19.1S Additional Information to Support the COL Application

19.1S.1 Compliance with Regulatory Guide 1.206

Regulatory Guide 1.206 (Reference 19.1S-1) describes the expected contents for Chapter 19 for a COL application. In particular, Appendix A to section C.I.19 of the Guide presents a proposed outline for Chapter 19.

The ABWR design was certified by the NRC prior to the development of Regulatory Guide 1.206. As such, the contents of the reference ABWR DCD differ somewhat from the format requested in the Regulatory Guide. As this FSAR is structured based on the reference ABWR DCD, its format also differs from the requested format. To assist in the review of the FSAR, Table 19.1S-1 presents a cross-reference between the Regulatory Guide 1.206 C.I.19 Appendix A items and the format of the FSAR.

Table 19.1S-1 references the following ABWR-related documents that present PRA-related information:

- The STP 3 & 4 FSAR, which incorporates by reference the ABWR DCD
- The ABWR SSAR, which includes additional details concerning the ABWR PRA not included in the DCD
- NUREG-1503 (Reference 19.1S-2), which includes additional information concerning the methods and results of the ABWR PRA that were noted by the NRC during its review as part of the design certification process.

19.1S.2 Risk Significance of PRA-changes

For purposes of the review and update of the ABWR PRA conducted to generate the STP COL PRA, the risk significance of a change was assessed as follows:

In the context of the ABWR PRA, a risk-significant change is a change that would affect the conclusions, programs, etc. that use the results of the PRA. Examples would be the Design Reliability Assurance Program (DRAP) or the Human Factors Engineering (HFE) programs. The conclusions of the PRA are unaffected by any design change or site-specific analysis performed to support the COL Application for the STP 3 & 4. Changes in PRA results that modify SSC importance are not considered to be significant changes in the context of ASME guidance as modified by RG 1.200. Changes to correct identified errors in previous modeling are also not considered to be significant changes in this context (e.g., common cause modeling of reactor service water system identified during previous reviews of the certification PRA).

19.1S.3 References

19.1S-1 NRC Regulatory Guide 1.206, Revision 0, “Combined Operating License Applications for Nuclear Power Plants (LWR Edition)”.

19.1S-2 NUREG-1503, Volume 1, “Final Safety Evaluation Report Related to the Certification of the advanced Boiling Water Reactor Design”.

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.0	PROBABILISTIC RISK ASSESSMENT AND SEVERE ACCIDENT EVALUATION	Describe the purpose and objectives of the plant-specific PRA and severe accident evaluations.	SSAR/FSAR 19.1, 19.2
		Address the requirements in 10 CFR Part 52 and 10 CFR Part 50, as well as the related Commission policies and positions.	SSAR/FSAR 19.6, 19A
		Address the objectives identified in Section C.I.19.2 of RG 1.206	SSAR/FSAR 19.8, 19D.7, 19.6.2, 19.6.8, 19.8, STP COLA update, 19.7, 19.11 The commitment for the PRA Maintenance and Upgrade Program which is based on the STP Unit 1 & 2 program. This program already supports the regulatory oversight processes [e.g., Mitigating Systems Performance Index (MSPI), Significance Determination Process (SDP)], applications associated with plant operations (e.g., technical specifications, reliability assurance, human factors, Maintenance Rule) and several significant risk-informed applications.
		Identify the structure of Chapter 19	SSAR/FSAR 19.1.2
19.1	Probabilistic Risk Assessment	Identify the specific PRA information that is docketed (i.e., included in the application), as opposed to information that is retained by the applicant, but available to support NRC reviews and audits	SSAR/FSAR 19.1.2
19.1.1	Uses and Applications of the PRA	N/A	
19.1.1.1	Design Phase	Describe the use of the PRA in the design phase (through design certification, as appropriate)	SSAR/FSAR 19.7, 19.10, 19.13
		Include FSAR cross-references to specific program descriptions, as appropriate	SSAR/FSAR 19.4
19.1.1.2	COL Application Phase	N/A	

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.1.1.2.1	Use of PRA in Support of Licensee Programs	Describe the use of the PRA in the COL application phase, and specifically, its use in support of other licensee programs (e.g., human factors program, severe accident management program).	The PRA was reviewed and updated for site-specific features and design refinements as well as providing input to the DRAP, ORAP and HFE programs. See below
		Include FSAR cross-references to specific program descriptions, as appropriate	SSAR/FSAR 17.4 DRAP, 17.6 ORAP SSAR/FSAR 18.3.3, 18H1 HFE SSAR/FSAR 19D.7, 19.11
19.1.1.2.2	Risk-Informed Applications	Identify and describe specific risk-informed applications being implemented during the COL application phase	N/A. No risk-informed applications are submitted at this stage
		Include FSAR cross-references to specific program descriptions (e.g., 10 CFR 50.69 implementation, NFPA-806 implementation), as appropriate	N/A. No risk-informed applications are submitted at this stage
19.1.1.3	Construction Phase	Describe the use of the PRA in the construction phase (from issuance of the COL up to initial fuel loading).	SSAR/FSAR 17.4 DRAP
		Include FSAR cross-references to specific program descriptions, as appropriate	SSAR/FSAR 17.4 DRAP
19.1.1.3.1	Use of PRA in Support of Licensee Programs	Describe the use of the PRA in the construction phase to support of other licensee programs (e.g., human factors program).	FSAR 18.3.3, 18H HFE
		Include FSAR cross-references to specific program descriptions, as appropriate	FSAR 18.3.3, 18H HFE

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.1.1.3.2	Risk-Informed Applications	Identify and describe specific risk-informed applications that will be implemented during the construction phase	N/A at COL Application Stage
		Include FSAR cross-references to specific program descriptions (e.g., 10 CFR 50.69 implementation, NFPA-806 implementation), as appropriate.	N/A at COL Application Stage
19.1.1.4	Operational Phase	Describe the use of the PRA during plant operations (commencing with initial fuel loading and continuing through plant commercial operation).	FSAR 17.6 Maintenance Rule
		Include FSAR cross-references to specific program descriptions, as appropriate	FSAR 17.6 Maintenance Rule
19.1.1.4.1	Use of PRA in Support of Licensee Programs	Describe the use of the PRA during plant operations to support of other licensee programs (e.g., Maintenance Rule, interface with the ROP, reliability assurance program, human factors program, severe accident management program	FSAR 17.4 Reliability Assurance Program, 17.6 Maintenance Rule
		Include FSAR cross-references to specific program descriptions, as appropriate	FSAR 17.4 Reliability Assurance Program, 17.6 Maintenance Rule
19.1.1.4.2	Risk-Informed Applications	Identify and describe specific risk-informed applications that have been implemented during the operational phase	N/A at COL Application Stage
		Include FSAR cross-references to specific program descriptions (e.g., risk-informed ISI, risk-informed IST, 10 CFR 50.69 implementation, NFPA-806 implementation), as appropriate	N/A at COL Application Stage

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.1.2	Quality of the PRA	Discuss the quality of the PRA in the context of its uses and the risk-informed applications identified in Section 19.1.1	NUREG-1503 19.1.4
19.1.2.1	PRA Scope	Describe the scope of the PRA as discussed in Section C.I.19.3	SSAR/FSAR 19.7, 19.10, 19.13
19.1.2.2	PRA Level of Detail	Characterize the PRA's level of detail as discussed in Section C.I.19.4	SSAR/FSAR 19.2.3
19.1.2.3	PRA Technical Adequacy	Describe the technical adequacy of the PRA as discussed in Section C.I.19.5	NUREG-1503 19.1.3.9.1
19.1.2.4	PRA Maintenance and Upgrade	Describe the PRA maintenance and upgrading program as discussed in Section C.I.19.7.	FSAR 19.4S
19.1.3	Special Design/Operational Features	Address the design and operational features intended to improve plant safety, thus reducing risk when compared to currently operating nuclear power plants	SSAR/FSAR 19.7, 19.8
19.1.3.1	Design/Operational Features for Preventing Core Damage	Describe the key preventive features that are intended to minimize initiation of plant transients, arrest the progression of plant transients once they start, and prevent severe accidents (core damage).	SSAR/FSAR 19.6.2, 19.6.7, 19.6.3, 19.8
19.1.3.2	Design/Operational Features for Mitigating the Consequences of Core Damage and Preventing Releases from Containment	Describe the key mitigative features that are intended to arrest progression of the core damage event and maintain the integrity of the reactor vessel and containment pressure boundary	SSAR/FSAR 19.6.3
19.1.3.3	Design/Operational Features for Mitigating the Consequences of Releases from Containment	Describe the mitigating features that are intended to terminate releases from containment and minimize offsite doses/consequences	SSAR/FSAR 19E.2.8.1, 19E.2.8.1.7

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.1.3.4	Uses of the PRA in the Design Process	Identify features and requirements introduced to reduce or eliminate the known weaknesses/ vulnerabilities in current reactor designs	SSAR/FSAR 19.8. 19.7
		Indicate the effect of new design features and operational strategies on plant risk	SSAR/FSAR 19. 11, 19.7.1, 19B.2.35
		Identify PRA-based insights and assumptions used to develop design requirements	SSAR/FSAR 19.8, 19.11
19.1.4	Safety Insights from the Internal Events PRA for Operations at Power	Describe the internal events PRA for operations at power, including its results	See subsections below
		Organize the information as indicated in Sections 19.1.4.1 and 19.1.4.2 below	See subsections below
19.1.4.1	Level 1 Internal Events PRA for Operations at Power	Describe the Level 1 internal events PRA for operations at power, including its results	See subsections below
		Organize the information as indicated in Sections 19.1.4.1.1 and 19.1.4.1.2 below	See subsections below

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.1.4.1.1	Description of the Level I PRA for Operations at Power	Describe the methodology used to develop the Level 1 PRA model (e.g., fault tree linking, large event tree and small fault tree approach, etc.).	SSAR/FSAR 19.2
		List the internal initiating events (including internal floods) that are addressed in the PRA	SSAR/FSAR 19.3.1.1, SSAR 19D.3, SSAR/FSAR 19R
		List the success criteria used to delineate accident sequences, discuss how they were determined, and identify any T-H codes used	SSAR/FSAR 19.2, 19.3.1.3.1, 19.5, 19E.1, 19E.2, 19EA, 19EB, 19EC, 19ED, SSAR 19D.4, 19D.5
		Summarize the accident sequences modeled in the PRA	SSAR 19D.4, SSAR/FSAR 19R
		Identify the source of all numerical data (initiating event frequencies, component failure rates, equipment unavailabilities due to test or maintenance, human error probabilities, common-cause failure parameters, etc.), especially for numerical data that is based on expert judgement or expert elicitation.	SSAR 19D.3, 19D.6, 19D.7, 19D.8, SSAR/FSAR 19R
		List the plant systems and associated functions that are included in the PRA model, and identify their interdependencies. One acceptable way to provide dependency information is to include a system dependency matrix	SSAR 19D.6, SSAR/FSAR 19R
		Identify the PRA software platform used to construct the model	SSAR 19D.2.3
		State the truncation frequency used to solve the PRA model	SSAR/FSAR 19D.10

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.1.4.1.2	Results from the Level I PRA for Operations at Power	Provide the total mean core-damage frequency	SSAR 19.3.1.4, SSAR/FSAR 19R
		Describe the significant core damage sequences, and provide their mean core-damage frequencies	SSAR/FSAR 19.6.2, NUREG-1503 19.1.1,
		Identify the significant internal initiating events, and provide their percent contributions to the total core-damage frequencies	SSAR/FSAR 19.3.1.4, 19R
		Identify the significant functions, SSCs, and operator actions, and provide their risk achievement worths and Fussell-Vesely importance measures) (or any other measures used to determine risk significance).	SSAR 19D.7.6, SSAR/FSAR 19R, NUREG-1503 19.1.3.2.3 (Human Actions); SSAR/FSAR 19K, 19R, FSAR 19K, NUREG-1503 19.1.3.2.5 (SSCs)
		Identify the PRA assumptions and PRA-based insights	SSAR/FSAR 19.2.3.1 and 19.10 (assumptions); SSAR/FSAR 19.13 (insights)
		Discuss the results and insights from importance, sensitivity, and uncertainty analyses	SSAR/FSAR 19.13.5,NUREG-1503 19.1.3.2.5
19.1.4.2	Level 2 Internal Events PRA for Operations at Power	Describe the Level 2 internal events PRA for operations at power, including its results	See subsections below
		Organize the information as indicated in Sections 19.1.4.2.1 and 19.1.4.2.2 below	See subsections below

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.1.4.2.1	Description of the Level 2 PRA for Operations at Power	Discuss the interface with the core damage evaluation (Level I PRA).	SSAR/FSAR 19.3.2, SSAR 19D.5
		Describe the severe accident physical processes/phenomena and modeling	SSAR/FSAR 19.3.2.3, SSAR 19D.5
		List the success criteria used to delineate accident sequences, discuss how they were determined, and identify any T-H codes used	SSAR 19D.5
		Define the accident classes/release categories	SSAR/FSAR 19.3.2.2, SSAR 19D.5
		Characterize the containment ultimate pressure capacity, and explain how it was determined, and identify any computer codes used	SSAR 19D.5 SSAR/FSAR 19FA, 19FB
		List the plant systems and associated functions that are included in the Level 2 PRA model, and identify their interdependencies. One acceptable way to provide dependency information is to include a system dependency matrix	SSAR 19D.5

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.1.4.2.2	Results from the Level 2 PRA for Operations at Power	Provide the total mean large release frequency and total mean conditional containment failure probability	SSAR 19D.5, NUREG-1503 19.1.3.5
		Describe the significant large release sequences, and provide their mean release frequencies	SSAR 19D.5, NUREG-1503 19.1.3.5
		List the significant internal initiating events, and provide their percent contributions to the total large release frequency	SSAR 19D.5, NUREG-1503 19.1.3.5
		Identify the significant functions, SSCs, and operator actions, and provide their risk achievement worths and Fussell-Vesely importance measures (or any other measures used to determine risk significance).	SSAR/FSAR 19.12, 19K, 19.8, SSAR 19D.7.4.5, 19D.7.7
		Characterize the containment performance	SSAR 19D.5, NUREG-1503 19.1.3.5
		Identify the PRA assumptions and PRA-based insights	SSAR 19D.5, NUREG-1503 19.1.3.5
		Discuss the results and insights from importance, sensitivity, and uncertainty analyses	SSAR 19D.5
19.1.4.3	Level 3 Internal Events PRA for Operations at Power (Optional)	Describe the Level 3 internal events PRA for operations at power, including its results	See subsections below
		Organize the information as indicated in Sections 19.1.4.3.1 and 19.1.4.3.2 below	See subsections below

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.1.4.3.1	Description of the Level 3 PRA for Operations at Power (Optional)	Discuss the interface with the containment analyses (Level 2 PRA).	SSAR/FSAR 19.3.4, 19E.3
		Explain how the fission product source terms were developed, and identify any computer codes used	SSAR/FSAR 19.3.4, 19E.3
		Describe the dose consequence modeling, including evacuation considerations, and identify any computer codes used	SSAR/FSAR 19E.3
		Describe how inputs to the calculation of offsite consequences were developed (e.g., demography, meteorology).	SSAR/FSAR 19E.3
19.1.4.3.2	Results from the Level 3 PRA for Operations at Power (Optional)	Provide the mean individual prompt fatality risk within 1 mile and the mean individual latent cancer fatality risk within 10 miles	SSAR/DCFD 19E.3
		Describe significant offsite consequence sequences., and provide their mean annual occurrence frequencies	SSAR/FSAR 19E.3
		Identify significant functions, SSCs, and operator actions., and provide their risk achievement worths and Fussell-Vesely importance measures	Not provided, however Level 3 PRA information is optional
		Identify the PRA assumptions and PRA-based insights	SSAR/FSAR 19E.3
		Discuss the results and insights from importance, sensitivity, and uncertainty analyses	Not provided, however, Level 3 PRA information is optional

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.1.5	Safety Insights from the External Events PRA for Operations at Power	Identify and describe the external events evaluated	SSAR/FSAR 19.4.1
		If some external events were screened out or incorporated into other evaluations, describe the methods used to conduct the screening and bounding analyses	SSAR/FSAR 19.4.1
		Include FSAR cross-references to specific external events, as appropriate	SSAR/FSAR 19.4
		Organize the information as indicated in Sections 19.1.5.1 through 19.1.5.N below	See subsections below
19.1.5.1	Seismic Risk Evaluation	Describe the seismic risk evaluation for operations at power, including its results	See subsections below
		Organize the information as indicated in Sections 19.1.5.1.1 and 19.1.5.1.2 below	See subsections below
19.1.5.1.1	Description of the Seismic Risk Evaluation	Describe the seismic analysis methodology and approach, including any screening and bounding analyses (e.g., seismic margins analysis).	SSAR/FSAR 19.4.3
		Describe the site-specific seismic hazards analysis, and identify the source(s) of information used (e.g., USGS)	SSAR/FSAR 19.4.3
		Describe the SSC fragility analysis, including the use of information about similar components and information developed from expert opinion or expert elicitation	SSAR/FSAR 19H
		Describe the seismic risk accident sequence and system modeling, and identify any computer codes used	SSAR/FSAR 19I

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.1.5.1.2	Results from the Seismic Risk Evaluation	Provide the mean total core-damage frequency, large release frequency, and conditional containment failure probability due to seismic events	SSAR/FSAR 19I
		Describe the significant core-damage, large release, and offsite consequence (optional) sequences, and provide their mean values	SSAR/FSAR 19I
		Identify the significant functions, SSCs, and operator actions, and provide their risk achievement worths and Fussell-Vesely importance measures (or any other measures used to determine risk significance).	SSAR/FSAR 19D.10, NUREG-1503 19.1.3.3.1.3, 19.1.3.3.1.4,
		Identify the PRA assumptions and PRA-based insights	SSAR/FSAR 19H, 19I (assumptions), NUREG-1503 19.1.3.3.1.2 (insights)
		Discuss the results and insights from importance, sensitivity, and uncertainty analyses	NUREG-1503 19.1.3.3.1.6
19.1.5.2	Internal Fires Risk Evaluation	Describe the internal fire risk evaluation for operations at power, including its results	See subsections below
		Organize the information as indicated in Sections 19.1.5.2.1 and 19.1.5.2.2 below	See subsections below

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.1.5.2.1	Description of the Internal Fire Risk Evaluation	Describe the internal fire analysis methodology and approach, including the use of any screening or bounding analyses	SSAR/FSAR 19.4.4, 19M
		Explain how the fire initiation frequencies were estimated	SSAR/FSAR 19M
		Describe the propagation of fires, and identify any computer codes used	SSAR/FSAR 19M
		Describe the fire damage modeling, and identify the specific fire-induced failure modes considered in the evaluation	SSAR/FSAR 19M
		Describe the plant response analysis and modeling	SSAR/FSAR 19M
19.1.5.2.2	Results from the Internal Fire Risk Evaluation	Provide the total mean core-damage frequency, large release frequency, and conditional containment failure probability due to internal fire events.	SSAR/FSAR 19.4.4, 19M
		Describe the significant core-damage, large release, and offsite consequence (optional) sequences, and provide their mean values	SSAR/FSAR 19M, NUREG-1503 19.1.3.3.2.1
		Identify the significant functions, SSCs, and operator actions, and provide their risk achievement worths and Fussell-Vesely importance measures (or any other measures used to determine risk significance)	NUREG-1503 19.1.3.3.2.3
		Identify the PRA assumptions and PRA-based insights.	SSAR/FSAR 19M (assumptions), NUREG-1503, 19.1.3.3.2.2, 19.1.3.3.2.4 (insights)
		Discuss the results and insights from importance, sensitivity, and uncertainty analyses	NUREG-1503 19.1.3.3.2.5

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.1.5.3 to 19.1.5.N	Other External Events Risk Evaluations (as needed)		FSAR 19R for external flood
19.1.5.3 to 19.1.5.N	Other External Events Risk Evaluations (as needed)		SSAR/FSAR 19.4.2 for tornado strike analysis
19.1.6	Safety Insights from the PRA for Other Modes of Operation	Describe the risk evaluation for other modes of operation, including its results	See subsections below
		Organize the information as indicated in Sections 19.1.6.1 and 19.1.6.2 below	See subsections below

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.1.6.1	Description of the Low-Power and Shutdown Operations PRA	Identify and describe the other (non-full-power) modes of operation addressed in the risk evaluation	SSAR/FSAR 19.4.6
		If the evaluation of some modes is incorporated into (or bounded by) the evaluations of other modes, describe the methods used to conduct the grouping and bounding analyses	SSAR/FSAR 19L (qualitative evaluation)
		Describe the methodology used to develop the low-power and shutdown PRA models	SSAR/FSAR 19Q
		List the initiating events (internal and external) that are addressed in the PRA	SSAR/FSAR 19L, 19Q (Note: initiating events are reviewed and qualitatively evaluated. Only loss of DHR is quantitatively evaluated)
		List the success criteria used to delineate accident sequences, discuss how they were determined, and identify any T-H codes used	SSAR/FSAR 19Q (for loss of DHR)
		Summarize the accident sequences modeled in the PRA.	SSAR/FSAR 19Q (for loss of DHR)
		List the plant systems and associated functions that are included in the PRA model	SSAR/FSAR 19Q (for loss of DHR)
		Identify the source of all numerical data (initiating event frequencies, component failure rates, equipment unavailabilities due to test or maintenance, human error probabilities, common-cause failure parameters, etc.), especially for numerical data that is based on expert judgement or expert elicitation.	SSAR/FSAR 19Q (for loss of DHR)
		Identify the PRA software platform used to construct the model	SSAR 19D.2.3
		State the truncation frequency used to solve the PRA model	SSAR/FSAR 19D.10

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.1.6.2	Results from the Low-Power and Shutdown Operations PRA	Provide the total mean core-damage frequency	SSAR/FSAR 19Q (for loss of DHR)
		For each plant operating state, describe the significant core-damage, large release, and offsite consequence (optional) sequences, and provide their mean values	N/A, see NUREG-1503 19.1.3.4.1
		For each plant operating state, identify the significant initiating events, including both internal and external events, and provide their percent contributions to the total core-damage frequency and the large release frequency	N/A, see NUREG-1503 19.1.3.4.1
		For each plant operating state, identify the significant functions, SSCs, and operator actions, and provide their risk achievement worths and Fussell-Vesely importance measures (or any other measures used to determine risk significance).	SSAR/FSAR 19.12, 19K, 19.8, 19D.7.4.5, 19D.7.7, NUREG-1503 19.1.3.4.4
		Identify the PRA assumptions and PRA-based insights	SSAR/FSAR 19Q
		Discuss the results and insights from importance, sensitivity, and uncertainty analyses	NUREG-1503 19.1.3.4.7
19.1.7	PRA-Related Input to Other Programs and Processes	Describe the specific PRA-related inputs provided to the programs identified in Section 19.1.1	SSAR/FSAR 19K
		Provide cross-references to the specific sections that describe and evaluate each of these programs.	SSAR/FSAR 19.8 Table 19.8-1 to 19.8-7

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.1.7.1	PRA Input to Design Programs and Processes	Discuss PRA-based insights identified during the design development that ensure the assumptions made in the PRA will remain valid for the as-to-be-built, as-to-be-operated plant	SSAR/FSAR 19.8, 19.11
		Include assumptions regarding SSC and operator performance and reliability, ITAACs, interface requirements; COL action items; plant features, design and operational programs, and other factors.	SSAR/FSAR 19.7, 19.11, Table 19.8-1 to 19.8-7
19.1.7.2	PRA Input to the Maintenance Rule Implementation	No specific requirements noted	FSAR 17.6
19.1.7.3	PRA Input to the Reactor Oversight Process	No specific requirements noted	Refer to the other programs
19.1.7.4	PRA Input to the Reliability Assurance Program	No specific requirements noted	SSAR/FSAR 17.4 and 19K
19.1.7.5	PRA Input to the Regulatory Treatment of Nonsafety-Related Systems Program	No specific requirements noted	N/A; RTNSS is only applicable to passive plants and therefore does not apply to the ABWR
19.1.7.N	PRA Input to [Other Program or Process]	No specific requirements noted	None

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.1.8	Conclusions and Findings	Provide a conclusion that the PRA has been used as discussed in Section C.I.19.2	The level of detail and approaches used were consistent with the guidance contained in C.I.19.2 of RG 1.206 with the exception of passive plant specific issue of the regulatory treatment of nonsafety systems (which is not applicable to the ABWR), and the actual section updates for site specific information contained in the STP COLA, the major goals listed are addressed as indicated in FSAR sections 19.8, 19D.7, 19.6.2, 19.6.8 19.8, 19.7, 19.4S, 19.11
		Provide a conclusion that the results of the PRA support the decision to issue the COL	The design PRA was updated with site-specific and refined system, structure and component design information to support issuance of the STP COLA.

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.2	Severe Accident Evaluation	Describe the design features to prevent and mitigate severe accidents, in accordance with the requirements in 10 CFR 52.47(23) or 10 CFR 52.79(a)(38), for a DC or a COL application, respectively. These features should specifically address the issues identified in SECY-90-016 and SECY-93-087, which the Commission approved in related SRMs dated June 26, 1990, and July 21, 1993, respectively, for prevention (e.g., ATWS, mid-loop operation, SBO, fire protection, and intersystem LOCA) and mitigation (e.g., hydrogen generation and control, core debris coolability, high-pressure core melt ejection, containment performance, dedicated containment vent penetration, equipment survivability).	SSAR/FSAR 19.7.3, 19.8, 19.8.1.3, 19E.2
		In addition, the design should satisfy the requirements of 10 CFR 52.47(8) or 10 CFR 52.79(a)(17), for a DC or a COL application, respectively. In particular, both regulations invoke 10 CFR 50.34(f)(1)(i) to specify that a design-specific or plant-specific PRA should be performed to seek improvements in core heat removal system reliability and containment heat removal system reliability that are significant and practical and do not excessively impact the plant	SSAR/FSAR 19.3, 19.7, 19.13.2, 19E.2 SSAR 19D.5.2
19.2.1	Introduction	Provide a description of the severe accident evaluation	SSAR/FSAR 19.2

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.2.2	Severe Accident Prevention	Provide a deterministic evaluation to show how the plant's severe accident preventive features would cope with the following events: ■ ATWS ■ Mid-Loop Operations ■ SBO ■ Fire Protection ■ Intersystem LOCA ■ Describe other Severe Accident Preventive Features	SSAR/FSAR 19.7.3, 19.6, 19.8, 19E.2.1.2.2, 19E.2, 19M, 19K
19.2.3	Severe Accident Mitigation	Provide an Overview of the Containment Design	SSAR/FSAR 19F
		Describe Severe Accident Progression, both In- and Ex-Vessel	SSAR/FSAR 19E.2.1.2.3.1.2, 19E.2.1.2.3.1.3
		Describe Severe Accident Mitigation Features for External Reactor Vessel Cooling, Hydrogen Generation and Control, Core Debris Coolability, High-Pressure Melt Ejection, Fuel-Coolant Interactions, Containment Bypass (including Steam Generator Tube Rupture and Intersystem LOCA), Equipment Survivability, and Other Severe Accident Mitigation Features	SSAR/FSAR 19.7.5, 19E.2.1.2.3.2.2 to 19E.2.1.2.3.4, 19E.2.1.2.3
19.2.4	Containment Performance Capability	Address the containment performance goals identified in SECY-93-087 and SECY-90-016, as approved by the associated SRMs.	SSAR/FSAR 19.8

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.2.5	Accident Management	Describe those actions taken during the course of an accident by the plant operating and technical staff to (1) prevent core damage, (2) terminate the progress of core damage if it begins and retain the core within the reactor vessel, (3) maintain containment integrity as long as possible, and (4) minimize offsite releases	SSAR 19D.7, 19E.2
19.2.6	Consideration of Potential Design Improvements Under 10 CFR 50.34(f)	Describe how the requirement of 10 CFR 50.34(f)(1)(I) has been met	SSAR 19.7, 19P
19.2.6.1	Introduction	No specific requirements noted	SSAR/FSAR 19A.2.1,
19.2.6.2	Estimate of Risk for Design	No specific requirements noted	FSAR 19A.2.1
19.2.6.3	Identification of Potential Design Improvements	No specific requirements noted	FSAR 19A.2.1
19.2.6.4	Risk Reduction Potential of Design Improvements	No specific requirements noted	FSAR 19A.2.1
19.2.6.5	Cost Impacts of Candidate Design Improvements	No specific requirements noted	FSAR 19A.2.1
19.2.6.6	Cost-Benefit Comparison	No specific requirements noted	FSAR 19A.2.1
19.2.6.7	Conclusions	No specific requirements noted	FSAR 19A.2.1
19.3	Open, Confirmatory, and COL Action Items Identified as Unresolved	N/A	
19.3.1	Resolution of Open Items	No specific requirements noted	FSAR 19.9
19.3.2	Resolution of Confirmatory Items	No specific requirements noted	FSAR 19.9

Table 19.1S-1 Cross-Reference to Regulatory Guide 1.206 Requirements (Continued)

FSAR Chapter / Section	Chapter/Section Title	R.G. 1.206 Requirements	Location Within the ABWR-related PRA Documents
19.3.3	Resolution of COL Action Items	No specific requirements noted	FSAR 19.9