANS-3.2 or subsequent NRC-approved version of ANSI/ANS-3.2 elected by the COL applicant.
- That the operator actions identified in the vendors task analysis and PRA efforts in support of the Standardized Design certification, Standardized Plant Design Emergency Procedure Guidelines and consideration of plant-specific equipment selection and site-specific elements such as the service water intake structure and the ultimate heat sink shall be used as a basis for specifying plant operating procedures.
- The definition of the methods through which specific operator skills and training needs, as may be considered necessary for reliable execution of the procedures, will be identified and documented.
- That the procedures specified in a., above, shall be made available for the purposes of the Human Factors V&V Implementation Plan described in Article VII of Table 18E-1.

### 13.5.4 References

In addition to the sources cited previously, accepted methods and criteria for development of plant procedures are embodied in the following documents.

- 13.5-1 Gilmore, et al, "User-Computer Interface in Process Control: A Human Factors Engineering Handbook", Academic Press, San Diego, Ca, 1989
- 13.5-2 IEC 964, "Design for Control Rooms of Nuclear Power Plants", Bureau Central de la Commission Electrotechnique Internationale
- 13.5-3 MIL-H-46855B, "Human Engineering Requirements for Military Systems, Equipment and Facilities", Dept. of Defense
- 13.5-4 MIL-STD-1472D, "Human Engineering Design Criteria for Military Systems, Equipment and Facilities", Dept. of Defense
- 13.5-5 NUREG-0899, "Guidelines for the Preparation of Emergency Operating Procedures", USNRC, 1982
- 13.5-6 NUREG-1358, "Lessons Learned From the Special Inspection Program for Emergency Operating Procedures", USNRC, 1989
- 13.5-7 NUREG-1358, Supplement 1, "Lessons Learned From the Special Inspection Program for Emergency Operating Procedures", USNRC, 1992
- 13.5-8 NUREG/CR-5228, "Techniques for Preparing Flowchart Format Emergency Operating Procedures" (Vols. 1 & 2), USNRC, 1989
- 13.5-9 SECY-11-0124, "Recommended Actions to be Taken Without Delay from the Near-Term Task Force Report", USNRC, September 9, 2011.
- 13.5-10 NEI 91-04 Revision 1, "Severe Accident Issue Closure Guidelines", NEI, 1994.
- 13.5-11 NEI 06-12 Revision 2, "B.5.b Phase 2 & 3 Submittal Guideline", NEI, 2006.
- 13.5-12 ~~NEI 12-06 Revision 0, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide", NEI, 2012.~~
- ~~13.5-13~~ NEI 14-01 Revision 0, "Emergency Response Procedures and Guidelines for Beyond Design Basis Events and Severe Accidents", NEI, 2014.