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EARLY SITE PERMIT DEMONSTRATION PROGRAM

Plant Parameters Envelope Report

Volume I

SNL/NM--699995-2-Vol.1

Prepared by the *Joint Contractors* (Southern Electric International, Commonwealth Research Corporation, and Public Service Corporation of New Jersey), in cooperation with the Electric Power Research Institute, the Nuclear Management and Resources Council, the U.S. Department of Energy and Sandia National Laboratories.

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Plant Parameters Envelope Report
Revision 2

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EARLY SITE PERMIT DEMONSTRATION PROGRAM (ESPDP)

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Volume I

EARLY SITE PERMIT DEMONSTRATION PROGRAM

PLANT PARAMETERS ENVELOPES

Rev. 2
March 1993

EARLY SITE PERMIT DEMONSTRATION PROGRAM

PLANT PARAMETERS ENVELOPES

Volume I

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ABSTRACT

The Early Site Permit (ESP) Demonstration Program is the nuclear industry's initiative for piloting the early resolution of siting-related issues before the detailed design proceedings of the combined operating license review. The ESP Demonstration Program consists of three phases. The plant parameters envelopes task is part of Phase I, which addresses the generic review of applicable federal regulations and develops criteria for safety and environmental assessment of potential sites. The plant parameters envelopes identify parameters that characterize the interface between an ALWR design and a potential site, and quantify the interface through values selected from the Utility Requirements Documents, vendor design information, or engineering assessments. When augmented with site-specific information, the plant parameters envelopes provide sufficient information to allow ESPs to be granted based on individual ALWR design information or enveloping design information for the evolutionary, passive, or generic ALWR plants. This document is expected to become a living document when used by future applicants. For this reason we are including the key contact organizations which provided the original information when this document was created.

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1.0 INTRODUCTION

The early site permit (ESP) process represents a significant commitment of resources by both utilities and the Nuclear Regulatory Commission (NRC). For this reason, the ESP application should present information that demonstrates a comprehensive and well-documented site selection process. The determination of appropriate plant and site parameters for screening potential sites is a crucial step in completing a comprehensive and successful ESP application.

Site selection involves three groups of criteria: engineering/economic, environmental, and sociological. Typical individual criteria that have previously been used in site screening are listed in Table 1-1. Most of the criteria in the second and third groups are independent of the specific design of the plant and, while they will be significant in the ultimate selection and review of a specific site, they do not play a differentiating role in the development of the evolutionary, passive, and generic plant parameters envelopes. Consequently, emphasis has been placed on the identification of those parameters that, when quantified, will permit the evaluation of the plant-site interface against the criteria in the engineering/economic group, supplemented by other criteria such as ground/surface water, cooling system effects, atmospheric emissions, noise, and radioactivity.

This approach is consistent with the expected three-part NRC staff review of a site based on information furnished by the ESP applicant pursuant to 10 CFR 52.17. These three parts, as described in SECY-91-041, are the site safety review, the site environmental review, and the emergency preparedness review. The development of the plant parameters envelopes and a partial site envelope are relevant to the first two parts of the staff review. The site safety review considers those characteristics and phenomena associated with the site or vicinity that may affect plant operation, while the site environmental review considers the effects of the

Table 1-1

SITE SCREENING CRITERION GROUPS

GROUP 1	GROUP 2	GROUP 3
<u>Engineering/Economic Criteria</u>	<u>Environmental Criteria</u>	<u>Sociological Criteria</u>
1. Cooling Water Supply	1. Terrestrial Habitat	1. Compatibility With Present Land Use
2. Foundations and Soils	2. Terrestrial Vegetation	2. Compatibility With Planned Land Use
3. Geology	3. Game Species	3. Social and Support Services
4. Seismology	4. Aquatic Habitat	4. Socioeconomic Effects
5. Transmission and Substations	5. Fisheries	5. Regional Benefit
6. Site Development, Topography, and Flood Protection	6. Rare and Endangered Species	6. Demography
7. Plant Access and Freight	7. Ecological Stresses	7. Agricultural Productivity
8. Fuel Delivery	8. Groundwater	8. Aesthetics
9. Waste Handling	9. Surface Water	9. Historic and Archeological Sites
10. Meteorological Requirements	10. Cooling System Effects	10. Transportation Network
11. Environmental Protection	11. Atmospheric Emissions	11. Public Acceptance or Attitude
12. Proximity to Transportation Hazards	12. Noise	
13. Construction Facilities	13. Radioactivity	
14. Labor Cost		

proposed plant on the environment. The topics addressed in these reviews are as follows:

Site Safety Review

- Geography and demography
- Nearby industrial, transportation, and military facilities
- Meteorology
- Hydrology
- Geology and seismology

Site Environmental Review

- Number of reactors
- Type of reactor
- Thermal power level
- Site boundary
- General layout
- Radiological and thermal effluents
- Type of cooling systems, including intakes and outflows

By addressing the engineering/economic criteria of typical site screening methodology and the topics of the site safety and site environmental reviews, lists of individual plant parameters and plant parameters envelopes are developed that define 1) the plants' abilities to protect safety-related equipment from threats posed by the site and environs, 2) the required inputs from the site and environs for successful normal and post-accident operation, and 3) the normal and post-accident effluents from the plants.

The development of the plant parameters envelopes involved three subtasks, with a fourth subtask designed to test the viability and reasonableness of the values presented in the envelopes (see Figure 1-1).

Volume I of this report describes the development of the plant parameters and the associated envelope quantities for the advanced light water reactor (ALWR) designs. In the first subtask, appropriate parameters were developed through a systematic review of regulatory and application content criteria, as well as consideration of previous site studies and design and construction experience. Additionally, the Utility Requirements Documents (URDs) were reviewed to identify whether unique design features of the ALWR designs introduced new, salient parameters. The list of parameters is presented in Appendix A as the composite parameters applicability matrix. Through a process of parameter categorization, the composite list of parameters was simplified to just those parameters that characterize the reference plant design or typical nuclear plant features that are not overly subject to site-specific design or evaluations. In subtask 2, the list of qualitative plant parameters was used as a data collection tool. Quantitative values for the plant parameters were selected from the URDs, provided by the ALWR vendors, or were determined by engineering assessment. The individual plant parameters lists are provided in Appendices B1 through B4. The third subtask compared the values in the individual plant parameters lists to determine the appropriate limiting values for the evolutionary plants and passive plants and for the generic envelope that addresses all four ALWR designs. The envelopes are presented in Appendix C. A key aspect throughout these three subtasks has been the development of adequate documentation to support the values presented. Parameter Quantity Summary sheets have been developed for each parameter in the envelope and are presented in Appendix D. Appendix E provides information regarding the software and database structure used to create the various lists and envelopes.

Figure 1-1

PLANT PARAMETERS ENVELOPE DEVELOPMENT PROCESS

The check on the reasonableness of the plant parameters envelope values was conducted in subtask 4 and utilized hypothetical site characteristics representative of potential site conditions within the United States. The results of this test are presented in Volume II. Also included in Volume II is a collection of meeting and report summaries prepared by SERCH that are applicable to the ESP process (Appendix F).

2.0 SUMMARY

The plant parameters envelopes are tools that summarize the salient plant-site interface features of ALWR reference designs in a fashion that facilitates the potential Utility-Owner's preparing for an ESP and the NRC's subsequent siting review and approval. The parameters ultimately included in the plant parameters envelopes represent the culmination of a systematic process of parameter identification, categorization, and quantification. With the plant parameters envelopes, it is possible to quantitatively describe the ALWR plant resource requirements from a potential site, the capability of an ALWR design to withstand hazards of a potential site (e.g., earthquakes, tornadoes, extreme temperatures, etc.), and the impacts of an ALWR design on a potential site (e.g., thermal effluents, radiological effluents, water use, land use, etc.). Three envelopes are presented that identify the limiting parameter values for the evolutionary plant (comparison of ABWR and System 80+), the passive plant (comparison of AP600 and SBWR), and the generic plant (comparison of the evolutionary and passive plants).

The plant parameters envelopes address 29 ALWR structures, systems, or components (SSCs) and other important features, including construction impacts. A total of 205 parameters are presented in the envelopes. In addition to addressing the SSCs of the reference ALWR designs, the envelopes also include SSCs that are typical of nuclear power plants but whose design is sufficiently site specific to be beyond the scope of the reference designs. This provides envelopes with more design flexibility and options for consideration in the selection of potential sites.

The parameters included in the plant parameters envelopes are a subset of the entire collection of parameters that were initially identified as characterizing the plant-site interface. The total number of parameters considered during the

preparation of the plant parameters envelopes is 426. As a result of engineering judgment and reviews with ALWR designers, the comprehensive list is divided into four categories as follows:

- The first category represents the specific plant-site interface design requirements and capabilities of the ALWR reference plants.
- The second category is an extension of the first to include the plant-site design requirements of significant SSCs typical of nuclear power plants.
- The third category recognizes that much of the ALWR plant-site interface design depends on the characteristics of the site to be licensed and cannot be reasonably treated in a generic fashion.
- In the final category, many parameters, while material to siting decisions, are of such a detailed nature that engineering implementation is generally acceptable; they are not normally the cause for finding a plant-site interface to be unacceptable.

The plant parameters envelopes include only those parameters in the first two categories. The third category is considered to represent a partial site envelope of parameters warranting site-specific investigation in preparation for an early site permit. The final category includes details of the SSCs.

The 205 parameters included in the plant parameters envelopes provide a comprehensive description of the plant-site interface on an SSC basis. This level of detail is necessary to adequately portray the plant to the NRC (and other regulatory agencies) at the ESP licensing stage. By combining and summarizing the parameters, an overview of the effects of plant construction and operation can be developed. Figures 2-1, 2-2, and 2-3 show the principal water use by the three

Figure 2-1

EVOLUTIONARY PLANT WATER USE DIAGRAM

Figure 2-2

PASSIVE PLANT WATER USE DIAGRAM

Figure 2-3

GENERIC PLANT WATER USE DIAGRAM

envelope plants: cooling water, potable water, and demineralized water. Table 2-1 summarizes the land use of the plants during construction and operation, and Table 2-2 lists the effluents from the plants. The information in these figures and tables is based on the reference plant configurations of the normal plant heat sink and ultimate heat sink and does not include other heat sink options addressed in the plant parameters envelopes. In general, the parameter quantities applicable to the evolutionary plant are the limiting values for the generic plant.

Table 2-1

LAND USE

<u>Characteristic</u>	<u>Area (Acres)</u>		
	<u>Evolutionary Plant</u>	<u>Passive Plant</u>	<u>Generic Plant</u>
Site Area (Assumes 0.5 mile EAB*)	500	500	500
Plant Facilities			
Protected area	75	46	75
Normal plant heat sink (Natural draft cooling towers)	6	2	6
Ultimate heat sink (Cooling pond without spray)	60	Not Applicable	60
Spent fuel storage facility	15	15	15
Switchyard	12	12	12
Access routes	<u>7</u>	<u>7</u>	<u>7</u>
Subtotal	175	82	175
Construction Facilities			
Laydown	29	17	29
Temporary Construction Facilities	<u>52</u>	<u>31</u>	<u>52</u>
Subtotal	81	48	81
Total Distributed Area	256	130	256

*EAB = Exclusion Area Boundary

Table 2-2
PLANT EFFLUENTS

	<u>Evolutionary Plant</u>	<u>Passive Plant</u>	<u>Generic Plant</u>
<u>Thermal Effluents</u>			
Thermal Power Rating (MW _T)	3,926	2,000	3,926
Normal Plant Heat Sink Cooling Tower Blowdown			
Heat rejection rate (Btu/hr)	26 x 10 ⁶	12.5 X 10 ⁶	26 x 10 ⁶
Blowdown temperature (°F)	100	95	100
Ultimate Heat Sink Cooling Pond Blowdown			
Heat rejection rate (Btu/hr)	0.5 x 10 ⁶	Not Applicable	0.5 x 10 ⁶
Blowdown temperature (°F)	95		95
<u>Radiological Effluents</u>			
Liquid (Ci/yr)	0.36	0.293	0.36
Gaseous (Ci/yr)	5,385	4,579	5,385
Tritium			
Liquid (Ci/yr)	360	690	690
Gaseous (Ci/yr)	1,200	77	1,200
Solid (Ci/yr)	2,700	2,700	2,700
<u>Combustion Gas Effluents</u>			
Particulates (lb/yr)	4,700	3,400	4,700
Sulfur oxides (lb/yr)	161,000	153,600	161,000
Carbon monoxide (lb/yr)	12,200	8,600	12,200
Hydrocarbons (lb/yr)	1,100	600	1,100
Nitrogen oxides (lb/yr)	48,000	33,900	48,000
<u>Noise</u>			
Normal operation dBA @ 1,000 ft	55	55	55
Construction dBA @ 50 ft	76-101	76-101	76-101
<u>External Appearance</u>			
Structure height (ft)	174	207 ft-3 in.	207 ft-3 in.
Cooling tower height (ft)	550	500	550

3.0 CONCLUSIONS AND RECOMMENDATIONS

The preparation of the plant parameters envelopes, coupled with the Regulatory Criteria Evaluation Report, has resulted in a systematic assessment of the significant regulatory documents and a review of the ALWR design features. This examination has led to an identification of parameters and numerical values that will facilitate the early site permit application and review process without commitment to a particular ALWR design or detailed design information for many of the plant systems. The initial generation of a comprehensive list of plant-site interface parameters along with the subsequent categorization of parameters has yielded not only a list of plant parameters, but also a partial site parameters list that should be considered in the site screening and evaluation process.

The numerical values included in the plant parameters envelopes are typical of nuclear power plants with similar power ratings. Although each of the ALWR designs is somewhat different from the other, the points of interface with the site are similar and typical of other power plants. The individual plant parameters lists generally did not reveal any aspects of the reference designs that would restrict the site suitability of a particular design or the ALWRs collectively. However, it was noted that certain structural design requirements may limit the number of accommodating sites without further analysis, design modifications, or site remediation.

The plant parameters envelopes represent a mixture of reference plant design requirements, reference plant design characteristics, and assessments of design features and effluents typical of nuclear power plants. The parameter quantity summary (PQS) sheets that accompany the enveloping values provide the bases behind the assessed values. The enveloping values and the bases should be reviewed and adjusted as necessary when a specific site is selected for permit application. Additionally, the partial site parameter list, as well as those

parameters categorized as DETAIL, should also be reviewed to ensure that the application addresses the necessary site-specific design features not included in the ALWR reference plant designs.

The following issues and observations arose during the preparation of the plant parameters envelopes.

The reference plant designs are still evolving, and some design features outside of the nuclear island are only conceptual or preliminary in nature. (It should be noted that the passive plant SSARs were issued during the preparation of the lists and envelopes and were not available for much of the work on the plant parameter quantification. Additionally, the evolutionary plant SSARs were [and continue] undergoing revisions that impacted the values for the individual plant parameters lists.) The identified parameters that characterize the designs should not vary, but the values to be inserted for some of the parameters may be subject to change. Consequently, the plant parameters envelopes should be viewed as living documents and a process should be put in place to ensure that the values and PQS sheets are revised as the ALWR SSARs and other related design documents are modified.

The PQS sheet for the severe accident source term parameter outlines a probabilistic method that yields expected release characteristics (i.e., expected release fraction or expected activity by isotopic group). In practice, reporting the curies released by radioactive isotope is an intermediate step in arriving at the consequences of a severe accident. Because the ALWR vendors are employing industry accepted methodology and computer codes, reporting the dose consequences at a fixed distance from the reactor should be acceptable for the plant parameters envelopes. The analysis of other site-related consequences requires site-specific information that is not reasonable to envelope. SECY-91-041, "Early Site Permit Review Readiness," indicates that, on the basis

of experience, a plant-site combination that has received an ESP will have a reasonable assurance of meeting 10 CFR 100 and that an accident consequence assessment is not necessary at the ESP stage (confirmatory analysis will be required at the combined operating license [COL] stage). This SECY also indicates that the staff will review severe accidents at the ESP stage by comparing population data and other information for the candidate site with the information and results of the Level 3 probabilistic risk assessments reported in NUREG-1150. The SECY goes on to say:

"As with the design basis accident evaluation scheme described previously, the staff would perform a confirmatory analysis at the COL stage. The staff has determined that Severe Accident Mitigation Design Alternatives (SAMDA) should be addressed as part of the design certification process."

Therefore, it is judged that reporting the URD target for dose consequences due to severe accidents is sufficient information for the plant parameters envelopes. Nonetheless, additional work to generate the expected release fractions or expected activity is being reviewed with the ALWR vendors to address the technical aspects as well as the proprietary nature of the data.

4.0 DEVELOPMENT OF PLANT PARAMETERS ENVELOPES

The qualitative parameters list is the first of several steps leading to envelopes of quantitative values applicable to ALWR designs. When favorably compared to specific site conditions, these envelopes will form the basis for granting an early site permit (ESP). The purpose of the qualitative parameters list is to identify those parameters that characterize the plant's:

- Functional or operational needs (requirements) from the site's natural/environmental resources, or
- Capability to withstand the natural or man-made environmental hazards inherent to a site, or
- Direct impact on the site's natural/environmental resources (soil/rock, water, or air).

Following development of the qualitative parameters list, individual ALWR quantitative parameters lists are determined. To establish the quantitative parameters list, appropriate numerical values are assigned to the qualitative parameters based on three sources:

- EPRI Utility Requirements Documents (URDs),
- Vendor design information, or
- Engineering assessments.

The numerical values contained in the individual ALWR quantitative parameters lists are then arranged such that envelopes are created by the selection of the limiting value for each qualitative parameter for:

- Both evolutionary plant designs,
- Both passive plant designs, and
- A generic envelope addressing the four ALWR designs.

In preparation for an ESP application, the quantified plant parameters should be juxtaposed with the site characteristics for each corresponding parameter to assess the acceptability of a proposed site as illustrated below.

PLANT PARAMETERS		SITE CHARACTERISTICS
Plant functional or operational needs (e.g., maximum normal raw water flow rate to the normal plant heat sink)	$\leq$	Site's capacity to satisfy plant needs (e.g., raw water flow rate available from site or nearby water sources)
Plant capability to withstand natural or manmade environmental hazards (e.g., design basis safe shutdown earthquake ground acceleration)	$\geq$	Site specific hazards (e.g., site-specific earthquake ground acceleration)
Plant's direct impact on the site's natural/environmental resources (e.g., normal plant heat sink blowdown heat rejection rate)	$\leq$	Site's capacity to accommodate plant operation (e.g., federal, state, and local discharge limitations)

4.1 QUALITATIVE PLANT PARAMETERS LIST

The qualitative plant parameters list was initially developed by identifying the review categories (e.g. hydrology, meteorology, seismology, land use, water quality, etc.) appearing in NRC documents related to ESPs (e.g. 10 CFR 52; Regulatory Guides 1.70, 4.2, and 4.7; NUREG-0180 and NUREG-0800; and SECY 91-041). The plant SSCs related to each review category with a plant-site

interface were determined (Table 4-1). Finally, the parameters associated with the plant SSCs or the site which are necessary to quantify the effect on the site or plant were listed.

After developing an exhaustive list of parameters characterizing the plant-site interface, each parameter was reviewed and assigned to one of four parameter categories. The categories were defined as follows:

PLANT Those parameters that firmly specify the reference plants' requirements for site resources, design capacity to withstand site conditions, or effluents to the site and environs. (Typically, these parameters are quantified in the URDs or by the vendors.) (Examples: Tornado Wind Speed, Condenser Duty)

PLANT-SITE (P/S) Those parameters that describe typical nuclear plant features interfacing with the site that are not specified in the reference plant designs and are not of such site variability as to preclude development of reasonable quantities for inclusion in the plant envelope. (Examples: Cooling Tower Height, Flue Gas Effluents)

SITE Those parameters specifying site conditions that have a direct, significant impact on plant SSCs but are of such site-specific variability that customized analyses or design features are necessary to ensure suitability with the ALWR plants. (Example: Man-Made Site Proximity Hazards, Cooling Tower Visible Plume Length)

DETAIL

Those parameters specifying design details of plant SSCs that generally can be designed to accommodate a variety of site-specific conditions, or whose requirements or impacts can be stated in terms of another SSC with a more direct interface with the site. (Examples: Site Drainage, RCS Leakage)

Following review with the ALWR designers, the qualitative plant parameters list was enhanced to reflect the applicability of the generic qualitative parameters to the specific ALWR designs. For parameters categorized as SITE or DETAIL, the applicability columns on the parameters applicability matrix have been intentionally left blank because determination of applicability cannot be made until a specific site or plant design has been selected. The parameters applicability matrix is presented in Appendix A.

Those parameters that were categorized as PLANT or P/S represent the necessary parameters to adequately describe the ALWR plant designs for an ESP application, are the basis for the individual plant parameter lists and the plant parameters envelopes, and are considered to constitute the generic qualitative plant parameters list.

Those parameters categorized as SITE represent a partial site parameters list. This list is not complete because the emphasis is on engineering/economic criteria and other important factors, and environmental and sociological criteria are not addressed in depth.

4.2 INDIVIDUAL PLANT PARAMETERS LISTS

The qualitative plant parameters list and the parameters applicability matrix are used as data collection tools for the development of the individual plant parameters

lists. In the individual plant parameters lists, appropriate numerical values are inserted for each parameter based on one of three sources: URDs, vendor input, or engineering assessment. In addition to citing the parameter values, the lists also provide references to the source of the data.

With respect to the URD values, the effort involved a straightforward review of the URDs and documentation of the URD section and revision. URD values were primarily available for the design of structures against the effects of natural hazards, meteorological exceedance values for the sizing of heat removal systems, atmospheric dispersion coefficients for assessment of radiological consequences, and targets for radiological effluents.

Vendor values were obtained for the parameters through a number of methods. The preferred method was citation of a value from a Standard Safety Analysis Report (SSAR) or other design document or report. This method was primarily applicable to the parameters categorized as PLANT. For parameters designated as P/S, it was necessary to rely on less formal sources of data, particularly when the parameter characterized an aspect of the plant not included in the well-developed portions of the reference design. Generally, whenever the vendor-supplied design information meets or exceeds the URD requirements, "URD" was entered in the individual plant parameters lists as the vendor value. In some cases, the URD requirement was a restatement of a regulatory requirement (such as compliance with 10 CFR 100 for design basis accident dose consequences) or a performance target (such as site preparation duration of 18 months). For these cases, the vendor value assigned was "URD" even though no vendor document was provided because of the mandatory nature of the regulatory requirement or the stated intent to conform with the performance targets. The values taken from the URDs or ALWR documents or supplied by the vendor were treated as design values. No effort was made to distinguish between nominal and design values, as the difference was judged to be within the accuracy of the enveloping process.

When neither an URD value nor vendor input was available, engineering assessments were performed to estimate reasonable numerical values for the parameters. The general approach outlined in Table 4-2 was followed in the preparation of the assessments. The engineering assessments were documented in the parameter quantity summary sheets (Appendix D) with sufficient detail to permit adjustments of the enveloping values should utility, site, or evolving plant-specific information warrant such treatment. No systematic margin was factored into the assessments to arrive at conservative values. Reasonable margin was incidentally incorporated into the values as a result of assumptions, rounding-up to the nearest value of reasonable precision, use of existing plant data without consideration of the effects of best-available technology, and consensus of engineering judgment.

4.3 PLANT PARAMETERS ENVELOPES

The individual plant parameters lists were utilized to develop the plant parameters envelopes (Appendix C). Three envelopes were determined: one envelope was based on the limiting individual plant parameter values for the evolutionary plants (ABWR and System 80+), another envelope was based on the limiting values for the passive plants (AP600 and SBWR), and the third envelope, representing the generic plant, was based on the limiting values from the evolutionary and passive plant envelopes. The following rules were applied in determining the appropriate values to insert in the envelopes:

- For any parameter with a value documented in the URDs, the URD value is always cited as the envelope value irrespective of whether the individual ALWR designs conform to the URD value.
- When a design option is not included in the reference design but the vendors have provided quantities for similar design features (e.g.,

mechanical draft versus natural draft cooling towers), the vendors' values have been inserted in the envelopes when the values were judged to be appropriate for the nonreference design options.

- In cases where not all vendors provided values, engineering assessments were performed for the remaining ALWR designs. When both an engineering assessment and vendor value exist, the vendor value is used as the individual plant parameters list value, and if limiting, the vendor value is used as the envelope value.
- For any parameter with neither an URD value nor a vendor value, the value developed by engineering assessment is used.

4.4 PLANT PARAMETERS DATABASE

The preparation of the plant parameters envelopes involved the collection and manipulation of a significant amount of data. To provide an orderly method of data retention and retrieval, this information was input into a relational database. The data resides in Early Site Permit Demonstration Program Siting Database for Phases I & II. An example Parameter Record Sheet figure from this database is at the end of this section. For each parameter in the plant parameters envelopes (and the partial site parameters list), an individual parameter record was generated. Figure 4-1 is a single page representation of the electronic record for a typical parameter, in this case parameter number 10.3.1, Liquid Radwaste System - Source Term - Liquid.

The contents of the various fields for the parameter records are briefly described in the following paragraphs:

- The upper half of the record sheet provides general information regarding the parameter, while the lower half lists the appropriate numerical values and identifies the enveloping values.
- The first three fields identify the parameter. The first line shows the structure, system, or component to which the parameter applies. The next two lines provide further definition of the specific parameter.
- Next, a single line is used to show the categorization of the parameter and the applicability of the parameter to the ALWR designs.
- The last portion in the upper half of the record sheet provides cross-reference information to the ESP review categories listed in Table 4-1 and applicable siting database document numbers (SDB1 and SDB2) from the Regulatory Criteria Evaluation Report. An additional line is included to permit the identification of other regulatory documents that might not be addressed in the aforementioned report. Fields are also provided to identify multi-unit impacts (future activity) and to link parameters with applicable open items in the NRC's Draft Safety Evaluation Report for the designs described in the URDs.
- The lower half of the record sheet is divided into three sections: URD, VENDOR, and ENG ASSESS. The construction of each section is similar. The far-left column is used to designate whether the value is the limiting value (E = Evolutionary, P = Passive, G = Generic). The middle column shows the values for the parameter. The right-hand column provides the reference for the value (URD, SSAR, letter, telephone note, facsimile transmission, parameter quantity summary sheet, etc.). At the bottom of the record, space is provided for additional comments.

The parameters applicability matrix, individual plant parameters lists, and the plant parameters envelopes are simply sorts of the database with differing report formats.

Table 4-1 (Sheet 1)
PLANT VERSUS ESP REVIEW CATEGORY MATRIX

SSC with Site Interface	Radiological Effluents ¹	Thermal Effluents ¹	Cooling System (Type, Intake, Outflow) ¹	Seismic ¹	Metereological ¹	Hydrologic ¹	Geologic ¹	Nearby Facilities and Routes ¹	Population Profile (existing and future) ¹	Geography ¹	Site Boundary ¹	Facility Location On Site ¹
Cooling Water Canals		X	X	X	X	X	X			X		X
Cooling Water Reservoirs		X	X	X	X	X	X			X		X
Foundations			X	X	X	X	X			X		X
Containment Heat Removal		X			X			X				X
Secondary Containment					X			X				X
Control Room Habitability					X			X				X
Offsite Power					X							X
Service Water		X	X		X	X						X
Ultimate Heat Sink		X	X		X	X						X
HVAC					X							X
EDG Fuel Oil Storage					X			X				X
EDG Combustion Air		X			X			X				X
Circulating Water			X		X							X
Security												
Containment		X						X				
Structures				X	X	X	X					
Demineralized Water Makeup												
Potable Water												
Sanitary Waste												
Condensate Cleanup												
Steam Generator Blowdown		X										
Radiolysis (Gas, Liquid, Solid)		X										
Reactor Coolant System (RCS)		X										
Chemical and Volume Control System		X										
RCS Cleanup System		X										
Spent Fuel Storage		X										
Standby Gas Treatment System		X										
Auxiliary Boiler System		X										
Gas Storage System		X										
Fire Protection System		X										
Miscellaneous Drain System		X										

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¹ Review categories from 10 CFR 52
² Review categories from SECY-91-041

Table 4-1 (Sheet 2)

SSC with Site Interface	SANDAG	Number of Units ¹	Thermal Power Level ²	Construction Clearance ³	Transmission Access ⁴	Water Quality ⁵	Community Impact ⁶	Land Use ⁷	Water Use ⁸	External Appearance ⁹	Regional Features (Historic, Cultural, or Natural) ¹⁰	Deermitis ¹¹
Cooling Water Canals												
Cooling Water Reservoirs												
Foundations				X X X		X X		X X	X X			
Containment Heat Removal	X											
Secondary Containment												
Control Room Habitability												
Offsite Power					X							
Service Water				X X X		X X		X X	X X			
Ultimate Heat Sink												
HVAC	X											
EDG Fuel Oil Storage												
EDG Combustion Air												
Circulating Water												
Security			X	X X X		X		X X	X			
Containment Structures	X			X X X								
Demineralized Water Makeup												
Potable Water												
Sanitary Waste												
Condensate Cleanup												
Steam Generator Blowdown												
Radiolysis (Gas, Liquid, Solid)												
Reactor Coolant System (RCS)												
Chemical and Volume Control System												
RCS Cleanup System												
Spent Fuel Storage												
Standby Gas Treatment System												
Auxiliary Boiler System												
Gas Storage System												
Fire Protection System												
Miscellaneous Drain System												

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¹ Reactor categories from NUREG-0180
² No direct plant site interface identified for all NRE reference plant designs
³ The plant parameters envelope are based on a single unit of a presently undesignated unit

Table 4-2

**GENERAL APPROACH TO
ENGINEERING ASSESSMENTS**

1. **Define Parameter Based on Plant Qualitative Parameters List**
2. **Assign to Responsible Engineering Discipline**
3. **Collect Data**
 - ALWR Vendor Information
 - Existing Licensing Related Plant Information (FSAR and ER)
 - Existing Plant Design or Supplier Information
 - WASH-1355
 - NUREG-1437
 - Related Literature
4. **Evaluate Data and Determine Approach**
 - Simple Numerical Assessments Using Established Design Relationships and ALWR or Existing Plant Data

Example: Evaporation Rate/Blowdown Rate/Acreage
 - Extrapolation From Existing Plant Data and Engineering Judgment

Example: Cooling Tower Height/Potable Water Use
 - Combination of Both
 - No Formal Design Calculations
5. **Preparer, Reviewer, and Chief Engineer Review**
6. **Project Team Review**

Figure 4-1

PARAMETER RECORD SHEET 10.3.1

PLANT PARAMETERS ENVELOPE RECORD SHEET

SSC : LIQUID RADWASTE SYSTEM

PRI_PARAM: SOURCE TERM

SEC_PARAM: LIQUID

PARAM_TYPE: PLANT ABWR: X SYS80+: X AP600: X SBWR: X

REVIEW CAT: RADIOLOGICAL EFFLUENTS MULTI-UNIT IMPACT:

SDBNOEXT: SDB- URD DSER OPEN ITEM: 1. E.IA.V-31
2. E.IB.O-7
SDB2 : SDB-095.012.002.003 3. P.IA.V-10
4. P.IB.O-9

OTHER REFS:

URD:	VALUE	REFERENCE & REVISION
G EV:	0.05 CI/YR	VOL II, CHAP 12, 1.5.1 REV 1

P PA:	0.05 CI/YR	VOL III, CHAP 12, 1.5.1 REV 0
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VENDOR:	VALUE	REFERENCE & REVISION
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ABWR :	0.1 CI/YR	FAX 7/17/92
SYS80+:	2.9E-01 CI/YR	CESSAR DC, T11.2-1 AMEND 1
AP600 :	0.26CI/YR(EXCEPT TRITIUM)	AP600 SSAR, T11.2-7 REV 0
SBWR :	0.1 CI/YR	FAX 7/15/92

ENG ASSESS:	VALUE	REFERENCE & REVISION
-------------	-------	----------------------

ABWR :	EVOLUTIONARY 3.6E-1 CI/YR	PQS - 10.3.1
SYS80+:	EVOLUTIONARY 3.6E-1 CI/YR	PQS - 10.3.1
AP600 :	PASSIVE 2.93E-1 CI/YR	PQS - 10.3.1
SBWR :	PASSIVE 2.93E-1 CI/YR	PQS - 10.3.1

COMMENTS:

5.0 LIST OF ACRONYMS

ABWR	ALWR plant type Advanced Boiling Water Reactor (GE evolutionary design)
ACRS	Advisory Committee on Reactor Safeguards
ALWR	Advanced Light Water Reactor
AP 600	ALWR plant type (Westinghouse passive design)
APWR	Advanced Pressurized Water Reactor
CFR	Code of Federal Regulations
COL	Combined Operating License
DSER	Draft Safety Evaluation Report (NRC Document)
ER	Environmental Report
ESP	Early Site Permit
FSAR	Final Safety Analysis Report
INPO	Institute of Nuclear Power Operations
MS	Meeting Summary
NRC	Nuclear Regulatory Commission
NUMARC	Nuclear Utility Management And Resources Council
NUREG/CRs	NRC document title
NUREG	NRC document title
PQS	Parameter Quantity Summary
RC	Regulatory Criteria
RCS	Reactor Coolant System
REGIS	REGulatory Information System
RS	Report Summary
SAMDA	Severe Accident Mitigation Design Alternative
SBWR	ALWR plant type Simplified Boiling Water Reactor (GE passive design)
SDB1	Siting Database Number (primary)
SDB2	Siting Database Number (secondary)
SECY	NRC document title
SERCH	Service for Evaluating Regulatory Changes
SSAR	Standardized Safety Analysis Report
SSC	Structure, System, Component
SYSTEM 80+	ALWR plant type Combustion Engineering (evolutionary design)
UHS	Ultimate Heat Sink
URD	Utility Requirements Document
WASH	Westinghouse Licensing Topical Report

Appendix A

QUALITATIVE PLANT PARAMETERS LIST AND PARAMETERS APPLICABILITY MATRIX

The qualitative plant parameters list presents the parameter information in the following manner. The parameters are basically organized by the plant SSCs that potentially interface with the site, as well as two miscellaneous items (Plant Characteristics and Construction). There are a total of 29 SSCs, beginning with Structures, progressing through plant heat sinks, other water systems, radwaste systems, auxiliary systems, and ending with Construction. Each SSC is assigned a number from 1 to 29 that becomes the initial digits in the individual parameter numbers.

Next, primary and secondary parameters are identified for each SSC that characterize the interface between the plant SSC and the site. There is no relative importance implied by the terms primary and secondary. This organization merely permits the parameters list to logically address design options and/or multiple characteristics of a particular interface point. Primary and secondary parameters are sorted alphabetically within their applicable SSC and assigned a sequential number. These numbers are used to complete the unique parameter number for each parameter. For example, parameter number 1.11.1 is the unique number for:

SSC	Structures
Primary Parameter	Tornado (Design Bases)
Secondary Parameter	Maximum Pressure Drop

The parameters applicability matrix uses the qualitative plant parameters list to identify the applicability of the parameters to the reference ALWR designs. The left half of each matrix sheet lists the SSCs, primary parameters, and secondary parameters of the qualitative plant parameters list. The column labeled "PRMTR

TYPE" identifies the categorization of the individual parameters, PLANT, P/S, SITE, or DETAIL. The right half of each matrix sheet consists of five columns. Four of the columns are headed by the name of one of the ALWR designs. If a parameter is applicable to an ALWR design, then an "X" is placed in the appropriate column. Some parameters are included in the qualitative plant parameters list and parameters applicability matrix, even though these parameters are not applicable to any of the ALWR designs. These parameters are included to provide flexibility in the lists and envelopes to address design options that are not specifically included in the reference ALWR designs. The final column on each sheet of the matrix, headed "DSER Open Item," provides links between the parameters and open items in the NRC's Draft Safety Evaluation Report (DSER) for the URDs. The open item numbers are based on Volume I, Sections 4 and 5 of the DSER as reviewed by the EPRI ALWR Program.

PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmr Type	ABMR	SYS00+	AP400	SBMR	UND DSER Open Item
<hr/>							
1. STRUCTURES							
<hr/>							
1.1 FOUNDATION EMBEDMENT		PLANT	[X]	[X]	[X]	[X]	
1.2 HEIGHT		PLANT	[X]	[X]	[X]	[X]	
1.3 RUN-RODE SITE PROXIMITY HAZARDS							
1.3.1 AIRPLANE CRASH		SITE	[]	[]	[]	[]	
1.3.2 DETONABLE FLUID EXPLOSION - BLAST OVERPRESSURE		SITE	[]	[]	[]	[]	
1.3.3 INDUST PLANT ACCIDENT - BLAST OVERPRESSURE		SITE	[]	[]	[]	[]	
1.3.4 MILITARY HAZARDS		SITE	[]	[]	[]	[]	
1.3.5 PIPELINE ACCIDENT - BLAST OVERPRESSURE		SITE	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmr Type	ABR	SYS80+	AP400	SBAR	UND USER Open Item
	1.3.6 SHIP COLLISION	SITE	[]	[]	[]	[]	
	1.3.7 SURFACE VEHICLE ACCIDENT - BLAST OVERPRESSURE	SITE	[]	[]	[]	[]	
	1.3.8 TOXIC OR HAZARDOUS GAS RELEASE	SITE	[]	[]	[]	[]	
	1.4 PRECIPITATION (FOR ROOF DESIGN)						
	1.4.1 MAXIMUM RAINFALL RATE	PLANT	[X]	[X]	[X]	[X]	E.1.V-27 P.1.V-27
	1.4.2 SNOW LOAD	PLANT	[X]	[X]	[X]	[X]	E.1.V-28 P.1.V-28
	1.5 SAFE SHUTDOWN EARTHQUAKE (SSE)						
	1.5.1 DESIGN RESPONSE SPECTRA	PLANT	[X]	[X]	[X]	[X]	
	1.5.2 PEAK GROUND ACCELERATION	PLANT	[X]	[X]	[X]	[X]	
	1.5.3 TIME HISTORY	PLANT	[X]	[X]	[X]	[X]	E.1.V-33 P.1.V-33

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Pratr Type	ADMR	SYSDO+	AP600	SDMR	UND DSER Open Item
------------------------------	-------------------------------	------------	------	--------	-------	------	--------------------

1.6 SITE DRAINAGE

DETAIL	[]	[]	[]	[]
--------	-----	-----	-----	-----

1.7 SITE GEOLOGIC PROPERTIES

1.7.1 FOUNDATION STABILITY CHARACTERISTICS

SITE	[]	[]	[]	[]
------	-----	-----	-----	-----

1.7.2 GROUND WATER CONDITIONS

SITE	[]	[]	[]	[]
------	-----	-----	-----	-----

1.7.3 SOIL RESISTIVITY

DETAIL	[]	[]	[]	[]
--------	-----	-----	-----	-----

1.7.4 SUBSIDENCE POTENTIAL

SITE	[]	[]	[]	[]
------	-----	-----	-----	-----

1.7.5 SURFACE FAULTING POTENTIAL

SITE	[]	[]	[]	[]
------	-----	-----	-----	-----

1.8 SITE WATER LEVEL (ALLOWABLE)

1.8.1 MAXIMUM FLOOD (OR TSUNAMI)

PLANT	[X]	[X]	[X]	[X]
-------	-----	-----	-----	-----

1.8.2 MAXIMUM GROUND WATER

PLANT	[X]	[X]	[X]	[X]	E.1.V-26 P.1.V-26
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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Param Type	ABAR	SYSDO	AP600	SDMR	UND BASED Open Item
1.9 SOIL PROPERTIES DESIGN BASES							
	1.9.1 LIQUEFACTION	PLANT	(X)	(X)	(X)	(X)	
	1.9.2 MINIMUM BEARING CAPACITY (STATIC)	PLANT	(X)	(X)	(X)	(X)	
	1.9.3 MINIMUM SHEAR WAVE VELOCITY	PLANT	(X)	(X)	(X)	(X)	
1.10 TERRAIN/TOPOGRAPHY							
	1.10 TERRAIN/TOPOGRAPHY	SITE	()	()	()	()	
1.11 TORNADO (DESIGN BASES)							
	1.11.1 MAXIMUM PRESSURE DROP	PLANT	(X)	(X)	(X)	(X)	E.1.0-1 P.1.0-5
	1.11.2 MAXIMUM ROTATIONAL SPEED	PLANT	(X)	(X)	(X)	(X)	E.1.0-1 P.1.0-5
	1.11.3 MAXIMUM TRANSLATIONAL SPEED	PLANT	(X)	(X)	(X)	(X)	E.1.0-1 P.1.0-5
	1.11.4 MAXIMUM WIND SPEED	PLANT	(X)	(X)	(X)	(X)	E.1.0-1 P.1.0-5

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prater Type	ADMR	SYSDO-	AP600	SDMR	WRD USER Open Item
1.12 WIND	1.11.5 MISSILE SPECTRA	PLANT	(X)	(X)	(X)	(X)	
	1.11.6 RADIUS OF MAXIMUM ROTATIONAL SPEED	PLANT	(X)	(X)	(X)	(X)	E.1.0-1 P.1.0-5
	1.11.7 RATE OF PRESSURE DROP	PLANT	(X)	(X)	(X)	(X)	E.1.0-1 P.1.0-5
	1.12.1 BASIC WIND SPEED	PLANT	(X)	(X)	(X)	(X)	
	1.12.2 IMPORTANCE FACTORS	PLANT	()	(X)	(X)	(X)	E.1.V-25 P.1.V-25
<hr/>							
2. NORMAL PLANT HEAT SINK							
<hr/>							
2.1 AMBIENT AIR REQUIREMENTS							
	2.1.1 NORMAL SHUTDOWN MAX AMBIENT TEMP (1% EXCEED)	PLANT	(X)	(X)	(X)	(X)	E.1.V.-36 P.1.V-35
	2.1.2 NORMAL SHUTDOWN MAX WET BULB TEMP (1% EXCEED)	PLANT	(X)	(X)	(X)	(X)	E.1.V.-36 P.1.V-35

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Param Type	ABWR	SYS80+	AP600	SBWR	UND BSR Open Item
	2.1.5 NORMAL SHUTDOWN MIN AMBIENT TEMP (1% EXCEED)	PLANT	[X]	[X]	[X]	[X]	E.I.V.-36 P.I.V.-35
	2.1.4 PREVAILING WIND DIRECTION	SITE	[]	[]	[]	[]	
	2.1.5 RX THERMAL POWER MAX AMBIENT TEMP (0% EXCEED)	PLANT	[X]	[X]	[X]	[X]	E.I.V.-36 P.I.V.-35
	2.1.6 RX THERMAL POWER MAX NET BULB TEMP (0% EXCEED)	PLANT	[X]	[X]	[X]	[X]	E.I.V.-36 P.I.V.-35
	2.1.7 RX THERMAL POWER MIN AMBIENT TEMP (0% EXCEED)	PLANT	[X]	[X]	[X]	[X]	E.I.V.-36 P.I.V.-35
	2.2 BLOWDOWN POND ACREAGE	P/S	[X]	[X]	[X]	[X]	
	2.3 CONDENSER/HEAT EXCHANGER DUTY	PLANT	[X]	[X]	[X]	[X]	
	2.4 FEDERAL, STATE AND LOCAL LIMITS	SITE	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmr Type	ABLR	SYSD00+	AP600	SBLR	UND DSER Open Item
.....							
2.5 INTAKE/DISCHARGE SCREENS							
	2.5.1 APPROACH VELOCITY	DETAIL	[]	[]	[]	[]	
	2.5.2 DEPTH	DETAIL	[]	[]	[]	[]	
	2.5.3 FLOW RATE	DETAIL	[]	[]	[]	[]	
	2.5.4 MIXING ZONE	SITE	[]	[]	[]	[]	
	2.5.5 NUMBER	DETAIL	[]	[]	[]	[]	
	2.5.6 SIZE	DETAIL	[]	[]	[]	[]	
	2.5.7 TYPE	DETAIL	[]	[]	[]	[]	
	2.6 MAXIMUM INLET TEMP CONDENSER/HEAT EXCHANGER	PLANT	[X]	[X]	[X]	[X]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmr Type	ADMR	SYS80+	AP600	SDMR	URD DSER Open Item
.....							
2.7 MECH DRAFT COOLING TOWERS							
	2.7.1 ACREAGE	P/S	[]	[]	[]	[]	
	2.7.2 AIR FLOW RATE	DETAIL	[]	[]	[]	[]	
	2.7.3 APPROACH TEMPERATURE	P/S	[]	[]	[]	[]	
	2.7.4 BLOWDOWN CONSTITUENTS AND CONCENTRATIONS	SITE	[]	[]	[]	[]	
	2.7.5 BLOWDOWN FLOW RATE	P/S	[]	[]	[]	[]	
	2.7.6 BLOWDOWN TEMPERATURE	P/S	[]	[]	[]	[]	
	2.7.7 COOLING TOWER TEMPERATURE RANGE	P/S	[]	[]	[]	[]	
	2.7.8 COOLING WATER FLOW RATE	P/S	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmr Type	ABWR	SYS00+	AP600	SBWR	URD DSER Open Item
	2.7.9 CYCLES OF CONCENTRATION	P/S	[]	[]	[]	[]	
	2.7.10 EVAPORATION RATE	P/S	[]	[]	[]	[]	
	2.7.11 GROUND FOGGING EFFECTS	SITE	[]	[]	[]	[]	
	2.7.12 HEAT REJECTION RATE	P/S	[]	[]	[]	[]	
	2.7.13 HEIGHT	P/S	[]	[]	[]	[]	
	2.7.14 ICING EFFECTS	SITE	[]	[]	[]	[]	
	2.7.15 MAKEUP FLOW RATE	P/S	[]	[]	[]	[]	
	2.7.16 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABUR	SYS80+	AP600	SBUR	URD DSER Open Item
	2.7.17 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[]	[]	[]	[]	
	2.7.18 NOISE	P/S	[]	[]	[]	[]	
	2.7.19 ODOR	SITE	[]	[]	[]	[]	
	2.7.20 SALT DEPOSITION	SITE	[]	[]	[]	[]	
	2.7.21 SEEPAGE (EFFECT ON GROUND WATER)	SITE	[]	[]	[]	[]	
	2.7.22 STORED WATER VOLUME	P/S	[]	[]	[]	[]	
	2.7.23 VISIBLE PLUME LENGTH	SITE	[]	[]	[]	[]	
	2.7.24 VOLATILE ORGANIC COMPOUNDS	SITE	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
.....							
2.8 NATURAL DRAFT COOLING TOWERS							
	2.8.1 ACREAGE	P/S	[X]	[X]	[X]	[X]	
	2.8.2 APPROACH TEMPERATURE	P/S	[X]	[X]	[X]	[X]	
	2.8.3 BLOWDOWN CONSTITUENTS AND CONCENTRATIONS	SITE	[]	[]	[]	[]	
	2.8.4 BLOWDOWN FLOW RATE	P/S	[X]	[X]	[X]	[X]	
	2.8.5 BLOWDOWN TEMPERATURE	P/S	[X]	[X]	[X]	[X]	
	2.8.6 COOLING TOWER TEMPERATURE RANGE	P/S	[X]	[X]	[X]	[X]	
	2.8.7 COOLING WATER FLOW RATE	P/S	[X]	[X]	[X]	[X]	
	2.8.8 CYCLES OF CONCENTRATION	P/S	[X]	[X]	[X]	[X]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
	2.8.9 EVAPORATION RATE	P/S	[X]	[X]	[X]	[X]	
	2.8.10 GROUND FOGGING EFFECTS	SITE	[]	[]	[]	[]	
	2.8.11 HEAT REJECTION RATE	P/S	[X]	[X]	[X]	[X]	
	2.8.12 HEIGHT	P/S	[X]	[X]	[X]	[X]	
	2.8.13 ICING EFFECTS	SITE	[]	[]	[]	[]	
	2.8.14 MAKEUP FLOW RATE	P/S	[X]	[X]	[X]	[X]	
	2.8.15 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[X]	[X]	[X]	[X]	
	2.8.16 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[X]	[X]	[X]	[X]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
	2.8.17 NOISE	P/S	[X]	[X]	[X]	[X]	
	2.8.18 ODOR	SITE	[]	[]	[]	[]	
	2.8.19 SALT DEPOSITION	SITE	[]	[]	[]	[]	
	2.8.20 STORED WATER VOLUME	P/S	[X]	[X]	[X]	[X]	
	2.8.21 VISIBLE PLUME LENGTH	SITE	[]	[]	[]	[]	
	2.8.22 VOLATILE ORGANIC COMPOUNDS	SITE	[]	[]	[]	[]	
2.9 ONCE-THROUGH COOLING							
	2.9.1 COOLING WATER DISCHARGE TEMPERATURE	P/S	[]	[]	[]	[]	
	2.9.2 COOLING WATER FLOW RATE	P/S	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	S8WR	URD DSER Open Item
2.10 PONDS	2.9.3 COOLING WATER TEMPERATURE RISE	P/S	[]	[]	[]	[]	
	2.9.4 EVAPORATION RATE	P/S	[]	[]	[]	[]	
	2.9.5 HEAT REJECTION RATE	P/S	[]	[]	[]	[]	
	2.10.1 ACREAGE	P/S	[]	[]	[]	[]	
	2.10.2 BLOWDOWN CONSTITUENTS AND CONCENTRATIONS	SITE	[]	[]	[]	[]	
	2.10.3 BLOWDOWN FLOW RATE	P/S	[]	[]	[]	[]	
	2.10.4 BLOWDOWN TEMPERATURE	P/S	[]	[]	[]	[]	
	2.10.5 COOLING POND TEMPERATURE RANGE	P/S	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	UND DSER Open Item
	2.10.6 COOLING WATER FLOW RATE	P/S	[]	[]	[]	[]	
	2.10.7 CYCLES OF CONCENTRATION	P/S	[]	[]	[]	[]	
	2.10.8 EVAPORATION RATE	P/S	[]	[]	[]	[]	
	2.10.9 HEAT REJECTION RATE	P/S	[]	[]	[]	[]	
	2.10.10 MAKEUP FLOW RATE	P/S	[]	[]	[]	[]	
	2.10.11 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[]	[]	[]	[]	
	2.10.12 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[]	[]	[]	[]	
	2.10.13 STORED WATER VOLUME	P/S	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmr Type	ADMR	SYS00+	AP600	SDMR	UND DSER Open Item

	2.11 RAW WATER AVAILABLE						
	2.11.1 7-DAY, ONCE IN 10 YEAR LOW FLOW RATE	SITE	[]	[]	[]	[]	
	2.11.2 DRAINAGE EFFECTS ON SITE WATER BODIES	SITE	[]	[]	[]	[]	
	2.11.3 HIGH LEVEL	SITE	[]	[]	[]	[]	
	2.11.4 LOW LEVEL	SITE	[]	[]	[]	[]	
	2.11.5 MACROFOULING POTENTIAL (EG, CLAMS)	SITE	[]	[]	[]	[]	
	2.11.6 PROBABLE MINIMUM FLOW RATE	SITE	[]	[]	[]	[]	
	2.11.7 PROBABLE MINIMUM LEVEL	SITE	[]	[]	[]	[]	
	2.11.8 QUALITY (FRESH,BRACKISH,SALT)	DETAIL	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Pratr Type	ABMR	SYSDO+	AP400	SDMR	UND DSER Open Item
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	2.11.9 WORST DROUGHT FLOW RATE	SITE	[]	[]	[]	[]	
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3. ULTIMATE HEAT SINK

3.1 AMBIENT AIR REQUIREMENTS

3.1.1 MAXIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	PLANT	[X]	[X]	[]	[]	E.1.V-36 P.1.V-35
3.1.2 MAXIMUM WET BULB TEMPERATURE (0% EXCEEDANCE)	PLANT	[X]	[X]	[]	[]	E.1.V-36 P.1.V-35
3.1.3 MINIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	PLANT	[X]	[X]	[]	[]	E.1.V-36 P.1.V-35
3.1.4 PREVAILING WIND DIRECTION	SITE	[]	[]	[]	[]	
3.1.5 WORST 30-DAY AVG DEW POINT DEPRESSION	SITE	[]	[]	[]	[]	
3.1.6 WORST 30-DAY AVG WIND SPEED	SITE	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Param Type	ABR	SYS30+	AP600	SBR	UND DSER Open Item
	3.1.7 WORST 30-DAY SOLAR RADIATION	SITE	[]	[]	[]	[]	
	3.2 COOL HEAT EXCHANGER DUTY	PLANT	[X]	[X]	[]	[]	
	3.3 FEDERAL, STATE AND LOCAL LIMITS	SITE	[]	[]	[]	[]	
	3.4 INTAKE/DISCHARGE SCREENS						
	3.4.1 APPROACH VELOCITY	DETAIL	[]	[]	[]	[]	
	3.4.2 DEPTH	DETAIL	[]	[]	[]	[]	
	3.4.3 FLOW RATE	DETAIL	[]	[]	[]	[]	
	3.4.4 MIXING ZONE	SITE	[]	[]	[]	[]	
	3.4.5 NUMBER	DETAIL	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Param Type	ABMR	SYSDB+	AP600	SBMR	UND USER Open Item
	3.4.6 SIZE	DETAIL	[]	[]	[]	[]	
	3.4.7 TYPE	DETAIL	[]	[]	[]	[]	
	3.5 MAXIMUM INLET TEMP TO COOL HEAT EXCHANGER	PLANT	[X]	[X]	[]	[]	
	3.6 NECH DRAFT COOLING TOWERS						
	3.6.1 ACREAGE	P/S	[]	[]	[]	[]	
	3.6.2 AIR FLOW RATE	DETAIL	[]	[]	[]	[]	
	3.6.3 APPROACH TEMPERATURE	P/S	[]	[]	[]	[]	
	3.6.4 BLOWDOWN CONSTITUENTS AND CONCENTRATIONS	SITE	[]	[]	[]	[]	
	3.6.5 BLOWDOWN FLOW RATE	P/S	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ASMR	SYS80+	AP600	SBMR	URS DSER Open Item
	3.6.6 BLOWDOWN TEMPERATURE	P/S	[]	[]	[]	[]	
	3.6.7 COOLING TOWER TEMPERATURE RANGE	P/S	[]	[]	[]	[]	
	3.6.8 COOLING WATER FLOW RATE	P/S	[]	[]	[]	[]	
	3.6.9 CYCLES OF CONCENTRATION	P/S	[]	[]	[]	[]	
	3.6.10 EVAPORATION RATE	P/S	[]	[]	[]	[]	
	3.6.11 GROUND FOGGING EFFECTS	SITE	[]	[]	[]	[]	
	3.6.12 HEAT REJECTION RATE	P/S	[]	[]	[]	[]	
	3.6.13 HEIGHT	P/S	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Param Type	ABMR	SYS00+	AP600	SBR	UND DSER Open Item
	3.6.14 ICING EFFECTS	SITE	[]	[]	[]	[]	
	3.6.15 MAKEUP FLOW RATE	P/S	[]	[]	[]	[]	
	3.6.16 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[]	[]	[]	[]	
	3.6.17 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[]	[]	[]	[]	
	3.6.18 NOISE	P/S	[]	[]	[]	[]	
	3.6.19 ODOR	SITE	[]	[]	[]	[]	
	3.6.20 SALT DEPOSITION	SITE	[]	[]	[]	[]	
	3.6.21 SEEPAGE (EFFECTS ON GROUND WATER)	SITE	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Paramr Type	ABMR	SYS80+	AP600	SBMR	UND DSER Open Item
	3.6.22 STORED WATER VOLUME	P/S	[]	[]	[]	[]	
	3.6.23 VISIBLE PLUME LENGTH	SITE	[]	[]	[]	[]	
	3.6.24 VOLATILE ORGANIC COMPOUNDS	SITE	[]	[]	[]	[]	
3.7 ONCE-THROUGH COOLING							
	3.7.1 COOLING WATER DISCHARGE TEMPERATURE	P/S	[]	[]	[]	[]	
	3.7.2 COOLING WATER FLOW RATE	P/S	[]	[]	[]	[]	
	3.7.3 COOLING WATER TEMPERATURE RISE	P/S	[]	[]	[]	[]	
	3.7.4 EVAPORATION RATE	P/S	[]	[]	[]	[]	
	3.7.5 HEAT REJECTION RATE	P/S	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Pratr Type	ABWR	SYS80+	AP600	SBR	URD DSER Open Item
3.8 PONDS	3.7.6 MINIMUM ESSENTIAL FLOW RATE	PLANT	[]	[]	[]	[]	
	3.7.7 MINIMUM ESSENTIAL RAW WATER LEVEL	DETAIL	[]	[]	[]	[]	
	3.8.1 ACREAGE	P/S	[X]	[X]	[]	[]	
	3.8.2 BLOWDOWN CONSTITUENTS AND CONCENTRATIONS	SITE	[]	[]	[]	[]	
	3.8.3 BLOWDOWN FLOW RATE	P/S	[X]	[X]	[]	[]	
	3.8.4 BLOWDOWN TEMPERATURE	P/S	[X]	[X]	[]	[]	
	3.8.5 COOLING POND TEMPERATURE RANGE	P/S	[X]	[X]	[]	[]	
	3.8.6 COOLING WATER FLOW RATE	P/S	[X]	[X]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	S8WR	URD DSER Open Item
	3.8.7 CYCLES OF CONCENTRATION	P/S	[X]	[X]	[]	[]	
	3.8.8 EVAPORATION RATE	P/S	[X]	[X]	[]	[]	
	3.8.9 HEAT REJECTION RATE	P/S	[X]	[X]	[]	[]	
	3.8.10 MAKEUP FLOW RATE	P/S	[X]	[X]	[]	[]	
	3.8.11 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[X]	[X]	[]	[]	
	3.8.12 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[X]	[X]	[]	[]	
	3.8.13 STORED WATER VOLUME	P/S	[X]	[X]	[]	[]	
3.9 RAW WATER AVAILABLE							
	3.9.1 7-DAY, ONCE IN 10 YEAR LOW FLOW RATE	SITE	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
.....							
	3.9.2 BLOCKAGE EFFECTS	SITE	[]	[]	[]	[]	
	3.9.3 DRAWDOWN EFFECTS ON SITE WATER BODIES	SITE	[]	[]	[]	[]	
	3.9.4 HIGH LEVEL	SITE	[]	[]	[]	[]	
	3.9.5 LOW LEVEL	SITE	[]	[]	[]	[]	
	3.9.6 LOW WATER LEVEL (SETDOWN)	SITE	[]	[]	[]	[]	
	3.9.7 LOW WATER LEVEL DUE TO ICING	SITE	[]	[]	[]	[]	
	3.9.8 MACROFOULING POTENTIAL (EG, CLAMS)	SITE	[]	[]	[]	[]	
	3.9.9 PROBABLE MINIMUM FLOW RATE	SITE	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
	3.9.10 PROBABLE MINIMUM LEVEL	SITE	[]	[]	[]	[]	
	3.9.11 QUALITY (FRESH,BRACKISH,SALT)	DETAIL	[]	[]	[]	[]	
	3.9.12 WORST DROUGHT FLOW RATE	SITE	[]	[]	[]	[]	
<hr/>							
4. CONTAINMENT HEAT REMOVAL SYSTEM (POST-ACCIDENT)							
<hr/>							
	4.1 AMBIENT AIR REQUIREMENTS						
	4.1.1 MAXIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	PLANT	[]	[]	[X]	[]	E.I.V-36 P.I.V-35
	4.1.2 MINIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	PLANT	[]	[]	[X]	[]	E.I.V-36 P.I.V-35
	4.1.3 WORST 3-DAY AVG DEW POINT DEPRESSION	SITE	[]	[]	[]	[]	
	4.1.4 WORST 3-DAY SOLAR RADIATION	SITE	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
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4.2 THERMAL EFFLUENT (HEAT LOAD IN BTU/HR)

DETAIL [] [] [] []

4.3 WIND

4.3.1 WORST 3-DAY AVG WIND SPEED

SITE [] [] [] []

5. POTABLE WATER/SANITARY WASTE SYSTEM

5.1 CHEMICAL EFFLUENTS

5.1.1 CONSTITUENTS AND CONCENTRATIONS

SITE [] [] [] []

5.1.2 PRE-TREATMENT WASTES (SOLIDS)

DETAIL [] [] [] []

5.2 DISCHARGE TO SITE WATER BODIES

5.2.1 FLOW RATE

P/S [X] [X] [X] [X]

5.3 DRAWDOWN

5.3.1 GROUND WATER LEVEL

DETAIL [] [] [] []

5.4 RAW WATER REQUIREMENTS

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
<hr/>							
	5.4.1 MAXIMUM USE	P/S	[X]	[X]	[X]	[X]	
	5.4.2 MONTHLY AVERAGE USE	P/S	[X]	[X]	[X]	[X]	
	5.4.3 RAW WATER QUALITY	DETAIL	[]	[]	[]	[]	
<hr/>							
6. DEMINERALIZED WATER SYSTEM							
<hr/>							
	6.1 CHEMICAL EFFLUENTS						
	6.1.1 CONSTITUENTS AND CONCENTRATIONS	SITE	[]	[]	[]	[]	
	6.1.2 PRE-TREATMENT WASTES (SOLIDS)	DETAIL	[]	[]	[]	[]	
	6.1.3 REGENERATION WASTES (SOLIDS)	DETAIL	[]	[]	[]	[]	
	6.2 DISCHARGE TO SITE WATER BODIES (RO BRVE)						
	6.2.1 FLOW RATE	P/S	[X]	[X]	[X]	[X]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABMR	SYS80+	AP600	SBMR	URD DSER Open Item
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6.3 DRAWDOWN

6.3.1 GROUND WATER LEVEL	DETAIL	[]	[]	[]	[]		
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6.4 RAW WATER REQUIREMENTS

6.4.1 MAXIMUM USE	P/S	[X]	[X]	[X]	[X]		
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6.4.2 MONTHLY AVERAGE USE	P/S	[X]	[X]	[X]	[X]		
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6.4.3 RAW WATER QUALITY	DETAIL	[]	[]	[]	[]		
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7. FIRE PROTECTION SYSTEM

7.1 RAW WATER REQUIREMENTS

7.1.1 MAXIMUM USE	PLANT	[X]	[X]	[X]	[X]		
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7.1.2 MONTHLY AVERAGE USE	P/S	[X]	[X]	[X]	[X]		
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7.1.3 RAW WATER QUALITY	DETAIL	[]	[]	[]	[]		
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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABUR	SYS80+	AP600	S8UR	URD DSEB Open Item
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7.1.4 STORED WATER VOLUME

PLANT	[X]	[X]	[X]	[X]
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8. MISCELLANEOUS DRAIN

8.1 CHEMICAL EFFLUENTS

8.1.1 CONSTITUENTS AND CONCENTRATIONS

SITE	[]	[]	[]	[]
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8.1.2 OILY WASTES

DETAIL	[]	[]	[]	[]
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8.2 DISCHARGE TO SITE WATER BODIES

8.2.1 FLOW RATE

P/S	[X]	[X]	[X]	[X]
-----	-----	-----	-----	-----

9. UNIT VENT/AIRBORNE EFFLUENT RELEASE POINT

9.1 ATMOSPHERIC DISPERSION (CHI/Q) (ACCIDENT)

9.1.1 .5 MILE - 0-2HR

PLANT	[X]	[X]	[X]	[X]
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9.1.2 2 MILE - 0-8HR

PLANT	[X]	[X]	[X]	[X]
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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABMR	SYS80+	AP600	SBMR	URD DSER Open Item
	9.1.3 2 MILE - 1-4DAY	PLANT	[X]	[X]	[X]	[X]	
	9.1.4 2 MILE - 4-30DAY	PLANT	[X]	[X]	[X]	[X]	
	9.1.5 2 MILE - 8-24HR	PLANT	[X]	[X]	[X]	[X]	
	9.2 ATMOSPHERIC DISPERSION (CH1/Q) (ANNUAL AVERAGE)	PLANT	[X]	[X]	[X]	[X]	
	9.3 CONTAINMENT LEAKAGE RATE	PLANT	[X]	[X]	[X]	[X]	
	9.4 CONTAINMENT PURGE/VENT						
	9.4.1 DURATION	DETAIL	[]	[]	[]	[]	
	9.4.2 FREQUENCY	DETAIL	[]	[]	[]	[]	
	9.4.3 LOW VOLUME FLOW RATE	DETAIL	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ADMR	SYS80+	AP600	SBMR	URD DSER Open Item
	9.4.4 NUMBER OF PURGES	DETAIL	[]	[]	[]	[]	
	9.4.5 VOLUME OF CONTAINMENT	DETAIL	[]	[]	[]	[]	
9.5 DOSE CONSEQUENCES							
	9.5.1 NORMAL	PLANT	[X]	[X]	[X]	[X]	
	9.5.2 POST-ACCIDENT	PLANT	[X]	[X]	[X]	[X]	
	9.5.3 SEVERE ACCIDENTS	PLANT	[X]	[X]	[X]	[X]	
9.6 RELEASE POINT							
	9.6.1 CONFIGURATION (HORIZ VS VERT)	PLANT	[X]	[X]	[X]	[X]	
	9.6.2 DIMENSIONS	DETAIL	[]	[]	[]	[]	
	9.6.3 ELEVATION (NORMAL)	PLANT	[X]	[X]	[X]	[X]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Paramr Type	ABWR	ST580+	AP600	SBWR	UND DSER Open Item
	9.6.4 ELEVATION (POST-ACCIDENT)	PLANT	[X]	[X]	[X]	[X]	
	9.6.5 EXIT VELOCITY	DETAIL	[]	[]	[]	[]	
	9.6.6 MINIMUM DISTANCE TO SITE BOUNDARY	PLANT	[X]	[X]	[X]	[X]	
	9.6.7 TEMPERATURE	PLANT	[X]	[X]	[X]	[X]	
	9.6.8 VOLUMETRIC FLOW RATE	PLANT	[X]	[X]	[X]	[X]	
9.7 SOURCE TERM							
	9.7.1 GASEOUS (NORMAL)	PLANT	[X]	[X]	[X]	[X]	E.1B.0-7 E.1A.V-31 P.1A.V-10 P.1B.0-9
	9.7.2 GASEOUS (POST-ACCIDENT)	PLANT	[X]	[X]	[X]	[X]	E.11.V-31 E.1B.0-7 P.1A.V-10 P.1B.0-9
	9.7.3 GASEOUS (SEVERE ACCIDENT)	PLANT	[X]	[X]	[X]	[X]	E.1A.V-31 E.1B.0-7 P.1A.V-10 P.1B.0-9

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ADMR	SYS80+	AP600	SBMR	URD USER Open Item
	9.7.4 TRITIUM	PLANT	[X]	[X]	[X]	[X]	E.IA.V-31 E.IB.O-7 P.IA.V-10 P.IB.O-9
<hr/>							
10. LIQUID RADWASTE SYSTEM							
<hr/>							
	10.1 DOSE CONSEQUENCES						
	10.1.1 NORMAL	PLANT	[X]	[X]	[X]	[X]	
	10.1.2 POST-ACCIDENT	PLANT	[]	[X]	[X]	[]	
	10.2 RELEASE POINT						
	10.2.1 FLOW RATE	PLANT	[X]	[X]	[X]	[X]	
	10.2.2 MINIMUM DISTANCE TO SITE BOUNDARY	SITE	[]	[]	[]	[]	
	10.2.3 SOIL PERCOLATION/PERMEABILITY	SITE	[]	[]	[]	[]	
	10.3 SOURCE TERM						
	10.3.1 LIQUID	PLANT	[X]	[X]	[X]	[X]	E.IA.V-31 E.IB.O-7 P.IA.V-10 P.IB.O-9

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Param Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
	10.3.2 TRITIUM	PLANT	[X]	[X]	[X]	[X]	E.1A.V-31 E.1B.O-7 P.1A.V-10 P.1B.O-9
11. GASEOUS RADWASTE SYSTEM							
	11.1 RELEASE POINT						
	11.1.1 CONFIGURATION (HORIZ VS VERT)	DETAIL	[]	[]	[]	[]	
	11.1.2 DIMENSIONS	DETAIL	[]	[]	[]	[]	
	11.1.3 ELEVATION	DETAIL	[]	[]	[]	[]	
	11.1.4 EXIT VELOCITY	DETAIL	[]	[]	[]	[]	
	11.1.5 MINIMUM DISTANCE TO SITE BOUNDARY	DETAIL	[]	[]	[]	[]	
	11.1.6 TEMPERATURE	DETAIL	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Paramtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
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11.1.7 VOLUMETRIC FLOW RATE

DETAIL [] [] [] []

11.2 SOURCE TERM

11.2.1 GASEOUS (NORMAL)

DETAIL [] [] [] []

11.2.2 GASEOUS (POST-ACCIDENT)

DETAIL [] [] [] []

11.2.3 TRITIUM

DETAIL [] [] [] []

12. SOLID RADIOACTIVE SYSTEM

12.1 ACREAGE

12.1.1 LOW LEVEL RADIOACTIVE STORAGE

PLANT [X] [X] [X] [X]

12.2 SOLID RADIOACTIVE

12.2.1 ACTIVITY

PLANT [X] [X] [X] [X]

12.2.2 PRINCIPAL RADIONUCLIDES

PLANT [X] [X] [X] [X]

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Paramtr Type	ABWR	SYS80+	AP600	SBWR	UND DSER Open Item
	12.2.3 VOLUME	PLANT	[X]	[X]	[X]	[X]	
<hr/>							
13. REACTOR COOLANT SYSTEM							
	13.1 LEAKAGE RATE	DETAIL	[]	[]	[]	[]	
<hr/>							
14. RCS CLEANUP SYSTEM							
	14.1 RELEASE POINT						
	14.1.1 FLOW RATE	DETAIL	[]	[]	[]	[]	
<hr/>							
15. CVCS LETDOWN SUBSYSTEM							
	15.1 RELEASE POINT						
	15.1.1 FLOW RATE	DETAIL	[]	[]	[]	[]	
<hr/>							
16. CVCS PURIFICATION SUBSYSTEM							
	16.1 RELEASE POINT						
	16.1.1 FLOW RATE	DETAIL	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Pmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
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17. CVCS SHIM/BLEED SUBSYSTEM

17.1 RELEASE POINT

17.1.1 FLOW RATE

DETAIL	[]	[]	[]	[]
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18. SPENT FUEL STORAGE

18.1 RELEASE POINT

18.1.1 CONFIGURATION (HORIZ VS VERT)

DETAIL	[]	[]	[]	[]
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18.1.2 DIMENSIONS

DETAIL	[]	[]	[]	[]
--------	-----	-----	-----	-----

18.1.3 ELEVATION

DETAIL	[]	[]	[]	[]
--------	-----	-----	-----	-----

18.1.4 EXIT VELOCITY

DETAIL	[]	[]	[]	[]
--------	-----	-----	-----	-----

18.1.5 MINIMUM DISTANCE TO SITE BOUNDARY

DETAIL	[]	[]	[]	[]
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18.1.6 TEMPERATURE

DETAIL	[]	[]	[]	[]
--------	-----	-----	-----	-----

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
	18.1.7 VOLUMETRIC FLOW RATE	DETAIL	[]	[]	[]	[]	
18.2 SOURCE TERM							
	18.2.1 TRITIUM	DETAIL	[]	[]	[]	[]	
18.3 SPENT FUEL DRY STORAGE							
	18.3.1 ACREAGE	P/S	[X]	[X]	[X]	[X]	
	18.3.2 MINIMUM DISTANCE TO NEAREST RESIDENCE	P/S	[X]	[X]	[X]	[X]	
	18.3.3 MINIMUM DISTANCE TO POWER BLOCK	P/S	[X]	[X]	[X]	[X]	
	18.3.4 STORAGE CAPACITY	PLANT	[X]	[X]	[X]	[X]	
18.4 WATER REQUIREMENTS							
	18.4.1 MAKEUP FLOW RATE	DETAIL	[]	[]	[]	[]	
	18.4.2 STORED WATER VOLUME	DETAIL	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
<hr/>							
19. STEAM GENERATOR BLOWDOWN SYSTEM							
<hr/>							
	19.1 CHEMICAL EFFLUENTS						
	19.1.1 CONSTITUENTS AND CONCENTRATIONS	DETAIL	[]	[]	[]	[]	
	19.2 RELEASE POINT						
	19.2.1 FLOW RATE	DETAIL	[]	[]	[]	[]	
	19.3 SOURCE TERM						
	19.3.1 LIQUID	DETAIL	[]	[]	[]	[]	
	19.4 THERMAL EFFLUENT (HEAT LOAD IN BTU/HR)	DETAIL	[]	[]	[]	[]	
	19.5 WATER REQUIREMENTS						
	19.5.1 MAXIMUM CONSUMPTION	DETAIL	[]	[]	[]	[]	
	19.5.2 MONTHLY AVERAGE CONSUMPTION	DETAIL	[]	[]	[]	[]	
<hr/>							
20. STANDBY-GAS TREATMENT SYSTEM							
<hr/>							

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
.....							
20.1 RELEASE POINT							
	20.1.1 CONFIGURATION (HORIZ VS VERT)	DETAIL	[]	[]	[]	[]	
	20.1.2 DIMENSIONS	DETAIL	[]	[]	[]	[]	
	20.1.3 ELEVATION	DETAIL	[]	[]	[]	[]	
	20.1.4 EXIT VELOCITY	DETAIL	[]	[]	[]	[]	
	20.1.5 MINIMUM DISTANCE TO SITE BOUNDARY	DETAIL	[]	[]	[]	[]	
	20.1.6 TEMPERATURE	DETAIL	[]	[]	[]	[]	
	20.1.7 VOLUMETRIC FLOW RATE	DETAIL	[]	[]	[]	[]	
20.2 SOURCE TERM							
	20.2.1 GASEOUS (NORMAL)	DETAIL	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmr Type	ABMR	SYS80+	AP600	SBMR	URD DSER Open Item
<hr/>							
	20.2.2 GASEOUS (POST-ACCIDENT)	DETAIL	[]	[]	[]	[]	
	20.2.3 TRITIUM	DETAIL	[]	[]	[]	[]	
20.3 WIND	20.3.1 PREVAILING DIRECTION	SITE	[]	[]	[]	[]	
<hr/>							
21. AUXILIARY BOILER SYSTEM							
	21.1 EXHAUST ELEVATION	P/S	[X]	[X]	[X]	[X]	
	21.2 FLUE GAS EFFLUENTS	P/S	[X]	[X]	[X]	[X]	
21.3 FUEL	21.3.1 RESUPPLY TIME	DETAIL	[]	[]	[]	[]	
	21.3.2 TYPE	P/S	[X]	[X]	[X]	[X]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open It
<hr/>							
	21.4 HEAT INPUT RATE (BTU/HR)	P/S	[X]	[X]	[X]	[X]	
<hr/>							
22. CONDENSATE CLEANUP SYSTEM							
<hr/>							
	22.1 CHEMICAL EFFLUENTS						
	22.1.1 CONSTITUENTS AND CONCENTRATIONS	DETAIL	[]	[]	[]	[]	
	22.2 DISCHARGE						
	22.2.1 FLOW RATE	DETAIL	[]	[]	[]	[]	
	22.3 RAW WATER REQUIREMENTS						
	22.3.1 CIRCULATING WATER CHEMICAL CHARACTERISTICS	DETAIL	[]	[]	[]	[]	
	22.3.2 MAXIMUM USE	DETAIL	[]	[]	[]	[]	
	22.3.3 MONTHLY AVERAGE USE	DETAIL	[]	[]	[]	[]	

23. GAS STORAGE SYSTEM

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
.....							
23.1 GAS							
	23.1.1 LOCATION	DETAIL	[]	[]	[]	[]	
	23.1.2 RESUPPLY TIME	DETAIL	[]	[]	[]	[]	
	23.1.3 TYPES AND VOLUMES STORED	DETAIL	[]	[]	[]	[]	
23.2 WIND							
	23.2.1 PREVAILING DIRECTION	SITE	[]	[]	[]	[]	
<hr/>							
24. HEATING, VENTILATION AND AIR CONDITIONING SYSTEM							
<hr/>							
24.1 AMBIENT AIR REQUIREMENTS							
	24.1.1 MAXIMUM RELATIVE HUMIDITY	DETAIL	[]	[]	[]	[]	
	24.1.2 NON-SAFETY HVAC MAX AMBIENT TEMP (1% EXCEED)	PLANT	[X]	[X]	[X]	[X]	E.I.V-36 P.I.V-35
	24.1.3 NON-SAFETY HVAC MIN AMBIENT TEMP (1% EXCEED)	PLANT	[X]	[X]	[X]	[X]	E.I.V-36 P.I.V-35

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
	24.1.4 SAFETY HVAC MAX AMBIENT TEMP (0% EXCEED)	PLANT	[X]	[X]	[X]	[]	E.I.V-36 P.I.V-35
	24.1.5 SAFETY HVAC MIN AMBIENT TEMP (0% EXCEED)	PLANT	[X]	[X]	[X]	[]	E.I.V-36 P.I.V-35
	24.1.6 VENT SYSTEM MAX AMBIENT TEMP (5% EXCEED)	PLANT	[X]	[X]	[X]	[X]	
	24.1.7 VENT SYSTEM MIN AMBIENT TEMP (5% EXCEED)	PLANT	[X]	[X]	[X]	[X]	
24.2 RELEASE POINT							
	24.2.1 CONFIGURATION (HORIZ VS VERT)	DETAIL	[]	[]	[]	[]	
	24.2.2 DIMENSIONS	DETAIL	[]	[]	[]	[]	
	24.2.3 ELEVATION	DETAIL	[]	[]	[]	[]	
	24.2.4 EXIT VELOCITY	DETAIL	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABMR	SYS80+	AP600	SBMR	URD DSER Open Item
	24.2.5 MINIMUM DISTANCE TO SITE BOUNDARY	DETAIL	[]	[]	[]	[]	
	24.2.6 TEMPERATURE	DETAIL	[]	[]	[]	[]	
	24.2.7 VOLUMETRIC FLOW RATE	DETAIL	[]	[]	[]	[]	
24.3 SOURCE TERM							
	24.3.1 GASEOUS (NORMAL)	DETAIL	[]	[]	[]	[]	
	24.3.2 GASEOUS (POST ACCIDENT)	DETAIL	[]	[]	[]	[]	
	24.3.3 TRITIUM	DETAIL	[]	[]	[]	[]	
<hr/>							
25. ONSITE/OFFSITE ELECTRICAL POWER SYSTEM							
<hr/>							
25.1 ACREAGE							
	25.1.1 SWITCHYARD	P/S	[X]	[X]	[X]	[X]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD USER Open Item

	25.2 DISTANCE TO EXISTING TRANSMISSION SYSTEM	SITE	[]	[]	[]	[]	
	25.3 DUTY CYCLES	PLANT	[X]	[X]	[X]	[X]	
	25.4 EMF RADIATION	DETAIL	[]	[]	[]	[]	
	25.5 FREQUENCY REGULATION	DETAIL	[]	[]	[]	[]	
	25.6 GENERATION FACILITIES	DETAIL	[]	[]	[]	[]	
	25.7 LIGHTNING PROTECTION	SITE	[]	[]	[]	[]	
	25.8 NOISE	DETAIL	[]	[]	[]	[]	
	25.9 PLANT LOAD	DETAIL	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
.....							
	25.10 TIE LINE THERMAL BACKUP	DETAIL	[]	[]	[]	[]	
	25.11 TRANSMISSION SYSTEM IMPEDANCE	SITE	[]	[]	[]	[]	
	25.12 TRANSMISSION SYSTEM STABILITY	SITE	[]	[]	[]	[]	
	25.13 VOLTAGE						
	25.13.1 INCOMING	SITE	[]	[]	[]	[]	
	25.13.2 OUTGOING	SITE	[]	[]	[]	[]	
	25.13.3 REGULATION (MOTOR START)	DETAIL	[]	[]	[]	[]	
	25.13.4 REGULATION (STEADY STATE)	DETAIL	[]	[]	[]	[]	

26. STANDBY POWER SYSTEM

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABMR	SYS80+	AP600	SBMR	URD DSER Open Item
.....							
	26.1 DIESEL CAPACITY (KW)	PLANT	[X]	[X]	[X]	[X]	
	26.2 DIESEL EXHAUST ELEVATION	P/S	[X]	[X]	[X]	[X]	
	26.3 DIESEL FLUE GAS EFFLUENTS	P/S	[X]	[X]	[X]	[X]	
	26.4 DIESEL FUEL						
	26.4.1 RESUPPLY TIME	PLANT	[X]	[X]	[X]	[X]	
	26.4.2 TYPE	PLANT	[X]	[X]	[X]	[X]	
	26.5 DIESEL NOISE	P/S	[X]	[X]	[X]	[X]	
	26.6 GAS-TURBINE CAPACITY (KW)	PLANT	[X]	[X]	[]	[]	
	26.7 GAS-TURBINE EXHAUST ELEVATION	P/S	[X]	[X]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABAR	SYS80+	AP600	SBAR	URD DSER Open Item
<hr/>							
	26.8 GAS-TURBINE FLUE GAS EFFLUENTS	P/S	[X]	[X]	[]	[]	
	26.9 GAS-TURBINE FUEL						
	26.9.1 RESUPPLY TIME	DETAIL	[]	[]	[]	[]	
	26.9.2 TYPE	P/S	[X]	[X]	[]	[]	
	26.10 GAS-TURBINE NOISE	P/S	[X]	[X]	[]	[]	

27. SEVERE ACCIDENT FEATURES

27.1 ACREAGE

27.1.1 CTNT VENT FILTER	DETAIL	[]	[]	[]	[]
27.1.2 MECH DRAFT COOLING TOWERS	DETAIL	[]	[]	[]	[]
27.1.3 PONDS	DETAIL	[]	[]	[]	[]

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Paramr Type	ABAR	SYS80+	AP600	SBAR	URD DSER Open Item
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27.2 PURGE/VENT

27.2.1 DURATION

DETAIL [] [] [] []

27.2.2 FREQUENCY

DETAIL [] [] [] []

27.3 RELEASE POINT

27.3.1 CONFIGURATION (HORIZ VS VERT)

DETAIL [] [] [] []

27.3.2 DIMENSIONS

DETAIL [] [] [] []

27.3.3 ELEVATION

DETAIL [] [] [] []

27.3.4 EXIT VELOCITY

DETAIL [] [] [] []

27.3.5 MINIMUM DISTANCE TO SITE BOUNDARY

DETAIL [] [] [] []

27.3.6 TEMPERATURE

DETAIL [] [] [] []

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
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27.3.7 VOLUMETRIC FLOW RATE

DETAIL

[]

[]

[]

[]

28. PLANT CHARACTERISTICS

28.1 ACCESS ROUTES

28.1.1 EMERGENCY ROUTES

SITE

[]

[]

[]

[]

28.1.2 HAZARDOUS WASTE DISPOSAL ROUTES

SITE

[]

[]

[]

[]

28.1.3 HEAVY HAUL ROUTES

P/S

[X]

[X]

[X]

[X]

28.1.4 RADIOACTIVE WASTE DISPOSAL ROUTES

SITE

[]

[]

[]

[]

28.1.5 SPENT FUEL CASK WEIGHT

PLANT

[X]

[X]

[X]

[X]

28.2 ACREAGE

28.2.1 OFFICE FACILITIES

P/S

[X]

[X]

[X]

[X]

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PARAMETERS APPLICABILITY MATRIX
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Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
	28.2.2 PARKING LOTS	P/S	[X]	[X]	[X]	[X]	
	28.2.3 PERMANENT SUPPORT FACILITIES	P/S	[X]	[X]	[X]	[X]	
	28.2.4 POWER BLOCK	P/S	[X]	[X]	[X]	[X]	
	28.2.5 PROTECTED AREA	P/S	[X]	[X]	[X]	[X]	
	28.2.6 UPLAND AREA	SITE	[]	[]	[]	[]	
28.3 HEIGHT	28.3.1 METEOROLOGICAL TOWER	DETAIL	[]	[]	[]	[]	
	28.3.2 MICROWAVE TOWER	DETAIL	[]	[]	[]	[]	
28.4 MEGAWATTS - THERMAL		PLANT	[X]	[X]	[X]	[X]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD GSER Open Item
<hr/>							
	28.5 PLANT DESIGN LIFE	PLANT	[X]	[X]	[X]	[X]	
	28.6 PLANT POPULATION						
	28.6.1 OPERATION	P/S	[X]	[X]	[X]	[X]	
	28.6.2 REFUELING	P/S	[X]	[X]	[X]	[X]	
	28.7 PROXIMITY TO SENSITIVE AREAS	SITE	[]	[]	[]	[]	
	28.8 SOLID WASTE						
	28.8.1 TRASH	DETAIL	[]	[]	[]	[]	
	28.9 STATION PRODUCTION AVAILABILITY FACTOR	PLANT	[X]	[X]	[X]	[X]	
	28.10 WASTE						
	28.10.1 HAZARDOUS WASTE	SITE	[]	[]	[]	[]	

29. CONSTRUCTION

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
.....							
29.1 ACCESS ROUTES							
	29.1.1 CONSTRUCTION MODULE DIMENSIONS	P/S	[X]	[X]	[X]	[X]	
	29.1.2 HEAVIEST CONSTRUCTION SHIPMENT	P/S	[X]	[X]	[X]	[X]	
	29.1.3 TEMPORARY TRANSPORTATION FACILITIES	SITE	[]	[]	[]	[]	
29.2 ACREAGE							
	29.2.1 LAYDOWN AREA	P/S	[X]	[X]	[X]	[X]	
	29.2.2 TEMPORARY CONSTRUCTION FACILITIES	P/S	[X]	[X]	[X]	[X]	
29.3 CONSTRUCTION							
	29.3.1 CLEARING AND GRUBBING	SITE	[]	[]	[]	[]	
	29.3.2 CONSTRUCTION WORKER RADIATION EXPOSURE	P/S	[X]	[X]	[X]	[X]	
	29.3.3 DISPOSAL SITES	SITE	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Items
	29.3.4 EXCAVATION DEWATERING	SITE	[]	[]	[]	[]	
	29.3.5 FUGITIVE DUST (INCLUDE CONCRETE BATCH PLANT)	DETAIL	[]	[]	[]	[]	
	29.3.6 NOISE	P/S	[X]	[X]	[X]	[X]	
	29.3.7 NON-RECYCLABLE BUILDING MATERIALS	DETAIL	[]	[]	[]	[]	
	29.3.8 QUANTITY OF MATERIAL TO BE REMOVED	SITE	[]	[]	[]	[]	
	29.3.9 SITE CONTAMINATION (EXISTING)	SITE	[]	[]	[]	[]	
	29.3.10 SOIL EROSION	SITE	[]	[]	[]	[]	
	29.3.11 WATER CONTROL STRUCTURES	SITE	[]	[]	[]	[]	

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PARAMETERS APPLICABILITY MATRIX
(Composite)

Structure, System, Component	Primary / Secondary Parameter	Prmtr Type	ABWR	SYS80+	AP600	SBWR	URD DSER Open Item
	29.3.12 WATER USE	P/S	[X]	[X]	[X]	[X]	
	29.3.13 WORKABILITY OF MATERIAL TO BE REMOVED	SITE	[]	[]	[]	[]	
29.4 PLANT POPULATION							
	29.4.1 CONSTRUCTION	P/S	[X]	[X]	[X]	[X]	
29.5 SITE CONSTRUCTION DURATION		PLANT	[X]	[X]	[X]	[X]	
29.6 SITE PREPARATION DURATION		PLANT	[X]	[X]	[X]	[X]	
29.7 TRANSMISSION FACILITIES CONSTRUCTION		SITE	[]	[]	[]	[]	

Appendix B1

ABWR INDIVIDUAL PLANT PARAMETERS LIST

The four individual plant parameters lists utilize the same qualitative parameters list as incorporated in the parameters applicability matrix except that the parameters are sorted for only those categorized as PLANT or P/S. The type of parameter, either PLANT or P/S, is listed in the column headed "PRMTR TYPE." Because of the exhaustive manner in which the original list of parameters was identified and the subsequent categorization of the parameters, breaks exist in the sequential numbering of the parameters presented in the qualitative plant parameters list. The qualitative plant parameters list is a sort of the database for only those parameters categorized as PLANT or P/S. The breaks in sequential numbering indicate the existence of parameters categorized as SITE or DETAIL. Additionally, all SSCs examined for plant-site interfaces are included on the qualitative plant parameters list, even though for some systems no pertinent parameters have been categorized as PLANT or P/S (for example, Reactor Coolant System). This demonstrates the breadth of the review for plant parameters. The applicability of each parameter to the given ALWR design is indicated by an "X" in the column headed "[A]." The next three columns on the individual plant parameters list provide the appropriate numerical value for each parameter taken from the Utility Requirements Document (URD), vendor information, or engineering assessment. Engineering assessment values are provided in the right column when neither an URD nor vendor value is available. The reference document for the numerical values is provided below each value.

Each URD and vendor value reference includes the revision or date of the source document. For URD and Standard Safety Analysis Report (SSAR) citations, the revision or amendment number is identified. Because many of the vendor values are not included in the SSAR, letters, meeting notes, facsimile transmissions, and

telephone notes have been used to document the vendor values. In such cases, the dates of the documents are included to uniquely identify the sources of the numerical values.

In cases when an engineering assessment has been performed, the basis is summarized on a parameter quantity summary (PQS) sheet, and the PQS sheet number is identified as the reference beneath the numerical value in the plant parameters list. Each PQS includes the plant parameter numbers for those parameters with a similar basis. When a PQS sheet lists multiple parameter numbers, the initial number listed is the first parameter on the list referring to the PQS. Each succeeding parameter using the same basis also refers to the initial parameter number (i.e., each PQS is uniquely identified by the initial parameter using the basis). For example, the blowdown flow rate from cooling water system heat removal devices first appears on the parameters list as parameter 2.7.5. PQS - 2.7.5 for blowdown flow rate addresses all of the heat removal design options and is applicable to parameter numbers 2.8.4, 2.10.3, 3.6.5, and 3.8.3.

PARAMETERS LIST FOR ABWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
.....				
1. STRUCTURES				
1.1 FOUNDATION EMBEDMENT	PLANT	[X] ---	66'4" TO TOP OF BASEMAT BLTR 6/25/92	
1.2 HEIGHT	PLANT	[X] ---	103'-5" BLTR 6/25/92	
1.4 PRECIPITATION (FOR ROOF DESIGN)				
1.4.1 MAXIMUM RAINFALL RATE	PLANT	[X] 19.4 IN/HR - 6.2 IN/5MIN VOL 11,CHAP 1,T1.2-6 REV 1	URD SSAR,T2.0-1 REV B,AMEND 16	
1.4.2 SNOW LOAD	PLANT	[X] 50 LB/SQFT VOL 11,CHAP 1,T1.2-6 REV 1	URD SSAR,T2.0-1 REV B,AMEND 16	
1.5 SAFE SHUTDOWN EARTHQUAKE (SSE)				
1.5.1 DESIGN RESPONSE SPECTRA	PLANT	[X] REGULATORY GUIDE 1.60 VOL 11,CHAP 1,T1.2-6 REV 2	URD SSAR,T2.0-1 REV B,AMEND 16	
1.5.2 PEAK GROUND ACCELERATION	PLANT	[X] 0.30g VOL 11,CHAP 1,T1.2-6 REV 1	URD SSAR,T2.0-1 REV B,AMEND 16	
1.5.3 TIME HISTORY	PLANT	[X] ENVELOPE SSE RESP SPECTRA VOL 11,CHAP 1,T1.2-6 REV 1	URD SSAR,T2.0-1 REV B,AMEND 16	
1.8 SITE WATER LEVEL (ALLOWABLE)				
1.8.1 MAXIMUM FLOOD (OR TSUNAMI)	PLANT	[X] 1 FT BELOW PLANT GRADE VOL 11,CHAP 1,T1.2-6 REV 1	URD SSAR,T2.0-1 REV B,AMEND 16	
1.8.2 MAXIMUM GROUND WATER	PLANT	[X] 2 FT BELOW PLANT GRADE VOL 11,CHAP 1,T1.2-6 REV 1	URD SSAR,T2.0-1 REV B,AMEND 16	

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PARAMETERS LIST FOR ABWR

Structure, System, Component / Primary / Secondary Parameter Prmrtr Type (A) URD:Val/Refer/Rev VENDOR:Val/Refer/Rev BECHTEL:Val/Refer/Rev

1.9 SOIL PROPERTIES DESIGN BASES

1.9.1 LIQUEFACTION

PLANT (X) NONE AT SITE-SPECIFIC SSE
VOL II,CHAP 1,T1.2-6
REV 1
URD
SSAR,T2.0-1
REV B,AMEND 16

1.9.2 MINIMUM BEARING CAPACITY (STATIC)

PLANT (X) >= 15 KSF
VOL II,CHAP 1,T1.2-6
REV 1
URD
SSAR,T2.0-1
REV B,AMEND 16

1.9.3 MINIMUM SHEAR WAVE VELOCITY

PLANT (X) >= 1000FPS
VOL II,CHAP 1,T1.2-6
REV 1
URD
SSAR,T2.0-1
REV B,AMEND 16

1.11 TORNADO (DESIGN BASES)

1.11.1 MAXIMUM PRESSURE DROP

PLANT (X) 2.0 PSI
VOL II,CHAP 1,T1.2-6
REV 4
URD
GELTR 8/28/92

1.11.2 MAXIMUM ROTATIONAL SPEED

PLANT (X) 240 MPH
VOL II,CHAP 1,T1.2-6
REV 4
URD
GELTR 8/28/92

1.11.3 MAXIMUM TRANSLATIONAL SPEED

PLANT (X) 60 MPH
VOL II,CHAP 1,T1.2-6
REV 4
URD
GELTR 8/28/92

1.11.4 MAXIMUM WIND SPEED

PLANT (X) 300 MPH
VOL II,CHAP 1,T1.2-6
REV 4
URD
GELTR 8/28/92

1.11.5 MISSILE SPECTRA

PLANT (X) SPECTRUM A OF SRP 3.5.1.4
VOL II,CHAP 1,T1.2-6
REV 4
ANSI/URD
GELTR 8/28/92

1.11.6 RADIUS OF MAXIMUM ROTATIONAL SPEED

PLANT (X) 150 FT
VOL II,CHAP 1,T1.2-6
REV 4
URD
GELTR 8/28/92

1.11.7 RATE OF PRESSURE DROP

PLANT (X) 1.2 PSI/SEC
VOL II,CHAP 1,T1.2-6
REV 4
URD
BLTR 6/25/92

1.12 WIND

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PARAMETERS LIST FOR ABWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
1.12.1 BASIC WIND SPEED	PLANT	[X] 110 MPH VOL 11, CNAP 1, T1.2-6 REV 1	110MPH (50YR)/130MPH (100YR) SSAR, T2.0-1 REV B, AMEND 16	
1.12.2 IMPORTANCE FACTORS	PLANT	[]		
<hr/>				
2. NORMAL PLANT HEAT SINK				
2.1 AMBIENT AIR REQUIREMENTS				
2.1.1 NORMAL SHUTDOWN MAX AMBIENT TEMP (1% EXCEED)	PLANT	[X] 100 F DB/ 77 F WB COINCIDENT VOL 11, CNAP 1, T1.2-6 REV 3	URD SSAR, T2.0-1 REV B, AMEND 16	
2.1.2 NORMAL SHUTDOWN MAX WET BULB TEMP (1% EXCEED)	PLANT	[X] 80 F WB NON-COINCIDENT VOL 11, CNAP 1, T1.2-6 REV 3	URD TELECON 7/16/92	
2.1.3 NORMAL SHUTDOWN MIN AMBIENT TEMP (1% EXCEED)	PLANT	[X] -10 F VOL 11, CNAP 1, T1.2-6 REV 1	URD SSAR, T2.0-1 REV B, AMEND 16	
2.1.5 RX THERMAL POWER MAX AMBIENT TEMP (0% EXCEED)	PLANT	[X] 115 F DB/ 80 F WB COINCIDENT VOL 11, CNAP 8, 2.2.2 REV 1	URD/ 82 F WB COINCIDENT SSAR, T2.0-1 REV B, AMEND 16	
2.1.6 RX THERMAL POWER MAX WET BULB TEMP (0% EXCEED)	PLANT	[X] 81 F WB NON-COINCIDENT VOL 11, CNAP 8, 2.2.2 REV 1	URD TELECON 7/16/92	
2.1.7 RX THERMAL POWER MIN AMBIENT TEMP (0% EXCEED)	PLANT	[X] -40 F VOL 11, CNAP 8, 2.2.2 REV 1	URD SSAR, T2.0-1 REV B, AMEND 16	
2.2 BLOWDOWN POND ACREAGE	P/S	[X] 24 HR BLOWDOWN VOL 11, CNAP 8, 7.2.2.5.5 REV 0		4 ACRES PBS-2.2
2.3 CONDENSER/HEAT EXCHANGER DUTY	PLANT	[X] ---		9.7 E9 BTU/HR PBS - 2.3

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PARAMETERS LIST FOR ADNR

Structure, System, Component / Primary / Secondary Parameter	Param Type	[A] URD:Vol/Refer/Rev	VENDOR:Vol/Refer/Rev	DECTEL:Vol/Refer/Rev
2.6 MAXIMUM INLET TEMP CONDENSER/HEAT EXCHANGER	PLANT	[X] ---	100 F SSAR,T2.0-1 REV B,AMEND 16	
2.7 MECH DRAFT COOLING TOWERS				
2.7.1 ACREAGE	P/S	[]		50 ACRES POS - 2.7.1
2.7.3 APPROACH TEMPERATURE	P/S	[]		10 F POS - 2.7.3
2.7.5 BLOWDOWN FLOW RATE	P/S	[]		5200 (17,700)GPM POS - 2.7.5
2.7.6 BLOWDOWN TEMPERATURE	P/S	[]	100 F SSAR,T2.0-1 REV B,AMEND 16	
2.7.7 COOLING TOWER TEMPERATURE RANGE	P/S	[]	COND TEMP RISE 25 F FAX 7/13/92 POS - 2.7.7 696,000 GPM SSAR,T10.4-1 REV A,AMEND 11	
2.7.8 COOLING WATER FLOW RATE	P/S	[]		4 (2 MINIMUM) POS - 2.7.9
2.7.9 CYCLES OF CONCENTRATION	P/S	[]		15,400 (17,700)GPM POS - 2.7.10
2.7.10 EVAPORATION RATE	P/S	[]		26 E6 BTU/HR POS - 2.7.12
2.7.12 HEAT REJECTION RATE	P/S	[]		60 FT POS - 2.7.13
2.7.13 HEIGHT	P/S	[]		

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PARAMETERS LIST FOR ABWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
2.7.15 MAKEUP FLOW RATE	P/S	[]		20,600 (35,400)GPM PQS - 2.7.15
2.7.16 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[]		17,700 GPM PQS - 2.7.16
2.7.17 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[]		15,400 GPM PQS - 2.7.17
2.7.18 NOISE	P/S	[]		55 DBA AT 1000 FT PQS - 2.7.18
2.7.22 STORED WATER VOLUME	P/S	[]		10.5 E6 GAL PQS - 2.7.22
2.8 NATURAL DRAFT COOLING TOWERS				
2.8.1 ACREAGE	P/S	[X] ---		6 ACRES PQS - 2.8.1
2.8.2 APPROACH TEMPERATURE	P/S	[X] ---	14 F FAX 7/13/92	
2.8.4 BLOWDOWN FLOW RATE	P/S	[X] ---		5,200 (17,700)GPM PQS - 2.7.5
2.8.5 BLOWDOWN TEMPERATURE	P/S	[X] ---	100 F SSAR,T2.0-1 REV B,AMEND 16	
2.8.6 COOLING TOWER TEMPERATURE RANGE	P/S	[X] ---	CONDENSER TEMP RISE 25 F FAX 7/13/92	
2.8.7 COOLING WATER FLOW RATE	P/S	[X] ---	696,000 GPM SSAR,T10.4-1 REV A,AMEND 11	

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PARAMETERS LIST FOR ABWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	(A) URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
2.8.8 CYCLES OF CONCENTRATION	P/S	[X] ---		4 (2 MINIMUM) PQS - 2.7.9
2.8.9 EVAPORATION RATE	P/S	[X] ---	16,000 GPM BLTR 6/25/92	
2.8.11 HEAT REJECTION RATE	P/S	[X] ---		26 E6 BTU/HR PQS - 2.7.12
2.8.12 HEIGHT	P/S	[X] ---		550 FT PQS - 2.7.13
2.8.14 MAKEUP FLOW RATE	P/S	[X] ---	20,000 GPM (ESTIMATE) BLTR 6/25/92	
2.8.15 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[X] ---		17,700 GPM PQS - 2.7.16
2.8.16 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[X] ---		15,400 GPM PQS - 2.7.17
2.8.17 NOISE	P/S	[X] ---		55 DBA AT 1000 FT PQS - 2.7.18
2.8.20 STORED WATER VOLUME	P/S	[X] ---		10.5 E6 GAL PQS - 2.7.22
2.9 ONCE-THROUGH COOLING				
2.9.1 COOLING WATER DISCHARGE TEMPERATURE	P/S	[]		118 F PQS - 2.9.1
2.9.2 COOLING WATER FLOW RATE	P/S	[]		1,100,000 GPM PQS - 2.9.2

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PARAMETERS LIST FOR ABWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
2.9.3 COOLING WATER TEMPERATURE RISE	P/S	[]		18 F PQS - 2.9.3
2.9.4 EVAPORATION RATE	P/S	[]		9,300 (10,700)GPM PQS - 2.7.10
2.9.5 HEAT REJECTION RATE	P/S	[]		9.7 E9 BTU/HR PQS - 2.3
2.10 PONDS				
2.10.1 ACREAGE	P/S	[]		3000 ACRES W/O SPRAY PQS - 2.10.1
2.10.3 BLOWDOWN FLOW RATE	P/S	[]		5200 (17,700)GPM PQS - 2.7.5
2.10.4 BLOWDOWN TEMPERATURE	P/S	[]	100 F SSAR,T2.0-1 REV B,AMEND 16	
2.10.5 COOLING POND TEMPERATURE RANGE	P/S	[]	COND TEMP RISE 25 F FAX 7/13/92 PQS - 2.7.7	
2.10.6 COOLING WATER FLOW RATE	P/S	[]	696,000 GPM SSAR,T10.4-1 REV A,AMEND 11	
2.10.7 CYCLES OF CONCENTRATION	P/S	[]		4 (2 MINIMUM) PQS - 2.7.9
2.10.8 EVAPORATION RATE	P/S	[]		15,400 (17,700)GPM PQS - 2.7.10
2.10.9 HEAT REJECTION RATE	P/S	[]		26 E6 BTU/HR PQS - 2.7.12

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PARAMETERS LIST FOR ABWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
2.10.10 MAKEUP FLOW RATE	P/S	[]		20,600 (35,400)GPM PQS - 2.7.15
2.10.11 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[]		17700GPM (12400 NO SPRAY) PQS - 2.7.16
2.10.12 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[]		15,400 GPM (10,800 W/O SPRAY) PQS - 2.7.17
2.10.13 STORED WATER VOLUME	P/S	[]		14.7 E9 GALLONS PQS - 2.7.22

3. ULTIMATE HEAT SINK

3.1 AMBIENT AIR REQUIREMENTS

3.1.1 MAXIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	PLANT	[X] 115 F DB/80 F WB COINCIDENT VOL II,CHAP 1,T1.2-6 REV 4	URD/82 F WB COINCIDENT SSAR,T2.0-1 REV B,AMEND 16
3.1.2 MAXIMUM WET BULB TEMPERATURE (0% EXCEEDANCE)	PLANT	[X] 81 F WB (NON-COINCIDENT) VOL II,CHAP 1,T1.2-6 REV 4	URD FAX 7/15/92
3.1.3 MINIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	PLANT	[X] -40 F VOL II,CHAP 1,T1.2-6 REV 1	URD SSAR,T2.0-1 REV B,AMEND 16

3.2 CCW HEAT EXCHANGER DUTY

PLANT	[X] ---	104 (374 S/D) E 6 BTU/HR SSAR,T9.2-4A/B/C AMEND 14&16
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3.5 MAXIMUM INLET TEMP TO CCW HEAT EXCHANGER

PLANT	[X] ---	95 F SSAR 9.2.11.1.1 REV B,AMEND 20
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3.6 MECH DRAFT COOLING TOWERS

3.6.1 ACREAGE	P/S	[]		0.5 ACRES PQS - 2.7.1
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PARAMETERS LIST FOR ABWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
3.6.3 APPROACH TEMPERATURE	P/S	[]		10 F PQS - 2.7.3
3.6.5 BLOWDOWN FLOW RATE	P/S	[]		100 (700)GPM PQS - 2.7.5
3.6.6 BLOWDOWN TEMPERATURE	P/S	[]	95 F SSAR 9.2.11.1.1 REV B, AMEND 20	
3.6.7 COOLING TOWER TEMPERATURE RANGE	P/S	[]	25 F FAX 7/13/92	
3.6.8 COOLING WATER FLOW RATE	P/S	[]	28,150 GPM (SHUTDOWN) SSAR, T9.2-4A/B/C AMEND 14&16	
3.6.9 CYCLES OF CONCENTRATION	P/S	[]		4 (2 MINIMUM) PQS - 2.7.9
3.6.10 EVAPORATION RATE	P/S	[]		250 (700) GPM PQS - 2.7.10
3.6.12 HEAT REJECTION RATE	P/S	[]		.5 E6 BTU/HR PQS - 2.7.12
3.6.13 HEIGHT	P/S	[]		60 FT PQS - 2.7.13
3.6.15 MAKEUP FLOW RATE	P/S	[]		350 (1,400)GPM PQS - 2.7.15
3.6.16 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[]		700 GPM PQS - 2.7.16

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PARAMETERS LIST FOR ABWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
3.6.17 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[]		250 GPM PQS - 2.7.17
3.6.18 NOISE	P/S	[]		55 DBA AT 1000 FT PQS - 2.7.18
3.6.22 STORED WATER VOLUME	P/S	[]		30.6 E6 GAL PQS - 2.7.22
3.7 ONCE-THROUGH COOLING				
3.7.1 COOLING WATER DISCHARGE TEMPERATURE	P/S	[]		120 F PQS - 2.9.1
3.7.2 COOLING WATER FLOW RATE	P/S	[]	28,150 GPM SSAR,T9.2-4 A/B/C AMEND 14&16	
3.7.3 COOLING WATER TEMPERATURE RISE	P/S	[]	25 F FAX 7/13/92 PQS - 2.9.3	
3.7.4 EVAPORATION RATE	P/S	[]		150 (400)GPM PQS - 2.7.10
3.7.5 HEAT REJECTION RATE	P/S	[]	104 (374 S/D) E 6 BTU/HR SSAR,T9.2-4A/B/C AMEND 14&16	
3.7.6 MINIMUM ESSENTIAL FLOW RATE	PLANT	[]	8,839 GPM SSAR,T9.2-4A/B/C AMEND 14&16	
3.8 PONDS				
3.8.1 ACREAGE	P/S	[X] ---		60 ACRES (NO SPRAY) PQS - 2.10.1
3.8.3 BLOWDOWN FLOW RATE	P/S	[X] ---		100 (700)GPM PQS - 2.7.5

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PARAMETERS LIST FOR ABWR

Structure, System, Component / Primary / Secondary Parameter	Pmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
3.8.4 BLOWDOWN TEMPERATURE	P/S	[X] ---	95 F SSAR 9.2.11.1.1 REV B, AMEND 20	
3.8.5 COOLING POND TEMPERATURE RANGE	P/S	[X] ---	25 F FAX 7/13/92	
3.8.6 COOLING WATER FLOW RATE	P/S	[X] ---	28,150 GPM (SHUTDOWN) SSAR T9.2-4A/B/C AMEND 14&16	
3.8.7 CYCLES OF CONCENTRATION	P/S	[X] ---		4 (2 MINIMUM) POS - 2.7.9
3.8.8 EVAPORATION RATE	P/S	[X] ---		250 (700)GPM POS - 2.7.10
3.8.9 HEAT REJECTION RATE	P/S	[X] ---		.5E6BTU/HR(.3E6 NO SPRAY)) POS - 2.7.12
3.8.10 MAKEUP FLOW RATE	P/S	[X] ---		350 (1,400)GPM POS - 2.7.15
3.8.11 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[X] ---		700 GPM (500 W/O SPRAY) POS - 2.7.16
3.8.12 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[X] ---		250 GPM (150 W/O SPRAY) POS - 2.7.17
3.8.13 STORED WATER VOLUME	P/S	[X] ---		196 E6 GALLONS POS - 2.7.22

4. CONTAINMENT HEAT REMOVAL SYSTEM (POST-ACCIDENT)

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PARAMETERS LIST FOR ABUR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	(A) URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
4.1 AMBIENT AIR REQUIREMENTS				
4.1.1 MAXIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	PLANT	[]		
4.1.2 MINIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	PLANT	[]		
5. POTABLE WATER/SANITARY WASTE SYSTEM				
5.2 DISCHARGE TO SITE WATER BODIES				
5.2.1 FLOW RATE	P/S	[X] ---		13 (19) GPM PQS - 5.2.1
5.4 RAW WATER REQUIREMENTS				
5.4.1 MAXIMUM USE	P/S	[X] ---		19 GPM PQS - 5.4.1
5.4.2 MONTHLY AVERAGE USE	P/S	[X] ---		13 GPM PQS - 5.4.2
6. DEMINERALIZED WATER SYSTEM				
6.2 DISCHARGE TO SITE WATER BODIES (RO DRIVE)				
6.2.1 FLOW RATE	P/S	[X] ---		50 (135) GPM PQS - 5.2.1
6.4 RAW WATER REQUIREMENTS				
6.4.1 MAXIMUM USE	P/S	[X] ---	400 GPM SSAR, 9.2.17.2 REV B, AMEND 20	
6.4.2 MONTHLY AVERAGE USE	P/S	[X] ---		150 GPM PQS - 5.4.2

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7. FIRE PROTECTION SYSTEM

7.1 RAW WATER REQUIREMENTS

7.1.1 MAXIMUM USE

PLANT (X) ---

625 GPM
POS - 5.4.1

7.1.2 MONTHLY AVERAGE USE

P/S (X) ---

0 GPM
POS - 5.4.2

7.1.4 STORED WATER VOLUME

PLANT (X) ---

600,000 GALLONS
BLTR 6/25/92

8. MISCELLANEOUS DRAIN

8.2 DISCHARGE TO SITE WATER BODIES

8.2.1 FLOW RATE

P/S (X) ---

25 (50) GPM
POS - 5.2.1

9. UNIT VENT/AIRBORNE EFFLUENT RELEASE POINT

9.1 ATMOSPHERIC DISPERSION (CH1/Q) (ACCIDENT)

9.1.1 .5 MILE - 0-2HR

PLANT (X) 1.0E-3 SEC/M3
VOL 11,CHAP 1,T1.2-6
REV 4

2.19 E-4 SEC/M3
SSAR,T15.6-14
AMEND 8,REV C

9.1.2 2 MILE - 0-8HR

PLANT (X) 1.35E-4 SEC/M3
VOL 11,CHAP 1,T1.2-6
REV 4

6.02 E-5 SEC/M3
SSAR,T15.6-14
AMEND 8,REV C

9.1.3 2 MILE - 1-4DAY

PLANT (X) 5.4E-5 SEC/M3
VOL 11,CHAP 1,T1.2-6
REV 4

8.77 E-6 SEC/M3
SSAR,T15.6-14
AMEND 8,REV C

9.1.4 2 MILE - 4-30DAY

PLANT (X) 2.2E-5 SEC/M3
VOL 11,CHAP 1,T1.2-6
REV 4

1.89 E-6 SEC/M3
SSAR,T15.6-14
AMEND 8,REV C

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PARAMETERS LIST FOR ABWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
9.1.5 2 MILE - 8-24HR	PLANT	[X] 1.0E-4 SEC/M3 VOL 11, CHAP 1, T1.2-6 REV 4	2.47 E-5 SEC/M3 SSAR, T15.6-14 AMEND 8, REV C	
9.2 ATMOSPHERIC DISPERSION (CH1/0) (ANNUAL AVERAGE)	PLANT	[X] ---		
9.3 CONTAINMENT LEAKAGE RATE	PLANT	[X] .5X/DAY (+35SCFH/MS LINE BUR ONLY) URD VOL 11, CHAP 5, 1.2.3.5 REV 1	FAX 7/15/92 & SSAR, T1.3-3 REV A, AMEND 1	
9.5 DOSE CONSEQUENCES				
9.5.1 NORMAL	PLANT	[X] 10 CFR 20, 10 CFR 50 APP1 VOL 11 CHAP 12, 3.2.1. REV 3	URD SSAR CHAP 12	
9.5.2 POST-ACCIDENT	PLANT	[X] 10 CFR 20, 50 APP1, 100 VOL 11, CHAP 1, T1.2-2C REV 1	URD SSAR, CHAP 15	
9.5.3 SEVERE ACCIDENTS	PLANT	[X] 25REM MB IN 24HR @.5MI <1E-6/RX-YR VOL 11, CHAP 1, APP A 5.1 REV 4	URD TELECON 7/16/92	
9.6 RELEASE POINT				
9.6.1 CONFIGURATION (HORIZ VS VERT)	PLANT	[X] ---	VERTICAL B LTR 6/25/92	
9.6.3 ELEVATION (NORMAL)	PLANT	[X] ---	249'-4" SSAR 1.2.2.17.1 REV C, AMEND 20	
9.6.4 ELEVATION (POST-ACCIDENT)	PLANT	[X] ---	GROUND LEVEL SSAR, 15.6.5.5.3 AMEND 8, REV C	
9.6.6 MINIMUM DISTANCE TO SITE BOUNDARY	PLANT	[X] ---	0.5 MI EXCLUSION AREA SSAR 12.2.2.4 REV B, AMEND 18	
9.6.7 TEMPERATURE	PLANT	[X] ---	105F 6/30 MEETING	

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PARAMETERS LIST FOR ABWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
9.6.8 VOLUMETRIC FLOW RATE	PLANT	[X] ---	323,750 SCFH FAX 7/17/92	
9.7 SOURCE TERM				
9.7.1 GASEOUS (NORMAL)	PLANT	[X] 200 CI/YR (PWR),2000 CI/YR (BWR) VOL 11,CHAP 12,1.5.1 REV 1	5186 CI/YR FAX 7/17/92	EVOLUTIONARY 5385 CI/YR PQS - 9.7.1 TABLE 1
9.7.2 GASEOUS (POST-ACCIDENT)	PLANT	[X] ---	SEE CHAP 15 TABLES SSAR,CHAP 15	TABLE 2 PQS - 9.7.1
9.7.3 GASEOUS (SEVERE ACCIDENT)	PLANT	[X] ---		TABLE 3 PQS - 9.7.1
9.7.4 TRITIUM	PLANT	[X] ---	67 CI/YR SSAR,T12.2-20 REV B,AMEND 18	
10. LIQUID RADWASTE SYSTEM				
10.1 DOSE CONSEQUENCES				
10.1.1 NORMAL	PLANT	[X] 10 CFR 50 APP1,10 CFR 20 VOL 11,CHAP 12,4.2.1.1 REV.3	URD	
10.1.2 POST-ACCIDENT	PLANT	[]		
10.2 RELEASE POINT				
10.2.1 FLOW RATE	PLANT	[X] ---	100 GPM+10,000 GPM DILUTION FAX 7/15/92	
10.3 SOURCE TERM				
10.3.1 LIQUID	PLANT	[X] 0.05 CI/YR VOL 11,CHAP 12,1.5.1 REV 1	0.1 CI/YR FAX 7/17/92	EVOLUTIONARY 3.6E-1 CI/YR PQS - 10.3.1

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Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev

10.3.2 TRITIUM	PLANT	[X] ---	60 CI/YR SSAR,T12.2-22 REV B,AMEND 10	
<hr/>				
11. GASEOUS RADWASTE SYSTEM				
<hr/>				
12. SOLID RADWASTE SYSTEM				
<hr/>				
12.1 ACREAGE				
12.1.1 LOW LEVEL RADWASTE STORAGE	PLANT	[X] 6 MO + 1 VEHICLE + 25% VOL 11,CHAP 12,5.4.2.1 REV 1	6 MONTHS (INTERNAL TO BLDG) FAX 7/17/92	
12.2 SOLID RADWASTE				
12.2.1 ACTIVITY	PLANT	[X] ---		2700 CI/YR PQS - 12.2.1
12.2.2 PRINCIPAL RADIONUCLIDES	PLANT	[X] ---		SEE TABLE FOR NUCLIDES PQS - 12.2.1
12.2.3 VOLUME	PLANT	[X] 1750 (PMR)/3500(BWR)CUFT/YR DEWTRD URD VOL 11,CHAP 12,1.5.1 REV 1	FAX 7/15/92	
<hr/>				
13. REACTOR COOLANT SYSTEM				
<hr/>				
14. RCS CLEANUP SYSTEM				
<hr/>				
15. CVCS LETDOWN SUBSYSTEM				
<hr/>				
16. CVCS PURIFICATION SUBSYSTEM				
<hr/>				

PARAMETERS LIST FOR ABUR

Structure, System, Component / Primary / Secondary	Parameter	Paramr Type	[A] UND:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
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17. CVCS SHIM/BLEED SUBSYSTEM

18. SPENT FUEL STORAGE

18.3 SPENT FUEL DRY STORAGE

18.3.1 ACREAGE

P/S [X] ---

15 ACRES
POS - 18.3.1

18.3.2 MINIMUM DISTANCE TO NEAREST RESIDENCE

P/S [X] ---

3500 FT
POS - 18.3.2

18.3.3 MINIMUM DISTANCE TO POWER BLOCK

P/S DO ---

1500-2200 FT
POS - 18.3.3

18.3.4 STORAGE CAPACITY

PLANT (X) 60 YEARS DRY STORAGE
VOL 11, CHAP 1,3.7.1
REV 1

URS
POS - 18.3.1

19. STEAM GENERATOR BLOWDOWN SYSTEM

20. STANDBY-GAS TREATMENT SYSTEM

21. AUXILIARY BOILER SYSTEM

21.1 EXHAUST ELEVATION

P/S **DO** ---

150 FT
POS - 21.1

21.2 FLUE GAS EFFLUENTS

P/S DU ---

SEE TABLE
POS - 21.2

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PARAMETERS LIST FOR ABWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	DECTEL:Val/Refer/Rev
21.3 FUEL				
21.3.2 TYPE	P/S	[X] ---		NO. 2 PQS - 21.3.2
21.4 HEAT INPUT RATE (BTU/HR)	P/S	[X] ---	200,000,000 BTU/HR 6/30/92 MEETING	
<hr/>				
22. CONDENSATE CLEANUP SYSTEM				
<hr/>				
23. GAS STORAGE SYSTEM				
<hr/>				
24. HEATING, VENTILATION AND AIR CONDITIONING SYSTEM				
<hr/>				
24.1 AMBIENT AIR REQUIREMENTS				
24.1.2 NON-SAFETY HVAC MAX AMBIENT TEMP (1% EXCEED)	PLANT	[X] 100 F DB/ 77 F WB COINCIDENT VOL 11,CHAP 1,T1.2-6 REV 3	URD SSAR,T2.0-1 REV B,AMEND 16	
24.1.3 NON-SAFETY HVAC MIN AMBIENT TEMP (1% EXCEED)	PLANT	[X] -10 F VOL 11,CHAP 1,T1.2-6 REV 1	URD SSAR,T2.0-1 REV B,AMEND 16	
24.1.4 SAFETY HVAC MAX AMBIENT TEMP (0% EXCEED)	PLANT	[X] 115 F DB/80 F WB COINCIDENT VOL 11,CHAP 1,T1.2-6 REV 4	URD/82 F WB COINCIDENT SSAR,T2.0-1 REV B,AMEND 16	
24.1.5 SAFETY HVAC MIN AMBIENT TEMP (0% EXCEED)	PLANT	[X] -40 F VOL 11,CHAP 1,T1.2-6 REV 1	URD SSAR,T2.0-1 REV B,AMEND 16	
24.1.6 VENT SYSTEM MAX AMBIENT TEMP (5% EXCEED)	PLANT	[X] 5% EXCEEDANCE VOL 11,CHAP 9,8.2.1.1.1 REV 4	URD	
24.1.7 VENT SYSTEM MIN AMBIENT TEMP (5% EXCEED)	PLANT	[X] 5% EXCEEDANCE VOL 11,CHAP 9,8.2.1.1.1 REV 4	URD	

PARAMETERS LIST FOR ASWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
<hr/>				
25. ONSITE/OFFSITE ELECTRICAL POWER SYSTEM				
<hr/>				
25.1 ACREAGE				
25.1.1 SWITCHYARD	P/S	[X] ---		12 ACRES PQS - 25.1.1
25.3 DUTY CYCLES	PLANT	[X] 35 PEAK-TO-PEAK PER DAY VOL 11,CHAP 1,3.4.2.2 REV 1	URD TELECON 7/16/92	
<hr/>				
26. STANDBY POWER SYSTEM				
<hr/>				
26.1 DIESEL CAPACITY (KW)	PLANT	[X] ---	3 X 5000 KW SSAR,T8.3-1 REV B,AMEND 10	
26.2 DIESEL EXHAUST ELEVATION	P/S	[X] ---		50 FT PQS - 21.1
26.3 DIESEL FLUE GAS EFFLUENTS	P/S	[X] ---		SEE TABLE PQS - 21.2
26.4 DIESEL FUEL				
26.4.1 RESUPPLY TIME	PLANT	[X] ---	7 DAYS TELECON 7/16/92	
26.4.2 TYPE	PLANT	[X] ---	OIL PER ASTM D975-1974 SSAR,9.5.4.9	
26.5 DIESEL NOISE	P/S	[X] ---		55 DBA AT 1000 FT PQS - 26.5
26.6 GAS-TURBINE CAPACITY (KW)	PLANT	[X] ---	6,000 KW SSAR,9.5.11.1 REV B,AMEND 10	

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PARAMETERS LIST FOR ABWR

Structure, System, Component / Primary / Secondary Parameter	Pmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
26.7 GAS-TURBINE EXHAUST ELEVATION	P/S	[X] ---		100 FT PQS - 21.1
26.8 GAS-TURBINE FLUE GAS EFFLUENTS	P/S	[X] ---		SEE TABLE PQS - 21.2
26.9 GAS-TURBINE FUEL 26.9.2 TYPE	P/S	[X] ---		DISTILLATE PQS - 21.3.2
26.10 GAS-TURBINE NOISE	P/S	[X] ---		55 DBA AT 1000 FT PQS - 26.5
<hr/>				
27. SEVERE ACCIDENT FEATURES				
<hr/>				
28. PLANT CHARACTERISTICS				
<hr/>				
28.1 ACCESS ROUTES				
28.1.3 HEAVY HAUL ROUTES	P/S	[X] ---		7 ACRES PQS - 28.1.3
28.1.5 SPENT FUEL CASK WEIGHT	PLANT	[X] 150 TONS VOL 11, CHAP 7, 2.3.2.3.1 REV 1		150 TONS PQS - 28.1.5
28.2 ACREAGE				
28.2.1 OFFICE FACILITIES	P/S	[X] ---	1.09 ACRES (47,600 SQFT) ABWR PLOT PLAN	
28.2.2 PARKING LOTS	P/S	[X] ---	3.86 ACRES ABWR PLOT PLAN	

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PARAMETERS LIST FOR ABWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
28.2.3 PERMANENT SUPPORT FACILITIES	P/S	[X] ---	APPROX 4.2 ACRES ABWR PLOT PLAN	
28.2.4 POWER BLOCK	P/S	[X] ---	APPROX 2.5 ACRES ABWR PLOT PLAN	
28.2.5 PROTECTED AREA	P/S	[X] ---	APPROX 38 ACRES ABWR PLOT PLAN	
28.4 MEGAWATTS - THERMAL	PLANT	[X] ---	3926 MWT SSAR,T1.3-1 REV C,AMEND 15 URD	
28.5 PLANT DESIGN LIFE	PLANT	[X] 60 years VOL 11,CHAP 1,3.3 REV 1		
28.6 PLANT POPULATION 28.6.1 OPERATION	P/S	[X] ---	531 PEOPLE 6/30 MEETING,5/1/92 Q & A	
28.6.2 REFUELING	P/S	[X] ---	781 PEOPLE FAX 7/20/92	
28.9 STATION PRODUCTION AVAILABILITY FACTOR	PLANT	[X] 87% VOL 11,CHAP 1,6.3.5 REV 4	URD	

29. CONSTRUCTION

29.1 ACCESS ROUTES

29.1.1 CONSTRUCTION MODULE DIMENSIONS

P/S [X] ---

23(W) X 23(W) X 63(L)
TELECON 8/31/92

29.1.2 HEAVIEST CONSTRUCTION SHIPMENT

P/S [X] ---

758 TONS (1,516,000 LBS)
PIS - 29.1.2

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PARAMETERS LIST FOR ABMR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
<hr/>				
29.2 ACREAGE				
29.2.1 LAYDOWN AREA	P/S	[X] ---		29 ACRES POS - 29.2.1
29.2.2 TEMPORARY CONSTRUCTION FACILITIES	P/S	[X] ---		52 ACRES POS - 29.2.1
29.3 CONSTRUCTION				
29.3.2 CONSTRUCTION WORKER RADIATION EXPOSURE	P/S	[X] ---		0 POS - 29.3.2
29.3.6 NOISE	P/S	[X] ---		76-101 DBA @ 50 FT POS - 29.3.5
29.3.12 WATER USE	P/S	[X] ---		83 GPM POS - 29.3.12
29.4 PLANT POPULATION				
29.4.1 CONSTRUCTION	P/S	[X] ---	3150 PEOPLE (MAX) FAX 7/21/92	
29.5 SITE CONSTRUCTION DURATION	PLANT	[X] 54 MONTHS VOL 11, CHAP 1, 7.2.2.2 REV 1	URD	
29.6 SITE PREPARATION DURATION	PLANT	[X] 18 MONTHS VOL 11, CHAP 1, 7.2.2.2 REV 1	URD	

Appendix B2

SYSTEM 80+ INDIVIDUAL PLANT PARAMETERS LIST

The four individual plant parameters lists utilize the same qualitative parameters list as incorporated in the parameters applicability matrix except that the parameters are sorted for only those categorized as PLANT or P/S. The type of parameter, either PLANT or P/S, is listed in the column headed "PRMTR TYPE." Because of the exhaustive manner in which the original list of parameters was identified and the subsequent categorization of the parameters, breaks exist in the sequential numbering of the parameters presented in the qualitative plant parameters list. The qualitative plant parameters list is a sort of the database for only those parameters categorized as PLANT or P/S. The breaks in sequential numbering indicate the existence of parameters categorized as SITE or DETAIL. Additionally, all SSCs examined for plant-site interfaces are included on the qualitative plant parameters list, even though for some systems no pertinent parameters have been categorized as PLANT or P/S (for example, Reactor Coolant System). This demonstrates the breadth of the review for plant parameters. The applicability of each parameter to the given ALWR design is indicated by an "X" in the column headed "[A]." The next three columns on the individual plant parameters list provide the appropriate numerical value for each parameter taken from the Utility Requirements Document (URD), vendor information, or engineering assessment. Engineering assessment values are provided in the right column when neither an URD nor vendor value is available. The reference document for the numerical values is provided below each value.

Each URD and vendor value reference includes the revision or date of the source document. For URD and Standard Safety Analysis Report (SSAR) citations, the revision or amendment number is identified. Because many of the vendor values are not included in the SSAR, letters, meeting notes, facsimile transmissions, and

telephone notes have been used to document the vendor values. In such cases, the dates of the documents are included to uniquely identify the sources of the numerical values.

In cases when an engineering assessment has been performed, the basis is summarized on a parameter quantity summary (PQS) sheet, and the PQS sheet number is identified as the reference beneath the numerical value in the plant parameters list. Each PQS includes the plant parameter numbers for those parameters with a similar basis. When a PQS sheet lists multiple parameter numbers, the initial number listed is the first parameter on the list referring to the PQS. Each succeeding parameter using the same basis also refers to the initial parameter number (i.e., each PQS is uniquely identified by the initial parameter using the basis). For example, the blowdown flow rate from cooling water system heat removal devices first appears on the parameters list as parameter 2.7.5. PQS - 2.7.5 for blowdown flow rate addresses all of the heat removal design options and is applicable to parameter numbers 2.8.4, 2.10.3, 3.6.5, and 3.8.3.

PARAMETERS LIST FOR ST500-

Structure, System, Component / Primary / Secondary Parameter Print Type (A) UNB:Vol/Refer/Rev VENDOR:Vol/Refer/Rev DECTEL:Vol/Refer/Rev

1. STRUCTURES

1.1 FOUNDATION EQUIPMENT	PLANT	DX	---	51 FT	CESSAR, FIG 1.2-2	AMEND B	176 FT	CESSAR FIG 1.2-2	AMEND B
1.2 WEIGHT	PLANT	DX	---						
1.4 PRECIPITATION (FOR ROOF DESIGN)	PLANT	DX	19.4 IN/HR - 6.2 IN/5MIN		VOL 11,CMP 1,11.2-6	REV 1		CESSAR,12.0-1	UNB
1.4.1 MAXIMUM RAINFALL RATE									
1.4.2 SNOW LOAD	PLANT	DX	50 LB/SQFT		VOL 11,CMP 1,11.2-6	REV 1		CESSAR DC,12.0-1	UNB
1.5 SAFE SHUTDOWN EQUIPMENT (SSE)									
1.5.1 DESIGN RESPONSE SPECTRA	PLANT	DX	REGULATORY GUIDE 1.60		VOL 11,CMP 1,11.2-6	REV 2		PHONE NOTES 7/31/92	AMEND J
1.5.2 PEAK GROUND ACCELERATION	PLANT	DX	0.30g		VOL 11,CMP 1,11.2-6	REV 1		CESSAR DC,12.0-1	UNB
1.5.3 TIME HISTORY	PLANT	DX	ENVELOPE SSE RESP SPECTRA		VOL 11,CMP 1,11.2-6	REV 1		SECTION 3.7.1	AMEND J
1.8 SITE WATER LEVEL (ALLOWABLE)									
1.8.1 MAXIMUM FLOOD (ON TUNNEL)	PLANT	DX	1 FT BELOW PLANT GRADE		VOL 11,CMP 1,11.2-6	REV 1		CESSAR DC,12.0-1	UNB
1.8.2 MAXIMUM GROUND WATER	PLANT	DX	2 FT BELOW PLANT GRADE		VOL 11,CMP 1,11.2-6	REV 1		CESSAR DC,12.0-1	UNB

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PARAMETERS LIST FOR SYS00+

Structure, System, Component / Primary / Secondary Parameter	Param Type	(A) UND:Vol/Refer/Rev	VENDOR:Vol/Refer/Rev	DECHTEL:Vol/Refer/Rev
.....				
1.9 SOIL PROPERTIES DESIGN BASES				
1.9.1 LIQUEFACTION	PLANT	(X) NONE AT SITE-SPECIFIC SSE VOL 11,CHMP 1,T1.2-6 REV 1	UND CESSAR DC,T2.0-1 AMEND J	
1.9.2 MINIMUM BEARING CAPACITY (STATIC)	PLANT	(X) >= 15 KSF VOL 11,CHMP 1,T1.2-6 REV 1	UND (STATIC) CESSAR DC,T2.0-1 AMEND J	
1.9.3 MINIMUM SHEAR WAVE VELOCITY	PLANT	(X) >= 1000FPS VOL 11,CHMP 1,T1.2-6 REV 1	500 FT/SEC CESSAR DC,T2.0-1 AMEND J	
1.11 TORNADO (DESIGN BASES)				
1.11.1 MAXIMUM PRESSURE DROP	PLANT	(X) 2.0 PSI VOL 11,CHMP 1,T1.2-6 REV 4	2.4 PSI CESSAR DC,T2.0-1 AMEND J	
1.11.2 MAXIMUM ROTATIONAL SPEED	PLANT	(X) 240 RPM VOL 11,CHMP 1,T1.2-6 REV 4	260 RPM CESSAR DC,T2.0-1 AMEND J	
1.11.3 MAXIMUM TRANSLATIONAL SPEED	PLANT	(X) 60 MPH VOL 11,CHMP 1,T1.2-6 REV 4	70 MPH CESSAR DC,T2.0-1 AMEND J	
1.11.4 MAXIMUM WIND SPEED	PLANT	(X) 300 MPH VOL 11,CHMP 1,T1.2-6 REV 4	330 MPH CESSAR DC,T2.0-1 AMEND J	
1.11.5 MISSILE SPECTRA	PLANT	(X) SPECTRUM A OF SRP 3.5.1.4 VOL 11,CHMP 1,T1.2-6 REV 4	SPECTRUM 11 OF SRP 3.5.1.4 CESSAR DC,T2.0-1 AMEND J	
1.11.6 RADIUS OF MAXIMUM ROTATIONAL SPEED	PLANT	(X) 150 FT VOL 11,CHMP 1,T1.2-6 REV 4	UND CESSAR DC,T2.0-1 AMEND J	
1.11.7 RATE OF PRESSURE DROP	PLANT	(X) 1.2 PSI/SEC VOL 11,CHMP 1,T1.2-6 REV 4	1.7 PSI/SEC CESSAR DC,T2.0-1 AMEND J	
1.12 WIND				

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PARAMETERS LIST FOR SYS00*

Structure, System, Component / Primary / Secondary Parameter	Param Type	(A) UND:Vol/Refer/Rev	VENDOR:Vol/Refer/Rev	BECHTEL:Vol/Refer/Rev
1.12.1 BASIC WIND SPEED	PLANT	(X) 110 MPH VOL 11,CMP 1,T1.2-6 REV 1	UND CESSAR DC,T2.0-1 AMEND J	
1.12.2 IMPORTANCE FACTORS	PLANT	(X) 1.0 (NSR)/1.11 (SR) VOL 11,CMP 1,T1.2-6 REV 1	UND CESSAR DC,T2.0-1 AMEND J	
2. NORMAL PLANT HEAT SINK				
2.1 AMBIENT AIR REQUIREMENTS				
2.1.1 NORMAL SHUTDOWN MAX AMBIENT TEMP (TZ EXCEED)	PLANT	(X) 100 F DB/ 77 F WB COINCIDENT VOL 11,CMP 1,T1.2-6 REV 3	UND CESSAR DC,T2.0-1 AMEND J	
2.1.2 NORMAL SHUTDOWN MAX WET BULB TEMP (TZ EXCEED)	PLANT	(X) 80 F WB NON-COINCIDENT VOL 11,CMP 1,T1.2-6 REV 3	UND CESSAR, TABLE 2.0-1 AMEND J	
2.1.3 NORMAL SHUTDOWN MIN AMBIENT TEMP (TZ EXCEED)	PLANT	(X) -10 F VOL 11,CMP 1,T1.2-6 REV 1	UND CESSAR DC,T2.0-1 AMEND J	
2.1.5 RX THERMAL POWER MAX AMBIENT TEMP (0X EXCEED)	PLANT	(X) 115 F DB/ 80 F WB COINCIDENT VOL 11,CMP 8,2.2.2 REV 1	UND CESSAR DC,T2.0-1 AMEND J	
2.1.6 RX THERMAL POWER MAX WET BULB TEMP (0X EXCEED)	PLANT	(X) 81 F WB NON-COINCIDENT VOL 11,CMP 8,2.2.2 REV 1	UND CESSAR DC,T2.0-1 AMEND J	
2.1.7 RX THERMAL POWER MIN AMBIENT TEMP (0X EXCEED)	PLANT	(X) -40 F VOL 11,CMP 8,2.2.2 REV 1	UND CESSAR DC,T2.0-1 AMEND J	
2.2 BLOWDOWN POND ACREAGE	P/S	(X) 24 HR BLOWDOWN VOL 11,CMP 8,7.2.2.5.5 REV 0		4 ACRES POS-2.2
2.3 CONDENSER/HEAT EXCHANGER DUTY	PLANT	(X) ---		9.5 E9 BTU/HR POS - 2.3

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PARAMETERS LIST FOR SYS80

Structure, System, Component / Primary / Secondary Parameter	Prmr Type	[A] URB:Vol/Refer/Rev	VENDOR:Vol/Refer/Rev	DECTEL:Vol/Refer/Rev
2.6 MAXIMUM INLET TEMP CONDENSER/HEAT EXCHANGER	PLANT	[X] ---	<=100 F CESSAR DC,T2.0-1/FAX 6/26/92 AMEND J	
2.7 MECH DRAFT COOLING TOWERS				
2.7.1 ACREAGE	P/S	[]		50 ACRES POS - 2.7.1
2.7.3 APPROACH TEMPERATURE	P/S	[]		10 F POS - 2.7.3
2.7.5 BLOWDOWN FLOW RATE	P/S	[]		5200 (17,700)GPM POS - 2.7.5
2.7.6 BLOWDOWN TEMPERATURE	P/S	[]	100 F CESSAR DC,T2.0-1 AMEND J	
2.7.7 COOLING TOWER TEMPERATURE RANGE	P/S	[]	COND TEMP RISE 29F FAX 6/26/92 POS - 2.7.7	
2.7.8 COOLING WATER FLOW RATE	P/S	[]	600,000 GPM (CONDENSER FLOW) FAX 6/26/92	
2.7.9 CYCLES OF CONCENTRATION	P/S	[]		4 (2 MINIMUM) POS - 2.7.9
2.7.10 EVAPORATION RATE	P/S	[]		15,400 (17,700)GPM POS - 2.7.10
2.7.12 HEAT REJECTION RATE	P/S	[]		26 E6 BTU/HR POS - 2.7.12
2.7.13 HEIGHT	P/S	[]		60 FT POS - 2.7.13

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PARAMETERS LIST FOR SYS00+

Structure, System, Component / Primary / Secondary Parameter	Prmr Type	[A] UND:Val/Refer/Rev	VENDOR:Val/Refer/Rev	DECTEL:Val/Refer/Rev
2.7.15 MAKEUP FLOW RATE	P/S	[]		20,600 (35,400)GPM POS - 2.7.15
2.7.16 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[]		17,700 GPM POS - 2.7.16
2.7.17 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[]		15,400 GPM POS - 2.7.17
2.7.18 NOISE	P/S	[]		55 DBA AT 1000 FT POS - 2.7.18
2.7.22 STORED WATER VOLUME	P/S	[]		10.5 E6 GAL POS - 2.7.22
2.8 NATURAL DRAFT COOLING TOWERS				
2.8.1 ACREAGE	P/S	[X] ---	5.5 ACRES CESSAR DC, FIG 1.2-1 AMEND H (SCALED FROM FIGURE)	10 F POS - 2.7.3
2.8.2 APPROACH TEMPERATURE	P/S	[X] ---		
2.8.4 BLOWDOWN FLOW RATE	P/S	[X] ---		5,200 (17,700)GPM POS - 2.7.5
2.8.5 BLOWDOWN TEMPERATURE	P/S	[X] ---	<=100 F CESSAR DC, T2.0-1 AMEND J	
2.8.6 COOLING TOWER TEMPERATURE RANGE	P/S	[X] ---	CONDENSER TEMP RISE 29 F FAX 6/26/92	
2.8.7 COOLING WATER FLOW RATE	P/S	[X] ---	600,000 GPM (CONDENSER FLOW) FAX 6/26/92	

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PARAMETERS LIST FOR SYS00+

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	(A) URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
2.8.8 CYCLES OF CONCENTRATION	P/S	(X) ---		4 (2 MINIMUM) PQS - 2.7.9
2.8.9 EVAPORATION RATE	P/S	(X) ---		15,400 (17,700)GPM PQS - 2.7.10
2.8.11 HEAT REJECTION RATE	P/S	(X) ---		26 E6 BTU/HR PQS - 2.7.12
2.8.12 HEIGHT	P/S	(X) ---		550 FT PQS - 2.7.13
2.8.14 MAKEUP FLOW RATE	P/S	(X) ---		20,600 (35,400)GPM PQS - 2.7.15
2.8.15 MAXIMUM CONSUMPTION OF RAW WATER	P/S	(X) ---		17,700 GPM PQS - 2.7.16
2.8.16 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	(X) ---		15,400 GPM PQS - 2.7.17
2.8.17 NOISE	P/S	(X) ---		55 DBA AT 1000 FT PQS - 2.7.18
2.8.20 STORED WATER VOLUME	P/S	(X) ---		10.5 E6 GAL PQS - 2.7.22
2.9 ONCE-THROUGH COOLING				
2.9.1 COOLING WATER DISCHARGE TEMPERATURE	P/S	()		118 F PQS - 2.9.1
2.9.2 COOLING WATER FLOW RATE	P/S	()		1,100,000 GPM PQS - 2.9.2

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PARAMETERS LIST FOR SYS80+

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	(A) URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
2.9.3 COOLING WATER TEMPERATURE RISE	P/S	[]		18 F POS - 2.9.3
2.9.4 EVAPORATION RATE	P/S	[]		9,300 (10,700)GPM POS - 2.7.10
2.9.5 HEAT REJECTION RATE	P/S	[]		9.5 E9 BTU/HR POS - 2.3
2.10 PONDS				
2.10.1 ACREAGE	P/S	[]		3000 ACRES W/O SPRAY POS - 2.10.1
2.10.3 BLOWDOWN FLOW RATE	P/S	[]		5200 (17,700)GPM POS - 2.7.5
2.10.4 BLOWDOWN TEMPERATURE	P/S	[]	<=100 F CESSAR DC,T2.0-1,FAX 6/26/92	
2.10.5 COOLING POND TEMPERATURE RANGE	P/S	[]	COND TEMP RISE 29 F FAX 6/26/92	
2.10.6 COOLING WATER FLOW RATE	P/S	[]	POS - 2.7.7 600,000 GPM (CONDENSER FLOW) FAX 6/26/92	
2.10.7 CYCLES OF CONCENTRATION	P/S	[]		4 (2 MINIMUM) POS - 2.7.9
2.10.8 EVAPORATION RATE	P/S	[]		15,400 (17,700)GPM POS - 2.7.10
2.10.9 HEAT REJECTION RATE	P/S	[]		26 E6 BTU/HR POS - 2.7.12

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PARAMETERS LIST FOR SYS80+

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
2.10.10 MAKEUP FLOW RATE	P/S	[]		20,600 (35,400)GPM PQS - 2.7.15
2.10.11 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[]		17700GPM (12400 NO SPRAY) PQS - 2.7.16
2.10.12 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[]		15,400 GPM (10,800 W/O SP PQS - 2.7.17
2.10.13 STORED WATER VOLUME	P/S	[]		14.7 E9 GALLONS PQS - 2.7.22

3. ULTIMATE HEAT SINK

3.1 AMBIENT AIR REQUIREMENTS

3.1.1 MAXIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	PLANT	[X] 115 F DB/80 F WB COINCIDENT VOL II, CHAP 1, T1.2-6 REV 4	URD CESSAR DC, T2.0-1 AMEND J
3.1.2 MAXIMUM WET BULB TEMPERATURE (0% EXCEEDANCE)	PLANT	[X] 81 F WB (NON-COINCIDENT) VOL II, CHAP 1, T1.2-6 REV 4	URD CESSAR DC, T2.0-1 AMEND J
3.1.3 MINIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	PLANT	[X] -40 F VOL II, CHAP 1, T1.2-6 REV 1	URD CESSAR DC, T2.0-1 AMEND J
3.2 CCW HEAT EXCHANGER DUTY	PLANT	[X] ---	122 (327 S/D) E6 BTU/HR CESSAR T9.2.2-3 AMEND I
3.5 MAXIMUM INLET TEMP TO CCW HEAT EXCHANGER	PLANT	[X] ---	95 F FAX 6/26/92

3.6 MECH DRAFT COOLING TOWERS

3.6.1 ACREAGE	P/S	[]	0.5 ACRES PQS - 2.7.1
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PARAMETERS LIST FOR SYS80+

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
3.6.3 APPROACH TEMPERATURE	P/S	[]		10 F PQS - 2.7.3
3.6.5 BLOWDOWN FLOW RATE	P/S	[]		100 (700)GPM PQS - 2.7.5
3.6.6 BLOWDOWN TEMPERATURE	P/S	[]	95 F TELECON 7/15/92	
3.6.7 COOLING TOWER TEMPERATURE RANGE	P/S	[]	11.3 F TELECON 7/15/92	
3.6.8 COOLING WATER FLOW RATE	P/S	[]	58,000 GPM (SHUTDOWN) TELECON 7/15/92	
3.6.9 CYCLES OF CONCENTRATION	P/S	[]		4 (2 MINIMUM) PQS - 2.7.9
3.6.10 EVAPORATION RATE	P/S	[]		250 (700)GPM PQS - 2.7.10
3.6.12 HEAT REJECTION RATE	P/S	[]		.5 E6 BTU/HR PQS - 2.7.12
3.6.13 HEIGHT	P/S	[]		60 FT PQS - 2.7.13
3.6.15 MAKEUP FLOW RATE	P/S	[]		350 (1,400)GPM PQS - 2.7.15
3.6.16 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[]		700 GPM PQS - 2.7.16

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PARAMETERS LIST FOR SYS80+

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
3.6.17 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[]		250 GPM PQS - 2.7.17
3.6.18 NOISE	P/S	[]		55 DBA AT 1000 FT PQS - 2.7.18
3.6.22 STORED WATER VOLUME	P/S	[]		30.6 E6 GAL PQS - 2.7.22
3.7 ONCE-THROUGH COOLING				
3.7.1 COOLING WATER DISCHARGE TEMPERATURE	P/S	[]		106.3 F PQS - 2.9.1
3.7.2 COOLING WATER FLOW RATE	P/S	[]	58,000 GPM TELECON 7/31/92 PQS - 2.9.2	
3.7.3 COOLING WATER TEMPERATURE RISE	P/S	[]	11.3 F TELECON 7/31/92 PQS - 2.9.3	
3.7.4 EVAPORATION RATE	P/S	[]		150 (400)GPM PQS - 2.7.10
3.7.5 HEAT REJECTION RATE	P/S	[]	122 (327 S/D) E 6 BTU/HR CESSAR T9.2.2-3 AMEND I	
3.7.6 MINIMUM ESSENTIAL FLOW RATE	PLANT	[]	14,500 GPM FAX 6/26/92	
3.8 PONDS				
3.8.1 ACREAGE	P/S	[X] ---	50 ACRES(NO SPRAY) CESSAR DC,F1.2-1 AMEND II	
3.8.3 BLOWDOWN FLOW RATE	P/S	[X] ---		100 (700)GPM PQS - 2.7.5

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PARAMETERS LIST FOR SYS80+

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	(A) URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
3.8.4 BLOWDOWN TEMPERATURE	P/S	[X] ---	95 F TELECON 7/15/92	
3.8.5 COOLING POND TEMPERATURE RANGE	P/S	[X] ---	11.3 FAX 6/26/92	
3.8.6 COOLING WATER FLOW RATE	P/S	[X] ---	58,000 GPM (SHUTDOWN) FAX 6/26/92	
3.8.7 CYCLES OF CONCENTRATION	P/S	[X] ---		4 (2 MINIMUM) POS - 2.7.9
3.8.8 EVAPORATION RATE	P/S	[X] ---		250 (700)GPM POS - 2.7.10
3.8.9 HEAT REJECTION RATE	P/S	[X] ---		.5E6BTU/HR(.3E6 NO SPRAY) POS - 2.7.12
3.8.10 MAKEUP FLOW RATE	P/S	[X] ---		350 (1,400)GPM POS - 2.7.15
3.8.11 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[X] ---		700 GPM (500 W/O SPRAY) POS - 2.7.16
3.8.12 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[X] ---		250 GPM (150 W/O SPRAY) POS - 2.7.17
3.8.13 STORED WATER VOLUME	P/S	[X] ---		196 E6 GALLONS POS - 2.7.22

4. CONTAINMENT HEAT REMOVAL SYSTEM (POST-ACCIDENT)

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PARAMETERS LIST FOR SYS80+

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
.....				
4.1 AMBIENT AIR REQUIREMENTS				
4.1.1 MAXIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	PLANT	[]		
4.1.2 MINIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	PLANT	[]		
<hr/>				
5. POTABLE WATER/SANITARY WASTE SYSTEM				
5.2 DISCHARGE TO SITE WATER BODIES				
5.2.1 FLOW RATE	P/S	[X] ---		20 (26) GPM POS - 5.2.1
5.4 RAW WATER REQUIREMENTS				
5.4.1 MAXIMUM USE	P/S	[X] ---		26 GPM POS - 5.4.1
5.4.2 MONTHLY AVERAGE USE	P/S	[X] ---		20 GPM POS - 5.4.2
<hr/>				
6. DEMINERALIZED WATER SYSTEM				
6.2 DISCHARGE TO SITE WATER BODIES (NO BRINE)				
6.2.1 FLOW RATE	P/S	[X] ---		50 (60) GPM POS - 5.2.1
6.4 RAW WATER REQUIREMENTS				
6.4.1 MAXIMUM USE	P/S	[X] ---		175 GPM POS - 5.4.1
6.4.2 MONTHLY AVERAGE USE	P/S	[X] ---		150 GPM POS - 5.4.2

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Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	(A) UND:Vol/Refer/Rev	VENDOR:Vol/Refer/Rev	BECHTEL:Vol/Refer/Rev
7. FIRE PROTECTION SYSTEM				
7.1 RAW WATER REQUIREMENTS				
7.1.1 MAXIMUM USE	PLANT	(X) ---		625 GPM POS - 5.4.1
7.1.2 MONTHLY AVERAGE USE	P/S	(X) ---		0 GPM POS - 5.4.2
7.1.4 STORED WATER VOLUME	PLANT	(X) ---	600,000 GALLONS(TANK STORAGE) CESSAR DC,9.5.1.5.1 AMEND 1	
8. MISCELLANEOUS DRAIN				
8.2 DISCHARGE TO SITE WATER BODIES				
8.2.1 FLOW RATE	P/S	(X) ---		25 (50) GPM POS - 5.2.1
9. UNIT VENT/AIRBORNE EFFLUENT RELEASE POINT				
9.1 ATMOSPHERIC DISPERSION (CH1/0) (ACCIDENT)				
9.1.1 .5 MILE - 0-2HR	PLANT	(X) 1.0E-3 SEC/MS VOL 11,CHMP 1,T1.2-6 REV 4	UND CESSAR DC,T2.3-1 AMEND 1	
9.1.2 2 MILE - 0-8HR	PLANT	(X) 1.35E-4 SEC/MS VOL 11,CHMP 1,T1.2-6 REV 4	UND CESSAR DC,T2.3-1 AMEND 1	
9.1.3 2 MILE - 1-4DAY	PLANT	(X) 5.4E-5 SEC/MS VOL 11,CHMP 1,T1.2-6 REV 4	UND CESSAR DC,T2.3-1 AMEND 1	
9.1.4 2 MILE - 4-30DAY	PLANT	(X) 2.2E-5 SEC/MS VOL 11,CHMP 1,T1.2-6 REV 4	UND CESSAR DC,T2.3-1 AMEND 1	

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PARAMETERS LIST FOR SYS80

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9.1.5 2 MILE - 8-24HR	PLANT	(X) 1.0E-4 SEC/MS VOL 11, CHMP 1, T1.2-6 REV 4	UND CESSAR DC, T2.3-1 AMEND 1	
9.2 ATMOSPHERIC DISPERSION (CH1/0) (ANNUAL AVERAGE)	PLANT	(X) ---	.SHI 7.2E-5/TMR 1.5E-9S CESSAR DC 11.3.6.3 AMEND 1	
9.3 CONTAINMENT LEAKAGE RATE	PLANT	(X) .5L/DAY (+35SCFM/MS (LINE DNR ONLY)) VOL 11, CHMP 5, 1.2.3.5 REV 1	UND FAR 9/1/92	
9.5 DOSE CONSEQUENCES				
9.5.1 NORMAL	PLANT	(X) 10 CFR 20, 10 CFR 50 APP1 VOL 11 CHMP 12, 3.2.1. REV 3	UND CESSAR DC, T11.3-5 AMEND 1	
9.5.2 POST-ACCIDENT	PLANT	(X) 10 CFR 20, 50 APP1, 100 VOL 11, CHMP 1, T1.2-2C REV 1	UND CESSAR DC, CHMP 15	
9.5.3 SEVERE ACCIDENTS	PLANT	(X) 25MHR WD IN 24HR 0.5MHR 1E-6/HR-WR VOL 11, CHMP 1, APP A 5.1 REV 4	UND CESSAR DC, APP B 7.4 (AMEND 1)	
9.6 RELEASE POINT				
9.6.1 CONFIGURATION (HORIZ VS VERT)	PLANT	(X) ---	VERTICAL MEETING 6/24/92	
9.6.3 ELEVATION (NORMAL)	PLANT	(X) ---	104 FT BEST LETTER ALMR-400, 5/27/92	
9.6.4 ELEVATION (POST-ACCIDENT)	PLANT	(X) ---	GROUND LEVEL TELECON 7/15/92	
9.6.6 HORIZON DISTANCE TO SITE BOUNDARY	PLANT	(X) ---	.SHI (CESSAR)/TMR (POPTH) (HORIZ) CESSAR DC, 11.3.6.3 AMEND 1	
9.6.7 TEMPERATURE	PLANT	(X) ---	120F (HORIZ) MEETING 6/24/92 & FAR 7/15/92	

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PARAMETERS LIST FOR SYSDO

Structure, System, Component / Primary / Secondary Parameter	Pratr Type	(X) UNB:Vol./Refer/Rev	VENDOR:Vol./Refer/Rev	DECFTEL:Vol./Refer/Rev
9.6.8 VOLUMETRIC FLOW RATE	PLANT	(X) ---	152,000 SCFH FRI 6/26/92	
9.7 SOURCE TERM				
9.7.1 GASEOUS (NORMAL)	PLANT	(X) 200 CI/YR (NUR), 2000 CI/YR (DNR) VOL 11, CHAP 12, 1.5.1 REV 1	1091 CI/YR CESSAR DC, T11.3-4 AMEND 1	EVOLUTIONARY 5305 CI/YR POS - 9.7.1 TABLE 1
9.7.2 GASEOUS (POST-ACCIDENT)	PLANT	(X) ---	SEE CHAP 15 TABLES TELECOPY 9/9/92	TABLE 2 POS - 9.7.1
9.7.3 GASEOUS (SEVERE ACCIDENT)	PLANT	(X) ---		TABLE 3 POS - 9.7.1
9.7.4 TRITIUM	PLANT	(X) ---	1200 CI/YR CESSAR DC, T11.3-4 AMEND 1	
10. LIQUID RADWASTE SYSTEM				
10.1 DOSE CONSEQUENCES				
10.1.1 NORMAL	PLANT	(X) 10 CFR 50 APP1, 10 CFR 20 VOL 11, CHAP 12, 6.2.1.1 REV.3	UNB CESSAR DC, T11.2-4 AMEND 1	
10.1.2 POST-ACCIDENT	PLANT	(X) 10 CFR 20, 10 CFR 100 VOL 11, CHAP 1, T1.2-1/T1.2-2C REV 1	UNB	
10.2 RELEASE POINT				
10.2.1 FLOW RATE	PLANT	(X) ---	APPROX 8 CFM-44,000 CFM DGLD TELECOM 7/16/92	
10.3 SOURCE TERM				
10.3.1 LIQUID	PLANT	(X) 0.05 CI/YR VOL 11, CHAP 12, 1.5.1 REV 1	2.9E-01 CI/YR CESSAR DC, T11.2-1 AMEND 1	EVOLUTIONARY 3.0E-1 CI/YR POS - 10.3.1

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PARAMETERS LIST FOR SYSTEM

Structure, System, Component / Primary / Secondary Parameter	Printer Type	DI	UNIT	Unit/Ref/Rev	VERSION	Unit/Ref/Rev	REMARKS
10.3.2 TREATMENT	PLANT	DI	---		300 CL/HR CESSOR DC, 111.2-1 REV 1		
11. CEMENTS ROASTING SYSTEM							
12. SOLID ROASTING SYSTEM							
12.1 ACREAGE							1/3 ACRE (5 HR STORAGE) POS - 12.1.1
12.1.1 LOW LEVEL ROASTING STORAGE	PLANT	DI	6 RD + 1 VEHICLE + 25X VOL 11, COMP 12.5.4.2.1 REV 1				
12.2 SOLID ROASTING							1100 CL/HR POS - 12.2.1
12.2.1 ACTIVITY	PLANT	DI	---				SEE TABLE FOR INCLUDES POS - 12.2.1
12.2.2 PRINCIPAL ROASTING INCLUDES	PLANT	DI	---				
12.2.3 VOLUME	PLANT	DI	1750 (MRT)/300000001/HR BEHIND 4000 CUB/HR VOL 11, COMP 12.1.5.1 REV 1		CESSOR DC, 111.4-2 REV 1		
13. REACOR COOLANT SYSTEM							
14. MCS CLEANUP SYSTEM							
15. MCS LEAKING SUBSYSTEM							
16. MCS PURIFICATION SUBSYSTEM							

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PARAMETERS LIST FOR SYSDO

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17. CVCS SHUT/DLEED SUBSYSTEM

18. SPENT FUEL STORAGE

18.3 SPENT FUEL DRY STORAGE

18.3.1 ACREAGE

P/S (X) ---

6 ACRES

FAR 6/26/92

18.3.2 MINIMUM DISTANCE TO NEAREST RESIDENCE

P/S (X) ---

3500 FT

POS - 18.3.2

18.3.3 MINIMUM DISTANCE TO POWER BLOCK

P/S (X) ---

1500-2200 FT

POS - 18.3.3

18.3.4 STORAGE CAPACITY

 PLANT (X) 60 YEARS DRY STORAGE
 VOL 11,CHAP 1,3.7.1
 REV 1

UND

POS - 18.3.1

19. STEAM GENERATOR BLOWDOWN SYSTEM

20. STANDBY-GAS TREATMENT SYSTEM

21. AUXILIARY BOILER SYSTEM

21.1 EXHAUST ELEVATION

P/S (X) ---

150 FT

POS - 21.1

21.2 FLUE GAS EFFLUENTS

P/S (X) ---

SEE TABLE

POS - 21.2

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PARAMETERS LIST FOR SYS00+

Structure, System, Component / Primary / Secondary Parameter	Prmr Type	(A) UND:Vol/Refer/Rev	VENDOR:Vol/Refer/Rev	DECTEL:Vol/Refer/Rev
21.3 FUEL				
21.3.2 TYPE	P/S	(X) ---		NO. 2 POS - 21.3.2
21.4 HEAT INPUT RATE (BTU/HR)	P/S	(X) ---	137,000,000 BTU/HR FAR 6/26/92	

22. CONDENSATE CLEANUP SYSTEM

23. GAS STORAGE SYSTEM

24. HEATING, VENTILATION AND AIR CONDITIONING SYSTEM

24.1 AMBIENT AIR REQUIREMENTS

24.1.2 NON-SAFETY HVAC INR AMBIENT TEMP (1% EXCEED)	PLANT	(X) 100 F DB/ 77 F WB COINCIDENT VOL 11,CHMP 1,T1.2-6 REV 3	UND CESSAR DC,T2.0-1 AMEND J
24.1.3 NON-SAFETY HVAC INR AMBIENT TEMP (1% EXCEED)	PLANT	(X) -10 F VOL 11,CHMP 1,T1.2-6 REV 1	UND CESSAR DC,T2.0-1 AMEND J
24.1.4 SAFETY HVAC INR AMBIENT TEMP (0% EXCEED)	PLANT	(X) 115 F DB/80 F WB COINCIDENT VOL 11,CHMP 1,T1.2-6 REV 4	UND CESSAR DC,T2.0-1 AMEND J
24.1.5 SAFETY HVAC INR AMBIENT TEMP (0% EXCEED)	PLANT	(X) -40 F VOL 11,CHMP 1,T1.2-6 REV 1	UND CESSAR DC,T2.0-1 AMEND J
24.1.6 VENT SYSTEM INR AMBIENT TEMP (5% EXCEED)	PLANT	(X) 5% EXCEEDANCE VOL 11,CHMP 9,B.2.1.1.1 REV 4	UND TELECON 7/15/92
24.1.7 VENT SYSTEM INR AMBIENT TEMP (5% EXCEED)	PLANT	(X) 5% EXCEEDANCE VOL 11,CHMP 9,B.2.1.1.1 REV 4	UND TELECON 7/15/92

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PARAMETERS LIST FOR SYS00*

Structure, System, Component / Primary / Secondary Parameter	Prmr Type	(A) UND:Vol/Refer/Rev	VENDOR:Vol/Refer/Rev	DECTEL:Vol/Refer/Rev
<hr/>				
25. ONSITE/OFFSITE ELECTRICAL POWER SYSTEM				
<hr/>				
25.1 ACREAGE				
25.1.1 SWITCHYARD	P/S	(X) ---	2.9 ACRES CESSAR DC, FIG 1.2-1 AMEND B (SCALED FROM FIGURE)	
25.3 DUTY CYCLES	PLANT	(X) 35 PEAK-TO-PEAK PER DAY VOL 11, COMP 1, 3.4.2.2 REV 1	UND	
<hr/>				
26. STANDBY POWER SYSTEM				
<hr/>				
26.1 DIESEL CAPACITY (KW)	PLANT	(X) ---	2 X 6400 KW CESSAR DC, 8	
26.2 DIESEL EXHAUST ELEVATION	P/S	(X) ---	25-30 FT TELECON 7/14/92	
26.3 DIESEL FLUE GAS EFFLUENTS	P/S	(X) ---		SEE TABLE POS - 21.2
26.4 DIESEL FUEL				
26.4.1 RESUPPLY TIME	PLANT	(X) ---	7 DAYS CESSAR DC, 9.5.4.1 AMEND E	
26.4.2 TYPE	PLANT	(X) ---	20 PER ASTM D975 CESSAR DC, 9.5.4.3 AMEND E	
26.5 DIESEL NOISE	P/S	(X) ---		55 DBA AT 1000 FT POS - 26.5
26.6 GAS-TURBINE CAPACITY (KW)	PLANT	(X) ---	13,000 KW TELECON 7/15/92	

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PARAMETERS LIST FOR SYS00*

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26.7 GAS-TURBINE EXHAUST ELEVATION	P/S	[X] ---		100 FT POS - 21.1
26.8 GAS-TURBINE FLUE GAS EFFLUENTS	P/S	[X] ---		SEE TABLE POS - 21.2
26.9 GAS-TURBINE FUEL 26.9.2 TYPE	P/S	[X] ---		DISTILLATE POS - 21.3.2
26.10 GAS-TURBINE NOISE	P/S	[X] ---		55 DBA AT 1000 FT POS - 26.5

27. SEVERE ACCIDENT FEATURES

28. PLANT CHARACTERISTICS

28.1 ACCESS ROUTES				
28.1.3 HEAVY HAUL ROUTES	P/S	[X] ---		7 ACRES POS - 28.1.3
28.1.5 SPENT FUEL CASK WEIGHT	PLANT	[X] 150 TONS VOL 11, CNAP 7,2.3.2.3.1 REV 1	125 TONS TELECON 7/16/92	
28.2 ACREAGE				
28.2.1 OFFICE FACILITIES	P/S	[X] ---		0.22 ACRES(9,640 SQFT) CESSAR DC, FIG 1.2-1 AMEND II (SCALED FROM FIGURE)
28.2.2 PARKING LOTS	P/S	[X] ---		APPROX 20 ACRES CESSAR DC, FIG 1.2-1 AMEND II (SCALED FROM FIGURE)

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PARAMETERS LIST FOR SYS00+

Structure, System, Component / Primary / Secondary Parameter	Prmr Type	[A] UND:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
28.2.3 PERMANENT SUPPORT FACILITIES	P/S	[X] ---	APPROX 2 ACRES CESSAR DC, FIG 1.2-1 AMEND H (SCALED FROM FIGURE)	
28.2.4 POWER BLOCK	P/S	[X] ---	APPROX 5 ACRES CESSAR DC, FIG 1.2-1 AMEND H (SCALED FROM FIGURE)	
28.2.5 PROTECTED AREA	P/S	[X] ---	APPROX 75 ACRES CESSAR DC, FIG 1.2-1 AMEND H (SCALED FROM FIGURE)	
28.4 MEGAWATTS - THERMAL	PLANT	[X] ---	3817 MW CESSAR DC, 1.1.2 AMEND B	
28.5 PLANT DESIGN LIFE	PLANT	[X] 60 years VOL 11, CHAP 1, 3.3 REV 1	UND FAX 6/26/92	
28.6 PLANT POPULATION				
28.6.1 OPERATION	P/S	[X] ---	795 PEOPLE FAX 6/26/92	
28.6.2 REFUELING	P/S	[X] ---	875-955 PEOPLE FAX 6/26/92	
28.9 STATION PRODUCTION AVAILABILITY FACTOR	PLANT	[X] 87% VOL 11, CHAP 1, 6.3.5 REV 4	UND TELECON 7/15/92	

29. CONSTRUCTION

29.1 ACCESS ROUTES

29.1.1 CONSTRUCTION MODULE DIMENSIONS

P/S [X] ---

22(W) X 21(V) X 67(L)
ADD FAX, 6/30/92

29.1.2 HEAVIEST CONSTRUCTION SHIPMENT

P/S [X] ---

775 TONS (1,544,000 LBS)
ADD FAX, 6/30/92

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PARAMETERS LIST FOR STS80+

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	(A) URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	DECTEL:Val/Refer/Rev
.....				
29.2 ACREAGE				
29.2.1 LAYDOWN AREA	P/S	[X] ---		29 ACRES POS - 29.2.1
29.2.2 TEMPORARY CONSTRUCTION FACILITIES	P/S	[X] ---		52 ACRES POS - 29.2.1
29.3 CONSTRUCTION				
29.3.2 CONSTRUCTION WORKER RADIATION EXPOSURE	P/S	[X] ---		0 POS - 29.3.2
29.3.6 NOISE	P/S	[X] ---		76-101 DBA @ 50 FT POS - 29.3.5
29.3.12 WATER USE	P/S	[X] ---		162 GPM POS - 29.3.12
29.4 PLANT POPULATION				
29.4.1 CONSTRUCTION	P/S	[X] ---	2600-6410 PEOPLE FAX 6/26/92	
29.5 SITE CONSTRUCTION DURATION	PLANT	[X] 54 MONTHS VOL II, CHAP 1, 7.2.2.2 REV 1	URD	
29.6 SITE PREPARATION DURATION	PLANT	[X] 18 MONTHS VOL II, CHAP 1, 7.2.2.2 REV 1	URD	

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Appendix B3

AP600 INDIVIDUAL PLANT PARAMETERS LIST

The four individual plant parameters lists utilize the same qualitative parameters list as incorporated in the parameters applicability matrix except that the parameters are sorted for only those categorized as PLANT or P/S. The type of parameter, either PLANT or P/S, is listed in the column headed "PRMTR TYPE." Because of the exhaustive manner in which the original list of parameters was identified and the subsequent categorization of the parameters, breaks exist in the sequential numbering of the parameters presented in the qualitative plant parameters list. The qualitative plant parameters list is a sort of the database for only those parameters categorized as PLANT or P/S. The breaks in sequential numbering indicate the existence of parameters categorized as SITE or DETAIL. Additionally, all SSCs examined for plant-site interfaces are included on the qualitative plant parameters list, even though for some systems no pertinent parameters have been categorized as PLANT or P/S (for example, Reactor Coolant System). This demonstrates the breadth of the review for plant parameters. The applicability of each parameter to the given ALWR design is indicated by an "X" in the column headed "[A]." The next three columns on the individual plant parameters list provide the appropriate numerical value for each parameter taken from the Utility Requirements Document (URD), vendor information, or engineering assessment. Engineering assessment values are provided in the right column when neither an URD nor vendor value is available. The reference document for the numerical values is provided below each value.

Each URD and vendor value reference includes the revision or date of the source document. For URD and Standard Safety Analysis Report (SSAR) citations, the revision or amendment number is identified. Because many of the vendor values are not included in the SSAR, letters, meeting notes, facsimile transmissions, and

telephone notes have been used to document the vendor values. In such cases, the dates of the documents are included to uniquely identify the sources of the numerical values.

In cases when an engineering assessment has been performed, the basis is summarized on a parameter quantity summary (PQS) sheet, and the PQS sheet number is identified as the reference beneath the numerical value in the plant parameters list. Each PQS includes the plant parameter numbers for those parameters with a similar basis. When a PQS sheet lists multiple parameter numbers, the initial number listed is the first parameter on the list referring to the PQS. Each succeeding parameter using the same basis also refers to the initial parameter number (i.e., each PQS is uniquely identified by the initial parameter using the basis). For example, the blowdown flow rate from cooling water system heat removal devices first appears on the parameters list as parameter 2.7.5. PQS - 2.7.5 for blowdown flow rate addresses all of the heat removal design options and is applicable to parameter numbers 2.8.4, 2.10.3, 3.6.5, and 3.8.3.

PARAMETERS LIST FOR AP600

Structure, System, Component / Primary / Secondary Parameter Prmtr Type [A] URD:Val/Refer/Rev VENDOR:Val/Refer/Rev BECHTEL:Val/Refer/Rev

1. STRUCTURES

1.1 FOUNDATION EMBEDMENT	PLANT [X] ---	39'6" FIN GRADE - BOT SLAB WCAP 13202 FIG 7.2-8 REV 1
1.2 HEIGHT	PLANT [X] ---	207'-3" WCAP 13202 FIG 7.2-8 REV 1
1.4 PRECIPITATION (FOR ROOF DESIGN)		
1.4.1 MAXIMUM RAINFALL RATE	PLANT [X] 19.4 IN/HR - 6.2 IN/5MIN VOL III,CHAP 1,T1.2-6 REV 0	URD SSAR,T2.0-1 REV 0
1.4.2 SNOW LOAD	PLANT [X] 50 LB/SQFT VOL III,CHAP 1,T1.2-6 REV 0	URD SSAR,T2.0-1 REV 0
1.5 SAFE SHUTDOWN EARTHQUAKE (SSE)		
1.5.1 DESIGN RESPONSE SPECTRA	PLANT [X] REGULATORY GUIDE 1.60 VOL III,CHAP 1,T1.2-6 REV 1	URD SSAR,T2.0-1 REV 0
1.5.2 PEAK GROUND ACCELERATION	PLANT [X] 0.30g VOL III,CHAP 1,T1.2-6 REV 0	URD SSAR,T2.0-1 REV 0
1.5.3 TIME HISTORY	PLANT [X] ENVELOPE SSE RESP SPECTRA VOL III,CHAP 1,T1.2-6 REV 0	URD SSAR 3.7.1
1.8 SITE WATER LEVEL (ALLOWABLE)		
1.8.1 MAXIMUM FLOOD (OR TSUNAMI)	PLANT [X] 1 FT BELOW PLANT GRADE VOL III,CHAP 1,T1.2-6 REV 0	< FINISHED GRADE (MAX) SSAR,T2.0-1 REV 0
1.8.2 MAXIMUM GROUND WATER	PLANT [X] 2 FT BELOW PLANT GRADE VOL III,CHAP 1,T1.2-6 REV 0	URD SSAR,T2.0-1 REV 0

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.....				
1.9 SOIL PROPERTIES DESIGN BASES				
1.9.1 LIQUEFACTION	PLANT	[X] NONE AT SITE-SPECIFIC SSE VOL III, CHAP 1, T1.2-6 REV 0	URD SSAR, T2.0-1 REV 0	
1.9.2 MINIMUM BEARING CAPACITY (STATIC)	PLANT	[X] >= 15 KSF VOL III, CHAP 1, T1.2-6 REV 0	>=12 KSF SSAR, T2.0-1 REV 0	
1.9.3 MINIMUM SHEAR WAVE VELOCITY	PLANT	[X] >= 1000FPS VOL III, CHAP 1, T1.2-6 REV 0	URD SSAR, T2.0-1 REV 0	
1.11 TORNADO (DESIGN BASES)				
1.11.1 MAXIMUM PRESSURE DROP	PLANT	[X] 1.46 PSI VOL III, CHAP 1, T1.2-6 REV 0	2.0 PSI SSAR 3.3.2.1 REV 0	
1.11.2 MAXIMUM ROTATIONAL SPEED	PLANT	[X] ---	240 MPN SSAR 3.3.2.1 REV 0	
1.11.3 MAXIMUM TRANSLATIONAL SPEED	PLANT	[X] 57 MPN VOL III, CHAP 1, T1.2-6 REV 0	60 MPN SSAR 3.3.2.1 REV 0	
1.11.4 MAXIMUM WIND SPEED	PLANT	[X] 260 MPN VOL III, CHAP 1, T1.2-6 REV 0	300 MPN SSAR 3.3.2.1 REV 0	
1.11.5 MISSILE SPECTRA	PLANT	[X] SPECTRUM I OF SRP 3.5.1.4 VOL III, CHAP 1, T1.2-6 REV 0	URD SSAR 3.5.1.4 REV 0	
1.11.6 RADIUS OF MAXIMUM ROTATIONAL SPEED	PLANT	[X] 453 FT VOL III, CHAP 1, T1.2-6 REV 0	150 FT SSAR 3.3.2.1 REV 0	
1.11.7 RATE OF PRESSURE DROP	PLANT	[X] 0.27 PSI/SEC VOL III, CHAP 1, T1.2-6 REV 0	1.2 PSI/SEC SSAR 3.3.2.1 REV 0	
1.12 WIND				

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1.12.1 BASIC WIND SPEED

PLANT (X) 110 MPH
VOL III,CHAP 1,T1.2-6
REV 0

URD
SSAR,T2.0-1
REV 0

1.12.2 IMPORTANCE FACTORS

PLANT (X) 1.0 (NSR)/1.11 (SR)
VOL III,CHAP 1,T1.2-6
REV 0

URD
SSAR,T2.0-1
REV 0

2. NORMAL PLANT HEAT SINK

2.1 AMBIENT AIR REQUIREMENTS

2.1.1 NORMAL SHUTDOWN MAX AMBIENT TEMP (1% EXCEED)

PLANT (X) 100 F DB/ 77 F WB COINCIDENT
VOL III,CHAP 1,T1.2-6
REV 2

URD
SSAR,T2.0-1
REV 0

2.1.2 NORMAL SHUTDOWN MAX WET BULB TEMP (1% EXCEED)

PLANT (X) 80 F WB NON-COINCIDENT
VOL III,CHAP 1,T1.2-6
REV 2

URD
SSAR,T2.0-1
REV 0

2.1.3 NORMAL SHUTDOWN MIN AMBIENT TEMP (1% EXCEED)

PLANT (X) -10 F
VOL III,CHAP 1,T1.2-6
REV 0

URD
SSAR,T2.0-1
REV 0

2.1.5 RX THERMAL POWER MAX AMBIENT TEMP (0% EXCEED)

PLANT (X) 115 F DB/ 80 F WB COINCIDENT
VOL III,CHAP 8,2.2.2
REV 0

URD
SSAR,T2.0-1
REV 0

2.1.6 RX THERMAL POWER MAX WET BULB TEMP (0% EXCEED)

PLANT (X) 81 F WB NON-COINCIDENT
VOL III,CHAP 8,2.2.2
REV 0

URD
SSAR,T2.0-1
REV 0

2.1.7 RX THERMAL POWER MIN AMBIENT TEMP (0% EXCEED)

PLANT (X) -40 F
VOL III,CHAP 8,2.2.2
REV 0

URD
SSAR,T2.0-1
REV 0

2.2 BLOWDOWN POND ACREAGE

P/S (X) 24 HR BLOWDOWN
VOL III,CHAP 8,7.3.5.5
REV 0

APPROX 1400 SQFT
BAG 0000 X2 001
REV A

2.3 CONDENSER/HEAT EXCHANGER DUTY

PLANT (X) ---

4,630 E9 BTU/HR
PEG/MIS0179
REV 1

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Structure, System, Component / Primary / Secondary Parameter	Prmr Type	(A) UMD:Vol/Refer/Rev	VENDOR:Vol/Refer/Rev	BECHTEL:Vol/Refer/Rev
2.6 MAXIMUM INLET TEMP CONDENSER/HEAT EXCHANGER	PLANT	(X) ---	91 F 7/1/92 MEETING	
2.7 MECH DRAFT COOLING TOWERS				
2.7.1 ACREAGE	P/S	()		25 ACRES POS - 2.7.1
2.7.3 APPROACH TEMPERATURE	P/S	()		10 F POS - 2.7.3
2.7.5 BLOWDOWN FLOW RATE	P/S	()		2500 (8500) GPM POS - 2.7.5
2.7.6 BLOWDOWN TEMPERATURE	P/S	()	91 F 7/1/92 MEETING	
2.7.7 COOLING TOWER TEMPERATURE RANGE	P/S	()	23F SE1/PEG-0175 POS - 2.7.7 306,000 GPM (CONDENSER FLOW) MCAP 13202,13.3.3 REV 1	
2.7.8 COOLING WATER FLOW RATE	P/S	()		
2.7.9 CYCLES OF CONCENTRATION	P/S	()		4 (2 MINIMUM) POS - 2.7.9
2.7.10 EVAPORATION RATE	P/S	()		7,400 (8,500) GPM POS - 2.7.10
2.7.12 HEAT REJECTION RATE	P/S	()		12.5 EG BTU/HR POS - 2.7.12
2.7.13 HEIGHT	P/S	()		60 FT POS - 2.7.13

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PARAMETERS LIST FOR AP600

Structure, System, Component / Primary / Secondary Parameter	Prmr Type	[A] UNB:Vol/Refer/Rev	VENDOR:Vol/Refer/Rev	BECHTEL:Vol/Refer/Rev
2.7.15 MAKEUP FLOW RATE	P/S	[]		9,900 (17,000) GPM POS - 2.7.15
2.7.16 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[]		8,500 GPM POS - 2.7.16
2.7.17 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[]		7,400 GPM POS - 2.7.17
2.7.18 NOISE	P/S	[]		55 DBA AT 1000 FT POS - 2.7.18
2.7.22 STORED WATER VOLUME	P/S	[]		7 EG GAL POS - 2.7.22
2.8 NATURAL DRAFT COOLING TOWERS				
2.8.1 ACREAGE	P/S	[X] ---	2.3 ACRES WITHOUT BASIN SE1/PEG-0710	
2.8.2 APPROACH TEMPERATURE	P/S	[X] ---	10 F SE1/PEG-0715	
2.8.4 BLOWDOWN FLOW RATE	P/S	[X] ---	3500 (8,500) GPM WOMP-13202,13.3.3 POS - 2.7.5	
2.8.5 BLOWDOWN TEMPERATURE	P/S	[X] ---	91 F 7/1/92 MEETING	
2.8.6 COOLING TOWER TEMPERATURE RANGE	P/S	[X] ---	23 F SE1/PEG-0175	
2.8.7 COOLING WATER FLOW RATE	P/S	[X] ---	306,000 GPM (CONDENSER FLOW) WOMP 13202,13.3.3 REV 1	

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2.8.8 CYCLES OF CONCENTRATION	P/S	(X) ---	4-6, 2-10 RMC ULTR_PEG/MS0173	
2.8.9 EVAPORATION RATE	P/S	(X) ---	2.6% OF CW FLOW (10,836 GPM) ULTR_PEG/MS0173	
2.8.11 HEAT REJECTION RATE	P/S	(X) ---		12.5 EG Btu/hr POS - 2.7.12
2.8.12 HEIGHT	P/S	(X) ---	500 FT SE1/PEG-0715	
2.8.14 MAKEUP FLOW RATE	P/S	(X) ---	10,900 (10,536) GPM PEG/MS0173 POS - 2.7.15	
2.8.15 MAXIMUM CONSUMPTION OF RAW WATER	P/S	(X) ---	10,400 GPM PEG/MS0173	
2.8.16 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	(X) ---		7,400 GPM POS - 2.7.17
2.8.17 NOISE	P/S	(X) ---		55 DBA AT 1000 FT POS - 2.7.18
2.8.20 STORED WATER VOLUME	P/S	(X) ---	5.5 EG GALLONS MCRP-13202	
2.9 ONCE-THROUGH COOLING				
2.9.1 COOLING WATER DISCHARGE TEMPERATURE	P/S	()		110 F POS - 2.9.1
2.9.2 COOLING WATER FLOW RATE	P/S	()		515,000 GPM POS - 2.9.2

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PARAMETERS LIST FOR M0600

Structure, System, Component / Primary / Secondary Parameter Print Type (M) Unit:Vol/Ref/Rev

VEHICLE:Vol/Ref/Rev

RECEIVED:Vol/Ref/Rev

2.9.3 COOLING WATER TEMPERATURE RISE	P/S	[]	10 f	POS - 2.9.3	4.600 (5.000)GPM	POS - 2.7.10	4.63 (9.00)GPM	REC/MISS/STY, 7/10/92	REV 1	1300 ACRES W/O SPRAW	POS - 2.10.1	2500 (8.500)GPM	POS - 2.7.5	91 f	7/1/92 MEETING	25 f	SEI/REC-0175	POS - 2.7.7	300,000 GPM (CONDENSED FLOW)	UCAP-13202, 13.3.3	4 (2 MINIMUM)	POS - 2.7.9	7,400 (8,500)GPM	POS - 2.7.10	12.5 (6.00)GPM	POS - 2.7.12
2.9.4 EVAPORATION RATE	P/S	[]																								
2.9.5 HEAT REJECTION RATE	P/S	[]																								
2.10 POUNDS																										
2.10.1 ACREAGE	P/S	[]																								
2.10.3 BLOWDOWN FLOW RATE	P/S	[]																								
2.10.4 BLOWDOWN TEMPERATURE	P/S	[]																								
2.10.5 COOLING POND TEMPERATURE RANGE	P/S	[]																								
2.10.6 COOLING WATER FLOW RATE	P/S	[]																								
2.10.7 CYCLES OF CONCENTRATION	P/S	[]																								
2.10.8 EVAPORATION RATE	P/S	[]																								
2.10.9 HEAT REJECTION RATE	P/S	[]																								

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Structure, System, Component / Primary / Secondary Parameter	Prmr Type	[A] UNB:Vol/Refer/Rev	VENDOR:Vol/Refer/Rev	BECHTEL:Vol/Refer/Rev
2.10.10 MAKEUP FLOW RATE	P/S	[]		9,900 (17,000)GPM POS - 2.7.15
2.10.11 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[]		8500GPM (6000 W/O SPRAY) POS - 2.7.16
2.10.12 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[]		7,400 GPM (5,300 W/O SPRAY) POS - 2.7.17
2.10.13 STORED WATER VOLUME	P/S	[]		6.4 E9 GALLONS POS - 2.7.22

3. ULTIMATE HEAT SINK3.1 AMBIENT AIR REQUIREMENTS

3.1.1 MAXIMUM AMBIENT TEMPERATURE (OR EXCEEDANCE) PLANT []

3.1.2 MAXIMUM NET BULD TEMPERATURE (OR EXCEEDANCE) PLANT []

3.1.3 MINIMUM AMBIENT TEMPERATURE (OR EXCEEDANCE) PLANT []

3.2 CCM HEAT EXCHANGER DUTY PLANT []

3.5 MAXIMUM INLET TEMP TO CCM HEAT EXCHANGER PLANT []

3.6 WICH DRAFT COOLING TOWERS

3.6.1 ACREAGE P/S []

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Structure, System, Component / Primary / Secondary Parameter	Prmr Type	(A) UNB:Vol/Refer/Rev	VENDOR:Vol/Refer/Rev	BECHTEL:Vol/Refer/Rev
3.6.3 APPROACH TEMPERATURE	P/S	[]		
3.6.5 BLOWDOWN FLOW RATE	P/S	[]		
3.6.6 BLOWDOWN TEMPERATURE	P/S	[]		
3.6.7 COOLING TOWER TEMPERATURE RANGE	P/S	[]		
3.6.8 COOLING WATER FLOW RATE	P/S	[]		
3.6.9 CYCLES OF CONCENTRATION	P/S	[]		
3.6.10 EVAPORATION RATE	P/S	[]		
3.6.12 HEAT REJECTION RATE	P/S	[]		
3.6.13 HEIGHT	P/S	[]		
3.6.15 MAKEUP FLOW RATE	P/S	[]		
3.6.16 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[]		

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PARAMETERS LIST FOR AP600

Structure, System, Component / Primary / Secondary Parameter	Prmr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
3.6.17 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[]		
3.6.18 NOISE	P/S	[]		
3.6.22 STORED WATER VOLUME	P/S	[]		
3.7 ONCE-THROUGH COOLING				
3.7.1 COOLING WATER DISCHARGE TEMPERATURE	P/S	[]		
3.7.2 COOLING WATER FLOW RATE	P/S	[]		
3.7.3 COOLING WATER TEMPERATURE RISE	P/S	[]		
3.7.4 EVAPORATION RATE	P/S	[]		
3.7.5 HEAT REJECTION RATE	P/S	[]		
3.7.6 MINIMUM ESSENTIAL FLOW RATE	PLANT	[]		
3.8 PONDS				
3.8.1 ACREAGE	P/S	[]		
3.8.3 BLOWDOWN FLOW RATE	P/S	[]		

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Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	(A) URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
3.8.4 BLOWDOWN TEMPERATURE	P/S	[]		
3.8.5 COOLING POND TEMPERATURE RANGE	P/S	[]		
3.8.6 COOLING WATER FLOW RATE	P/S	[]		
3.8.7 CYCLES OF CONCENTRATION	P/S	[]		
3.8.8 EVAPORATION RATE	P/S	[]		
3.8.9 HEAT REJECTION RATE	P/S	[]		
3.8.10 MAKEUP FLOW RATE	P/S	[]		
3.8.11 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[]		
3.8.12 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[]		
3.8.13 STORED WATER VOLUME	P/S	[]		

4. CONTAINMENT HEAT REMOVAL SYSTEM (POST-ACCIDENT)

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Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
4.1 AMBIENT AIR REQUIREMENTS				
4.1.1 MAXIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	PLANT	[X] 115F DB/80F WB VOL 111,CH 1,T1.2-6 REV 2	URD SSAR,T2.0-1 REV 0	
4.1.2 MINIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	PLANT	[X] -40F VOL 111,CH 1,T1.2-6 REV 0	URD SSAR T2.0-1 REV 0	
5. POTABLE WATER/SANITARY WASTE SYSTEM				
5.2 DISCHARGE TO SITE WATER BODIES				
5.2.1 FLOW RATE	P/S	[X] ---		35 (70) GPM PQS - 5.2.1
5.4 RAW WATER REQUIREMENTS				
5.4.1 MAXIMUM USE	P/S	[X] ---	100,000 GPD (70 GPM) SE1/PEG-0718	
5.4.2 MONTHLY AVERAGE USE	P/S	[X] ---	1,500,000 GAL/MONTH(35 GPM) SE1/PEG-0718	
6. DEMINERALIZED WATER SYSTEM				
6.2 DISCHARGE TO SITE WATER BODIES (RO BRWE)				
6.2.1 FLOW RATE	P/S	[X] ---		25 (70) GPM PQS - 5.2.1
6.4 RAW WATER REQUIREMENTS				
6.4.1 MAXIMUM USE	P/S	[X] ---	200 GPM WCAP-13202, 16.1.1 REV 1	
6.4.2 MONTHLY AVERAGE USE	P/S	[X] ---		75 GPM PQS - 5.4.2

PARAMETERS LIST FOR AP600

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
7. FIRE PROTECTION SYSTEM				
7.1 RAW WATER REQUIREMENTS				
7.1.1 MAXIMUM USE	PLANT	[X] ---	300,000 GAL/8HR (625 GPM) BLTR 003681 FPS M6C 001	
7.1.2 MONTHLY AVERAGE USE	P/S	[X] ---	225,000 GAL/MO (5GPM) BLTR 003681	0 GPM PQS - 5.4.2
7.1.4 STORED WATER VOLUME	PLANT	[X] ---	775,000 GALLONS FPS M6 001,REV 1,BLTR 003681	
8. MISCELLANEOUS DRAIN				
8.2 DISCHARGE TO SITE WATER BODIES				
8.2.1 FLOW RATE	P/S	[X] ---		25 (50) GPM PQS - 5.2.1
9. UNIT VENT/AIRBORNE EFFLUENT RELEASE POINT				
9.1 ATMOSPHERIC DISPERSION (CHI/Q) (ACCIDENT)				
9.1.1 .5 MILE - 0-2HR	PLANT	[X] 1.0E-3 SEC/M3 VOL III,CHAP 1,T1.2-6 REV 3	URD SSAR 2.3.4 REV 0	
9.1.2 2 MILE - 0-8HR	PLANT	[X] 1.35E-4 SEC/M3 VOL III,CHAP 1,T1.2-6 REV 3	URD SSAR 2.3.4 REV 0	
9.1.3 2 MILE - 1-4DAY	PLANT	[X] 5.4E-5 SEC/M3 VOL III,CHAP 1,T1.2-6 REV 3	URD SSAR 2.3.4 REV 0	
9.1.4 2 MILE - 4-30DAY	PLANT	[X] 2.2E-5 SEC/M3 VOL III,CHAP 1,T1.2-6 REV 3	URD SSAR 2.3.4 REV 0	

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PARAMETERS LIST FOR AP600

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
9.1.5 2 MILE - 8-24HR	PLANT	[X] 1.0E-4 SEC/M3 VOL III, CHAP 1,T1.2-6 REV 3	URD SSAR 2.3.4 REV 0	
9.2 ATMOSPHERIC DISPERSION (CHI/Q) (ANNUAL AVERAGE)	PLANT	[X] ---	2E-5 SEC/M3 SSAR 11.3.3.4 REV 0	
9.3 CONTAINMENT LEAKAGE RATE	PLANT	[X] .5%/DAY (+35SCFH/MS LINE BWR ONLY) VOL III,CHAP 5,1.2.3.4 REV 0	.12% BLTR 003681	
9.5 DOSE CONSEQUENCES				
9.5.1 NORMAL	PLANT	[X] 10 CFR 20,10 CFR 50 APP1 VOL III,CHAP 12,3.2.1 REV 2	URD SSAR,11.3.3.4 REV 0	
9.5.2 POST-ACCIDENT	PLANT	[X] 10 CFR 20,50 APP1,100 VOL III,CHAP 1,T1.2-2C REV 0	URD SSAR,CHAP 15	
9.5.3 SEVERE ACCIDENTS	PLANT	[X] 25REM WB IN 24HR @.5MI<1E-6/RX-YR VOL III,CHAP 1,APP A 5.1 REV 3	URD	
9.6 RELEASE POINT				
9.6.1 CONFIGURATION (HORIZ VS VERT)	PLANT	[X] ---	VERTICAL B LTR 003681	
9.6.3 ELEVATION (NORMAL)	PLANT	[X] ---	160 FT (ESTIMATE) BLTR 003681	
9.6.4 ELEVATION (POST-ACCIDENT)	PLANT	[X] ---	GROUND LEVEL SSAR,15.6.5.3.3 REV 0	
9.6.6 MINIMUM DISTANCE TO SITE BOUNDARY	PLANT	[X] ---	0.5 MI EXCLUSION AREA SSAR,T2.0-1 REV 0	
9.6.7 TEMPERATURE	PLANT	[X] ---	50-120F (ESTIMATE) BLTR 003681	

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PARAMETERS LIST FOR AP600

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
9.6.8 VOLUMETRIC FLOW RATE	PLANT	[X] ---	171,500 SCFM(NORM)(ESTIMATE) BLTR 003681	
9.7 SOURCE TERM				
9.7.1 GASEOUS (NORMAL)	PLANT	[X] 200 CI/YR (PWR),2000 CI/YR (BWR) VOL III,CHAP 12,1.5.1 REV 0	4100 CI/YR AP600 SSAR,T11.3-3 REV 0	PASSIVE 4579 CI/YR PQS - 9.7.1 TABLE 1
9.7.2 GASEOUS (POST-ACCIDENT)	PLANT	[X] ---	SEE CHAP 15 TABLES SSAR,CHAP 15 REV. 0	TABLE 2 PQS - 9.7.1
9.7.3 GASEOUS (SEVERE ACCIDENT)	PLANT	[X] ---		TABLE 3 PQS - 9.7.1
9.7.4 TRITIUM	PLANT	[X] ---	77 CI/YR SSAR,T11.3-3 REV 0	
<hr/>				
10. LIQUID RADWASTE SYSTEM				
10.1 DOSE CONSEQUENCES				
10.1.1 NORMAL	PLANT	[X] 10 CFR 50 APP1,10 CFR 20 VOL III,CHAP 12,4.2.1.1 REV.2	URD	
10.1.2 POST-ACCIDENT	PLANT	[X] 10 CFR 20,10 CFR 100 VOL III,CHAP 1,T1.2-1/T1.2-2C REV 0	URD	
10.2 RELEASE POINT				
10.2.1 FLOW RATE	PLANT	[X] ---	3.6 GPM W/DILUTN 1150GPM/8HR SSAR 11.2.3.3 REV 0	
10.3 SOURCE TERM				
10.3.1 LIQUID	PLANT	[X] 0.05 CI/YR VOL III,CHAP 12,1.5.1 REV 0	0.26CI/YR(EXCEPT TRITIUM) AP600 SSAR,T11.2-7 REV 0	PASSIVE 2.93E-1 CI/YR PQS - 10.3.1

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PARAMETERS LIST FOR AP600

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type [A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
10.3.2 TRITIUM	PLANT [X] ---	690 CI/YR AP600 SSAR,T11.2-7 REV 0	
<hr/>			
11. GASEOUS RADWASTE SYSTEM			
<hr/>			
12. SOLID RADWASTE SYSTEM			
<hr/>			
12.1 ACREAGE			
12.1.1 LOW LEVEL RADWASTE STORAGE	PLANT [X] 6 MO + 1 VEHICLE + 25% VOL III,CHAP 12,5.4.2.1 REV 0	URD(INTERNAL TO RADWSTE BLDG) TELECON 7/15/92	
12.2 SOLID RADWASTE			
12.2.1 ACTIVITY	PLANT [X] ---	1055 CI/YR (EXPECTED) SSAR,T11.4-6/8/10 REV 0	
12.2.2 PRINCIPAL RADIONUCLIDES	PLANT [X] ---	SEE TABLE FOR NUCLIDES SSAR T11.4-2/6/8/10 REV 0	
12.2.3 VOLUME	PLANT [X] 1750 (PWR)/3500(BWR)CUFT/YR DEWTRD VOL III,CHAP 12,1.5.1 REV 0	1729 CUFT/YR AVG EXPECTED SSAR,T11.4-4 REV 0	
<hr/>			
13. REACTOR COOLANT SYSTEM			
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14. RCS CLEANUP SYSTEM			
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15. CVCS LETDOWN SUBSYSTEM			
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16. CVCS PURIFICATION SUBSYSTEM			
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PARAMETERS LIST FOR AP600

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
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17. CVCS SHIM/BLEED SUBSYSTEM

18. SPENT FUEL STORAGE

18.3 SPENT FUEL DRY STORAGE

18.3.1 ACREAGE

P/S [X] ---

15 ACRES
PQS - 18.3.1

18.3.2 MINIMUM DISTANCE TO NEAREST RESIDENCE

P/S [X] ---

3500 FT
PQS - 18.3.2

18.3.3 MINIMUM DISTANCE TO POWER BLOCK

P/S [X] ---

1500-2200 FT
PQS - 18.3.3

18.3.4 STORAGE CAPACITY

PLANT [X] 60 YEARS DRY STORAGE
VOL III, CHAP 1, 3.7.1
REV 0

URD
PQS - 18.3.1

19. STEAM GENERATOR BLOWDOWN SYSTEM

20. STANDBY-GAS TREATMENT SYSTEM

21. AUXILIARY BOILER SYSTEM

21.1 EXHAUST ELEVATION

P/S [X] ---

150 FT
PQS - 21.1

21.2 FLUE GAS EFFLUENTS

P/S [X] ---

SEE TABLE
PQS - 21.2

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PARAMETERS LIST FOR AP600

Structure, System, Component / Primary / Secondary Parameter	Pmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	DECNTEL:Val/Refer/Rev
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21.3 FUEL

21.3.2 TYPE

P/S [X] ---

NO. 2
SEI/PEG-0715

21.4 HEAT INPUT RATE (BTU/HR)

P/S [X] ---

156,000,000 BTU/HR
TELECON 8/24/92

22. CONDENSATE CLEANUP SYSTEM

23. GAS STORAGE SYSTEM

24. HEATING, VENTILATION AND AIR CONDITIONING SYSTEM

24.1 AMBIENT AIR REQUIREMENTS

24.1.2 NON-SAFETY HVAC MAX AMBIENT TEMP (1% EXCEED)

PLANT [X] 100 F DB/ 77 F WB COINCIDENT
VOL III, CHAP 1, T1.2-6
REV 2URD
SSAR, T2.0-1
REV 0

24.1.3 NON-SAFETY HVAC MIN AMBIENT TEMP (1% EXCEED)

PLANT [X] -10 F
VOL III, CHAP 1, T1.2-6
REV 0URD
SSAR, T2.0-1
REV 0

24.1.4 SAFETY HVAC MAX AMBIENT TEMP (0% EXCEED)

PLANT [X] 115 F DB/80 F WB COINCIDENT
VOL III, CHAP 1, T1.2-6
REV 2URD
SSAR, T2.0-1
REV 0

24.1.5 SAFETY HVAC MIN AMBIENT TEMP (0% EXCEED)

PLANT [X] -40 F
VOL III, CHAP 1, T1.2-6
REV 0URD
SSAR, T2.0-1
REV 0

24.1.6 VENT SYSTEM MAX AMBIENT TEMP (5% EXCEED)

PLANT [X] 5% EXCEEDANCE
VOL III, CHAP 9, 8.2.1.1.1
REV 3URD
MEETING 7/1/92

24.1.7 VENT SYSTEM MIN AMBIENT TEMP (5% EXCEED)

PLANT [X] 5% EXCEEDANCE
VOL III, CHAP 9, 8.2.1.1.1
REV 3-10F
MEETING 7/1/92

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25. ONSITE/OFFSITE ELECTRICAL POWER SYSTEM

25.1 ACREAGE
25.1.1 SWITCHYARD

P/S [X] ---

12 ACRES
PQS - 25.1.1

25.3 DUTY CYCLES

PLANT [X] 35 PEAK-TO-PEAK PER DAY
VOL III, CHAP 1,3.4.2.2
REV 0

URD
TELECON 7/15/92

26. STANDBY POWER SYSTEM

26.1 DIESEL CAPACITY (KW)

PLANT [X] ---

2 X 4000 KW
BRC/PEG-355

26.2 DIESEL EXHAUST ELEVATION

P/S [X] ---

50 FT
TELECON 7/15/92

26.3 DIESEL FLUE GAS EFFLUENTS

P/S [X] ---

SEE TABLE
PQS - 21.2

26.4 DIESEL FUEL
26.4.1 RESUPPLY TIME

PLANT [X] ---

7 DAYS
SEI/PEG-0715

26.4.2 TYPE

PLANT [X] ---

NO. 2
SEI/PEG-0715

26.5 DIESEL NOISE

P/S [X] ---

55 DBA AT 1000 FT
PQS - 26.5

26.6 GAS-TURBINE CAPACITY (KW)

PLANT []

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Structure, System, Component / Primary / Secondary Parameter	Prmr Type	[A] URD:Val/Refer/Rev	VEIDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
26.7 GAS-TURBINE EXHAUST ELEVATION	P/S	[]		
26.8 GAS-TURBINE FLUE GAS EFFLUENTS	P/S	[]		
26.9 GAS-TURBINE FUEL 26.9.2 TYPE	P/S	[]		
26.10 GAS-TURBINE NOISE	P/S	[]		

27. SEVERE ACCIDENT FEATURES

28. PLANT CHARACTERISTICS

28.1 ACCESS ROUTES				
28.1.3 HEAVY HAUL ROUTES	P/S	[X] ---	176,562 SQFT (4 ACRES) AP600 CONST PLAN, FAX 6/29/92	
28.1.5 SPENT FUEL CASK WEIGHT	PLANT	[X] 150 TONS VOL III, CNAP 7.2.3.2.3.1 REV 0	100 TONS MCAP-13202, 15.2.2 REV 1	
28.2 ACREAGE				
28.2.1 OFFICE FACILITIES	P/S	[X] ---	0.13 ACRES(5,625 SQFT) AP600 CONST PLAN, FAX 6/29/92	
28.2.2 PARKING LOTS	P/S	[X] ---	2.28 ACRES AP600 CONST PLAN, FAX 6/29/92	

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PARAMETERS LIST FOR AP600

Structure, System, Component / Primary / Secondary Parameter	Prmr Type	(A) UND:Vol/Refer/Rev	VENDOR:Vol/Refer/Rev	BECHTEL:Vol/Refer/Rev
28.2.3 PERMANENT SUPPORT FACILITIES	P/S	(X) ---	2.81 ACRES AP600 CONST PLAN, FAX 6/29/92	
28.2.4 POWER BLOCK	P/S	(X) ---	31,285 SQFT (0.72 ACRES) CONST PLAN, FAX 6/29/92	
28.2.5 PROTECTED AREA	P/S	(X) ---	APPROX 46 ACRES WOMP-13202, 7.1 REV 1 1940 HMT SE1/PEG-0715	
28.4 MEGAWATTS - THERMAL	PLANT	(X) ---	UND SE1/PEG-0715	
28.5 PLANT DESIGN LIFE	PLANT	(X) 60 years VOL III, COMP 1, 3.3 REV 0	UND SE1/PEG-0715	
28.6 PLANT POPULATION				
28.6.1 OPERATION	P/S	(X) ---	500 PEOPLE ULTR, PEG/WIS0173, FAX 6/29/92	
28.6.2 REFUELING	P/S	(X) ---	1000 PEOPLE ULTR, PEG/WIS0173, FAX 6/29/92	
28.9 STATION PRODUCTION AVAILABILITY FACTOR	PLANT	(X) 87% VOL III, COMP 1, 6.3.5 REV 3	UND SE1/PEG-0715	
29. CONSTRUCTION				
29.1 ACCESS ROUTES				
29.1.1 CONSTRUCTION MODULE DIMENSIONS	P/S	(X) ---	15(W) X 15(H) X 69(L) WOMP 13202 T2.1 REV. 1	
29.1.2 HEAVIEST CONSTRUCTION SHIPMENT	P/S	(X) ---	340 TONS TELECON 8/31/92	

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PARAMETERS LIST FOR AP600

Structure, System, Component / Primary / Secondary	Parameter	Param Type	[A] UNB:Vol/Refer/Rev	VEB002:Vol/Refer/Rev	BECHTEL:Vol/Refer/Rev
29.2 ACREAGE					
29.2.1 LAYDOWN AREA		P/S	DX ---	10 ACRES AP600 CONST PLUMB,FBI 6/29/92	
29.2.2 TEMPORARY CONSTRUCTION FACILITIES		P/S	DX ---	2.36 ACRES CONST PLUMB,FBI 6/29/92	
29.3 CONSTRUCTION					
29.3.2 CONSTRUCTION WORKER RADIATION EXPOSURE		P/S	DX ---		0 POS - 29.3.2
29.3.6 NOISE		P/S	DX ---		76-101 DBA @ 50 FT POS - 29.3.5
29.3.12 WATER USE		P/S	DX ---		34 GPM POS - 29.3.12
29.4 PLANT POPULATION					
29.4.1 CONSTRUCTION		P/S	DX ---	1250 PEOPLE CONST PLUMB,FBI 6/29/92	
29.5 SITE CONSTRUCTION DURATION					
		PLANT	DX 42 MONTHS VOL III,COMP1,7.2.2.2 REV 0	UNB	
29.6 SITE PREPARATION DURATION		PLANT	DX 18 MONTHS VOL III,COMP 1,7.2.2.2 REV 0	UNB	

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Appendix B4

SBWR INDIVIDUAL PLANT PARAMETERS LIST

The four individual plant parameters lists utilize the same qualitative parameters list as incorporated in the parameters applicability matrix except that the parameters are sorted for only those categorized as PLANT or P/S. The type of parameter, either PLANT or P/S, is listed in the column headed "PRMTR TYPE." Because of the exhaustive manner in which the original list of parameters was identified and the subsequent categorization of the parameters, breaks exist in the sequential numbering of the parameters presented in the qualitative plant parameters list. The qualitative plant parameters list is a sort of the database for only those parameters categorized as PLANT or P/S. The breaks in sequential numbering indicate the existence of parameters categorized as SITE or DETAIL. Additionally, all SSCs examined for plant-site interfaces are included on the qualitative plant parameters list, even though for some systems no pertinent parameters have been categorized as PLANT or P/S (for example, Reactor Coolant System). This demonstrates the breadth of the review for plant parameters. The applicability of each parameter to the given ALWR design is indicated by an "X" in the column headed "[A]." The next three columns on the individual plant parameters list provide the appropriate numerical value for each parameter taken from the Utility Requirements Document (URD), vendor information, or engineering assessment. Engineering assessment values are provided in the right column when neither an URD nor vendor value is available. The reference document for the numerical values is provided below each value.

Each URD and vendor value reference includes the revision or date of the source document. For URD and Standard Safety Analysis Report (SSAR) citations, the revision or amendment number is identified. Because many of the vendor values are not included in the SSAR, letters, meeting notes, facsimile transmissions, and

telephone notes have been used to document the vendor values. In such cases, the dates of the documents are included to uniquely identify the sources of the numerical values.

In cases when an engineering assessment has been performed, the basis is summarized on a parameter quantity summary (PQS) sheet, and the PQS sheet number is identified as the reference beneath the numerical value in the plant parameters list. Each PQS includes the plant parameter numbers for those parameters with a similar basis. When a PQS sheet lists multiple parameter numbers, the initial number listed is the first parameter on the list referring to the PQS. Each succeeding parameter using the same basis also refers to the initial parameter number (i.e., each PQS is uniquely identified by the initial parameter using the basis). For example, the blowdown flow rate from cooling water system heat removal devices first appears on the parameters list as parameter 2.7.5. PQS - 2.7.5 for blowdown flow rate addresses all of the heat removal design options and is applicable to parameter numbers 2.8.4, 2.10.3, 3.6.5, and 3.8.3.

PARAMETERS LIST FOR SBR

Structure, System, Component / Primary / Secondary Parameter	Prmr Type [A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
<hr/>			
1. STRUCTURES			
1.1 FOUNDATION EMBEDMENT	PLANT [X] ---	53'-10" TO TOP OF BASEMAT DLTR 6/24/92	
1.2 HEIGHT	PLANT [X] ---	125'-0" DLTR 6/24/92	
1.4 PRECIPITATION (FOR ROOF DESIGN)			
1.4.1 MAXIMUM RAINFALL RATE	PLANT [X] 19.4 IN/HR - 6.2 IN/SMIN VOL III, CHAP 1, T1.2-6 REV 0	URD DLTR 6/24/92	
1.4.2 SNOW LOAD	PLANT [X] 50 LB/SOFT VOL III, CHAP 1, T1.2-6 REV 0	URD GELTR 8/28/92	
1.5 SAFE SHUTDOWN EARTHQUAKE (SSE)			
1.5.1 DESIGN RESPONSE SPECTRA	PLANT [X] REGULATORY GUIDE 1.60 VOL III, CHAP 1, T1.2-6 REV 1	URD GELTR 8/28/92	
1.5.2 PEAK GROUND ACCELERATION	PLANT [X] 0.30g VOL III, CHAP 1, T1.2-6 REV 0	URD GELTR 8/28/92	
1.5.3 TIME HISTORY	PLANT [X] ENVELOPE SSE RESP SPECTRA VOL III, CHAP 1, T1.2-6 REV 0	URD GELTR 8/28/92	
1.8 SITE WATER LEVEL (ALLOWABLE)			
1.8.1 MAXIMUM FLOOD (OR TSUNAMI)	PLANT [X] 1 FT BELOW PLANT GRADE VOL III, CHAP 1, T1.2-6 REV 0	URD GELTR 8/28/92	
1.8.2 MAXIMUM GROUND WATER	PLANT [X] 2 FT BELOW PLANT GRADE VOL III, CHAP 1, T1.2-6 REV 0	URD GELTR 8/28/92	

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PARAMETERS LIST FOR SBWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
.....				
1.9 SOIL PROPERTIES DESIGN BASES				
1.9.1 LIQUEFACTION	PLANT	[X] NONE AT SITE-SPECIFIC SSE VOL III,CHAP 1,T1.2-6 REV 0	URD BLTR 6/24/92	
1.9.2 MINIMUM BEARING CAPACITY (STATIC)	PLANT	[X] >= 15 KSF VOL III,CHAP 1,T1.2-6 REV 0	URD (STATIC) GELTR 8/28/92	
1.9.3 MINIMUM SHEAR WAVE VELOCITY	PLANT	[X] >= 1000FPS VOL III,CHAP 1,T1.2-6 REV 0	URD GELTR 8/28/92	
1.11 TORNADO (DESIGN BASES)				
1.11.1 MAXIMUM PRESSURE DROP	PLANT	[X] 1.46 PSI VOL III,CHAP 1,T1.2-6 REV 0	2.0 PSI GELTR 8/28/92	
1.11.2 MAXIMUM ROTATIONAL SPEED	PLANT	[X] ---	240 MPH BLTR 6/24/92	
1.11.3 MAXIMUM TRANSLATIONAL SPEED	PLANT	[X] 57 MPH VOL III,CHAP 1,T1.2-6 REV 0	60 MPH GELTR 8/28/92	
1.11.4 MAXIMUM WIND SPEED	PLANT	[X] 260 MPH VOL III,CHAP 1,T1.2-6 REV 0	300 MPH GELTR 8/28/92	
1.11.5 MISSILE SPECTRA	PLANT	[X] SPECTRUM 1 OF SRP 3.5.1.4 VOL III,CHAP 1,T1.2-6 REV 0	URD GELTR 8/28/92	
1.11.6 RADIUS OF MAXIMUM ROTATIONAL SPEED	PLANT	[X] 453 FT VOL III,CHAP 1,T1.2-6 REV 0	150 FT GELTR 8/28/92	
1.11.7 RATE OF PRESSURE DROP	PLANT	[X] 0.27 PSI/SEC VOL III,CHAP 1,T1.2-6 REV 0	1.2 PSI/SEC GELTR 8/28/92	
1.12 WIND				

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PARAMETERS LIST FOR SBWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	(A) URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
1.12.1 BASIC WIND SPEED	PLANT	[X] 110 MPH VOL III,CHAP 1,T1.2-6 REV 0	URD GELTR 8/28/92	
1.12.2 IMPORTANCE FACTORS	PLANT	[X] 1.0 (NSR)/1.11 (SR) VOL III,CHAP 1,T1.2-6 REV 0	URD GELTR 8/28/92	
<hr/>				
2. NORMAL PLANT HEAT SINK				
<hr/>				
2.1 AMBIENT AIR REQUIREMENTS				
2.1.1 NORMAL SHUTDOWN MAX AMBIENT TEMP (1% EXCEED)	PLANT	[X] 100 F DB/ 77 F WB COINCIDENT VOL III,CHAP 1,T1.2-6 REV 2	URD GELTR 8/28/92	
2.1.2 NORMAL SHUTDOWN MAX WET BULB TEMP (1% EXCEED)	PLANT	[X] 80 F WB NON-COINCIDENT VOL III,CHAP 1,T1.2-6 REV 2	URD GELTR 8/28/92	
2.1.3 NORMAL SHUTDOWN MIN AMBIENT TEMP (1% EXCEED)	PLANT	[X] -10 F VOL III,CHAP 1,T1.2-6 REV 0	URD GELTR 8/28/92	
2.1.5 RX THERMAL POWER MAX AMBIENT TEMP (0% EXCEED)	PLANT	[X] 115 F DB/ 80 F WB COINCIDENT VOL III,CHAP 8,2.2.2 REV 0	URD GELTR 8/28/92	
2.1.6 RX THERMAL POWER MAX WET BULB TEMP (0% EXCEED)	PLANT	[X] 81 F WB NON-COINCIDENT VOL III,CHAP 8,2.2.2 REV 0	84 F WB GELTR 8/28/92	
2.1.7 RX THERMAL POWER MIN AMBIENT TEMP (0% EXCEED)	PLANT	[X] -40 F VOL III,CHAP 8,2.2.2 REV 0	URD GELTR 8/28/92	
2.2 BLOWDOWN POND ACREAGE	P/S	[X] 24 HR BLOWDOWN VOL III,CHAP 8,7.3.5.5 REV 0		2 ACRES POS-2.2
2.3 CONDENSER/HEAT EXCHANGER DUTY	PLANT	[X] ---	4.5 E9 BTU/HR BLTR 6/24/92	

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PARAMETERS LIST FOR SBUR

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2.6 MAXIMUM INLET TEMP CONDENSER/HEAT EXCHANGER	PLANT	[X] ---	95 F PQS - 2.6	
2.7 MECH DRAFT COOLING TOWERS				
2.7.1 ACREAGE	P/S	[]		25 ACRES PQS - 2.7.1
2.7.3 APPROACH TEMPERATURE	P/S	[]		10 F PQS - 2.7.3
2.7.5 BLOWDOWN FLOW RATE	P/S	[]		2500 (8,500)GPM PQS - 2.7.5
2.7.6 BLOWDOWN TEMPERATURE	P/S	[]	95 F TELECON 7/16/92	
2.7.7 COOLING TOWER TEMPERATURE RANGE	P/S	[]	COND TEMP RISE 23 F FAX 7/13/92 PQS - 2.7.7 466,000 GPM FAX 7/13/92	
2.7.8 COOLING WATER FLOW RATE	P/S	[]		
2.7.9 CYCLES OF CONCENTRATION	P/S	[]		4 (2 MINIMUM) PQS - 2.7.9
2.7.10 EVAPORATION RATE	P/S	[]		7,400 (8,500)GPM PQS - 2.7.10
2.7.12 HEAT REJECTION RATE	P/S	[]		12.5 E6 BTU/HR PQS - 2.7.12
2.7.13 HEIGHT	P/S	[]		60 FT PQS - 2.7.13

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Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
2.7.15 MAKEUP FLOW RATE	P/S	[]		9,900 (17,000)GPM PQS - 2.7.15
2.7.16 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[]		8,500 GPM PQS - 2.7.16
2.7.17 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[]		7,400 GPM PQS - 2.7.17
2.7.18 NOISE	P/S	[]		55 DBA AT 1000 FT PQS - 2.7.18
2.7.22 STORED WATER VOLUME	P/S	[]		7 E6 GAL PQS - 2.7.22
2.8 NATURAL DRAFT COOLING TOWERS				
2.8.1 ACREAGE	P/S	[X] ---	2 ACRES BLTR 6/24/92	
2.8.2 APPROACH TEMPERATURE	P/S	[X] ---	14 F FAX 7/13/92	
2.8.4 BLOWDOWN FLOW RATE	P/S	[X] ---		2,500 (8500) GPM PQS - 2.7.5
2.8.5 BLOWDOWN TEMPERATURE	P/S	[X] ---	95 F TELECOM 7/16/92	
2.8.6 COOLING TOWER TEMPERATURE RANGE	P/S	[X] ---	CONDENSER TEMP RISE 23 F FAX 7/13/92	
2.8.7 COOLING WATER FLOW RATE	P/S	[X] ---	466,000 GPM FAX 7/13/92	

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Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
2.8.8 CYCLES OF CONCENTRATION	P/S	[X] ---		4 (2 MINIMUM) PQS - 2.7.9
2.8.9 EVAPORATION RATE	P/S	[X] ---	8500 GPM BLTR 6/24/92	
2.8.11 HEAT REJECTION RATE	P/S	[X] ---		12.5 E6 BTU/HR PQS - 2.7.12
2.8.12 HEIGHT	P/S	[X] ---		500 FT PQS - 2.7.13
2.8.14 MAKEUP FLOW RATE	P/S	[X] ---		9,900 (17,000)GPM PQS - 2.7.15
2.8.15 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[X] ---		8,500 GPM PQS - 2.7.16
2.8.16 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[X] ---		7,400 GPM PQS - 2.7.17
2.8.17 NOISE	P/S	[X] ---		55 DBA AT 1000 FT PQS - 2.7.18
2.8.20 STORED WATER VOLUME	P/S	[X] ---		7 E6 GAL PQS - 2.7.22
2.9 ONCE-THROUGH COOLING				
2.9.1 COOLING WATER DISCHARGE TEMPERATURE	P/S	[]		118 F PQS - 2.9.1
2.9.2 COOLING WATER FLOW RATE	P/S	[]		515,000 GPM PQS - 2.9.2

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Structure, System, Component / Primary / Secondary Parameter	Pmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
2.9.3 COOLING WATER TEMPERATURE RISE	P/S	[]		18 F PQS - 2.9.3
2.9.4 EVAPORATION RATE	P/S	[]		4,400 (5,000)GPM PQS - 2.7.10
2.9.5 HEAT REJECTION RATE	P/S	[]	4.5 E9 BTU/HR BLTR 6/24/92	
2.10 PONDS				
2.10.1 ACREAGE	P/S	[]		1300 ACRES W/O SPRAY PQS - 2.10.1
2.10.3 BLOWDOWN FLOW RATE	P/S	[]		2500 (8,500)GPM PQS - 2.7.5
2.10.4 BLOWDOWN TEMPERATURE	P/S	[]	95 F TELECON 7/16/92	
2.10.5 COOLING POND TEMPERATURE RANGE	P/S	[]	COND TEMP RISE 23 F FAX 7/13/92 PQS - 2.7.7	
2.10.6 COOLING WATER FLOW RATE	P/S	[]	466,000 GPM FAX 7/13/92	
2.10.7 CYCLES OF CONCENTRATION	P/S	[]		4 (2 MINIMUM) PQS - 2.7.9
2.10.8 EVAPORATION RATE	P/S	[]		7,400 (8,500)GPM PQS - 2.7.10
2.10.9 HEAT REJECTION RATE	P/S	[]		12.5 E6 BTU/HR PQS - 2.7.12

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Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
2.10.10 MAKEUP FLOW RATE	P/S	[]		9,900 (17,000)GPM PQS - 2.7.15
2.10.11 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[]		8500GPM (6000 W/O SPRAY) PQS - 2.7.16
2.10.12 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[]		7,400 GPM (5,300 W/O SPRA PQS - 2.7.17
2.10.13 STORED WATER VOLUME	P/S	[]		6.4 E9 GALLONS PQS - 2.7.22

3. ULTIMATE HEAT SINK

3.1 AMBIENT AIR REQUIREMENTS

3.1.1 MAXIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE) PLANT []

3.1.2 MAXIMUM WET BULB TEMPERATURE (0% EXCEEDANCE) PLANT []

3.1.3 MINIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE) PLANT []

3.2 CCW HEAT EXCHANGER DUTY PLANT []

3.5 MAXIMUM INLET TEMP TO CCW HEAT EXCHANGER PLANT []

3.6 MECH DRAFT COOLING TOWERS

3.6.1 ACREAGE P/S []

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Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECNTEL:Val/Refer/Rev
3.6.3 APPROACH TEMPERATURE	P/S	[]		
3.6.5 BLOWDOWN FLOW RATE	P/S	[]		
3.6.6 BLOWDOWN TEMPERATURE	P/S	[]		
3.6.7 COOLING TOWER TEMPERATURE RANGE	P/S	[]		
3.6.8 COOLING WATER FLOW RATE	P/S	[]		
3.6.9 CYCLES OF CONCENTRATION	P/S	[]		
3.6.10 EVAPORATION RATE	P/S	[]		
3.6.12 HEAT REJECTION RATE	P/S	[]		
3.6.13 HEIGHT	P/S	[]		
3.6.15 MAKEUP FLOW RATE	P/S	[]		
3.6.16 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[]		

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Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
3.6.17 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[]		
3.6.18 NOISE	P/S	[]		
3.6.22 STORED WATER VOLUME	P/S	[]		
3.7 ONCE-THROUGH COOLING				
3.7.1 COOLING WATER DISCHARGE TEMPERATURE	P/S	[]		
3.7.2 COOLING WATER FLOW RATE	P/S	[]		
3.7.3 COOLING WATER TEMPERATURE RISE	P/S	[]		
3.7.4 EVAPORATION RATE	P/S	[]		
3.7.5 HEAT REJECTION RATE	P/S	[]		
3.7.6 MINIMUM ESSENTIAL FLOW RATE	PLANT	[]		
3.8 PONDS				
3.8.1 ACREAGE	P/S	[]		
3.8.3 BLOWDOWN FLOW RATE	P/S	[]		

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PARAMETERS LIST FOR SBWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] UND:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
3.8.4 BLOWDOWN TEMPERATURE	P/S	[]		
3.8.5 COOLING POND TEMPERATURE RANGE	P/S	[]		
3.8.6 COOLING WATER FLOW RATE	P/S	[]		
3.8.7 CYCLES OF CONCENTRATION	P/S	[]		
3.8.8 EVAPORATION RATE	P/S	[]		
3.8.9 HEAT REJECTION RATE	P/S	[]		
3.8.10 MAKEUP FLOW RATE	P/S	[]		
3.8.11 MAXIMUM CONSUMPTION OF RAW WATER	P/S	[]		
3.8.12 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	[]		
3.8.13 STORED WATER VOLUME	P/S	[]		

4. CONTAINMENT HEAT REMOVAL SYSTEM (POST-ACCIDENT)

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PARAMETERS LIST FOR SBWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	DECTEL:Val/Refer/Rev
.....				
4.1 AMBIENT AIR REQUIREMENTS				
4.1.1 MAXIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	PLANT	[]		
4.1.2 MINIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	PLANT	[]		
<hr/>				
5. POTABLE WATER/SANITARY WASTE SYSTEM				
5.2 DISCHARGE TO SITE WATER BODIES				
5.2.1 FLOW RATE	P/S	[X] ---		11 (17) GPM POS - 5.2.1
5.4 RAW WATER REQUIREMENTS				
5.4.1 MAXIMUM USE	P/S	[X] ---		17 GPM POS - 5.4.1
5.4.2 MONTHLY AVERAGE USE	P/S	[X] ---		11 GPM POS - 5.4.2
<hr/>				
6. DEMINERALIZED WATER SYSTEM				
6.2 DISCHARGE TO SITE WATER BODIES (NO DRVE)				
6.2.1 FLOW RATE	P/S	[X] ---		25 (30) GPM POS - 5.2.1
6.4 RAW WATER REQUIREMENTS				
6.4.1 MAXIMUM USE	P/S	[X] ---		90 GPM POS - 5.4.1
6.4.2 MONTHLY AVERAGE USE	P/S	[X] ---		75 GPM POS - 5.4.2

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PARAMETERS LIST FOR SBAW

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
7. FIRE PROTECTION SYSTEM				
7.1 RAW WATER REQUIREMENTS				
7.1.1 MAXIMUM USE	PLANT	(X) ---		625 GPM POS - 5.4.1
7.1.2 MONTHLY AVERAGE USE	P/S	(X) ---		0 GPM POS - 5.4.2
7.1.4 STORED WATER VOLUME	PLANT	(X) ---	300,000 GALLONS FAX 7/15/92	
8. MISCELLANEOUS DRAIN				
8.2 DISCHARGE TO SITE WATER BODIES				
8.2.1 FLOW RATE	P/S	(X) ---		25 (50) GPM POS - 5.2.1
9. UNIT VENT/AIRBORNE EFFLUENT RELEASE POINT				
9.1 ATMOSPHERIC DISPERSION (CH1/Q) (ACCIDENT)				
9.1.1 .5 MILE - 0-2HR	PLANT	(X) 1.0E-3 SEC/M3 VOL III,CNAP 1,T1.2-6 REV 3	URD DLTR 6/24/92	
9.1.2 2 MILE - 0-8HR	PLANT	(X) 1.35E-4 SEC/M3 VOL III,CNAP 1,T1.2-6 REV 3	URD DLTR 6/24/92	
9.1.3 2 MILE - 1-4DAY	PLANT	(X) 5.4E-5 SEC/M3 VOL III,CNAP 1,T1.2-6 REV 3	URD DLTR 6/24/92	
9.1.4 2 MILE - 4-30DAY	PLANT	(X) 2.2E-5 SEC/M3 VOL III,CNAP 1,T1.2-6 REV 3	URD DLTR 6/24/92	

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PARAMETERS LIST FOR SOUR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	(A) URD:Vol/Refer/Rev	VENDOR:Vol/Refer/Rev	DECTEL:Vol/Refer/Rev
9.1.5 2 MILE - 8-24HR	PLANT	(X) 1.0E-4 SEC/M3 VOL III, CHAP 1,T1.2-6 REV 3	URD BLTR 6/24/92	
9.2 ATMOSPHERIC DISPERSION (CH1/0) (ANNUAL AVERAGE)	PLANT	(X) ---		
9.3 CONTAINMENT LEAKAGE RATE	PLANT	(X) .5X/DAY (+35SCFH/MS LINE BAR ONLY) VOL III,CHAP 5,1.2.3.4 REV 0	URD BLTR 6/24/92	
9.5 DOSE CONSEQUENCES				
9.5.1 NORMAL	PLANT	(X) 10 CFR 20,10 CFR 50 APP1 VOL III,CHAP 12,3.2.1 REV 2	URD	
9.5.2 POST-ACCIDENT	PLANT	(X) 10 CFR 20,50 APP1,100 VOL III,CHAP 1,T1.2-2C REV 0	URD	
9.5.3 SEVERE ACCIDENTS	PLANT	(X) 25REM WB IN 24HR 0.5M1<1E-6/RX-YR VOL III,CHAP 1,APP A 5.1 REV 3	URD TELECON 7/16/92	
9.6 RELEASE POINT				
9.6.1 CONFIGURATION (HORIZ VS VERT)	PLANT	(X) ---	VERTICAL B LTR 6/24/92	
9.6.3 ELEVATION (NORMAL)	PLANT	(X) ---	187'-2" (22M ABOVE RX BLDG) 6/30/92 MEETING	
9.6.4 ELEVATION (POST-ACCIDENT)	PLANT	(X) ---	GROUND LEVEL 6/30/92 MEETING	
9.6.6 MINIMUM DISTANCE TO SITE BOUNDARY	PLANT	(X) ---		2000 FT POS - 9.6.6
9.6.7 TEMPERATURE	PLANT	(X) ---	105F (NORMAL) BLTR 6/24/92	

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PARAMETERS LIST FOR SBR

Structure, System, Component / Primary / Secondary Parameter	Param Type	(A) URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	DECHTEL:Val/Refer/Rev
9.6.8 VOLUMETRIC FLOW RATE	PLANT	(X) ---	100,000 SCFH (NORMAL) DLTR 6/24/92	
9.7 SOURCE TERM				
9.7.1 GASEOUS (NORMAL)	PLANT	(X) 200 CI/YR (PWR), 2000 CI/YR (BWR) VOL III, CNAP 12, 1.5.1 REV 0	1004 CI/YR GE T12.2-21, FAX 7/20/92	PASSIVE 4579 CI/YR POS - 9.7.1 TABLE 1
9.7.2 GASEOUS (POST-ACCIDENT)	PLANT	(X) ---	SEE CNAP 15 TABLES GELTR 8/28/92	TABLE 2 POS - 9.7.1
9.7.3 GASEOUS (SEVERE ACCIDENT)	PLANT	(X) ---		TABLE 3 POS - 9.7.1
9.7.4 TRITIUM	PLANT	(X) ---	NEGLECTIBLE FAX 7/16/92	
<hr/>				
10. LIQUID RADWASTE SYSTEM				
10.1 DOSE CONSEQUENCES				
10.1.1 NORMAL	PLANT	(X) 10 CFR 50 APP1, 10 CFR 20 VOL III, CNAP 12, 4.2.1.1 REV.2	URD	
10.1.2 POST-ACCIDENT	PLANT	()		
10.2 RELEASE POINT				
10.2.1 FLOW RATE	PLANT	(X) ---	100 GPM+10,000 GPM DILUTION FAX 7/15/92	
10.3 SOURCE TERM				
10.3.1 LIQUID	PLANT	(X) 0.05 CI/YR VOL III, CNAP 12, 1.5.1 REV 0	0.1 CI/YR FAX 7/15/92	PASSIVE 2.93E-1 CI/YR POS - 10.3.1

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PARAMETERS LIST FOR SBWR

Structure, System, Component / Primary / Secondary Parameter	Pmtr Type [A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
10.3.2 TRITIUM	PLANT [X] ---	60 CI/YR FAX 7/17/92	
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11. GASEOUS RADWASTE SYSTEM			
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12. SOLID RADWASTE SYSTEM			
<hr/>			
12.1 ACREAGE			
12.1.1 LOW LEVEL RADWASTE STORAGE	PLANT [X] 6 MO + 1 VEHICLE + 25% VOL III,CHAP 12,5.4.2.1 REV 0	6 MONTHS (INTERNAL TO BLDG) BLTR 6/24/92	
12.2 SOLID RADWASTE			
12.2.1 ACTIVITY	PLANT [X] ---		2700 CI/YR PQS - 12.2.1
12.2.2 PRINCIPAL RADIONUCLIDES	PLANT [X] ---		SEE TABLE FOR NUCLIDES PQS - 12.2.1
12.2.3 VOLUME	PLANT [X] 1750 (PWR)/3500(BWR)CUFT/YR DEWTRD URD VOL III,CHAP 12,1.5.1 REV 0	FAX 7/15/92	
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13. REACTOR COOLANT SYSTEM			
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14. RCS CLEANUP SYSTEM			
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15. CVCS LETDOWN SUBSYSTEM			
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16. CVCS PURIFICATION SUBSYSTEM			
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Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
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17. CVCS SHIM/BLEED SUBSYSTEM				
<hr/>				
18. SPENT FUEL STORAGE				
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18.3 SPENT FUEL DRY STORAGE				
18.3.1 ACREAGE	P/S	[X] ---		15 ACRES PQS - 18.3.1
18.3.2 MINIMUM DISTANCE TO NEAREST RESIDENCE	P/S	[X] ---		3500 FT PQS - 18.3.2
18.3.3 MINIMUM DISTANCE TO POWER BLOCK	P/S	[X] ---		1500-2200 FT PQS - 18.3.1
18.3.4 STORAGE CAPACITY	PLANT	[X] 60 YEARS DRY STORAGE VOL III, CHAP 1,3.7.1 REV 0		URD PQS - 18.3.1
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19. STEAM GENERATOR BLOWDOWN SYSTEM				
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20. STANDBY-GAS TREATMENT SYSTEM				
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21. AUXILIARY BOILER SYSTEM				
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21.1 EXHAUST ELEVATION	P/S	[X] ---		150 FT PQS - 21.1
21.2 FLUE GAS EFFLUENTS	P/S	[X] ---		SEE TABLE PQS - 21.2

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PARAMETERS LIST FOR SBWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
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21.3 FUEL				
21.3.2 TYPE	P/S	[X] ---		NO. 2 PQS - 21.3.2
21.4 HEAT INPUT RATE (BTU/HR)	P/S	[X] ---	200,000,000 BTU/HR 6/30/92 MEETING	
<hr/>				
22. CONDENSATE CLEANUP SYSTEM				
<hr/>				
23. GAS STORAGE SYSTEM				
<hr/>				
24. HEATING, VENTILATION AND AIR CONDITIONING SYSTEM				
<hr/>				
24.1 AMBIENT AIR REQUIREMENTS				
24.1.2 NON-SAFETY HVAC MAX AMBIENT TEMP (1% EXCEED)	PLANT	[X] 100 F DB/ 77 F WB COINCIDENT VOL III, CHAP 1, T1.2-6 REV 2	URD BLTR 6/24/92	
24.1.3 NON-SAFETY HVAC MIN AMBIENT TEMP (1% EXCEED)	PLANT	[X] -10 F VOL III, CHAP 1, T1.2-6 REV 0	URD BLTR 6/24/92	
24.1.4 SAFETY HVAC MAX AMBIENT TEMP (0% EXCEED)	PLANT	[]	BOTTLED AIR SYSTEM BLTR 6/24/92	
24.1.5 SAFETY HVAC MIN AMBIENT TEMP (0% EXCEED)	PLANT	[]	BOTTLED AIR SYSTEM BLTR 6/24/92	
24.1.6 VENT SYSTEM MAX AMBIENT TEMP (5% EXCEED)	PLANT	[X] 5% EXCEEDANCE VOL III, CHAP 9, 8.2.1.1.1 REV 3	NOT USED FOR SBWR BLTR 6/24/92	
24.1.7 VENT SYSTEM MIN AMBIENT TEMP (5% EXCEED)	PLANT	[X] 5% EXCEEDANCE VOL III, CHAP 9, 8.2.1.1.1 REV 3	NOT USED FOR SBWR BLTR 6/24/92	

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PARAMETERS LIST FOR SBWR

Structure, System, Component / Primary / Secondary Parameter Pmtr Type [A] URD:Val/Refer/Rev VENDOR:Val/Refer/Rev BECHTEL:Val/Refer/Rev

25. ONSITE/OFFSITE ELECTRICAL POWER SYSTEM

25.1 ACREAGE

25.1.1 SWITCHYARD

P/S [X] ---

1.5 ACRES
GE DWG 107E6278
REV. A
URD
TELECON 7/16/92

25.3 DUTY CYCLES

PLANT [X] 35 PEAK-TO-PEAK PER DAY
VOL III, CHAP 1,3.4.2.2
REV 0

26. STANDBY POWER SYSTEM

26.1 DIESEL CAPACITY (KW)

PLANT [X] ---

2 X 3000 KW
FAX 7/15/92

26.2 DIESEL EXHAUST ELEVATION

P/S [X] ---

50 FT
PQS - 21.1

26.3 DIESEL FLUE GAS EFFLUENTS

P/S [X] ---

SEE TABLE
PQS - 21.2

26.4 DIESEL FUEL

26.4.1 RESUPPLY TIME

PLANT [X] ---

7 DAYS
TELECON 7/16/92

26.4.2 TYPE

PLANT [X] ---

OIL ASTM D975, ANSI/ASTM D975
FAX 7/15/92

26.5 DIESEL NOISE

P/S [X] ---

55 DBA AT 1000 FT
PQS - 26.5

26.6 GAS-TURBINE CAPACITY (KW)

PLANT []

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Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
26.7 GAS-TURBINE EXHAUST ELEVATION	P/S	[]		
26.8 GAS-TURBINE FLUE GAS EFFLUENTS	P/S	[]		
26.9 GAS-TURBINE FUEL 26.9.2 TYPE	P/S	[]		
26.10 GAS-TURBINE NOISE	P/S	[]		

27. SEVERE ACCIDENT FEATURES

28. PLANT CHARACTERISTICS

28.1 ACCESS ROUTES

28.1.3 HEAVY HAUL ROUTES

P/S [X] ---

7 ACRES
PQS - 28.1.3

28.1.5 SPENT FUEL CASK WEIGHT

PLANT [X] 150 TONS
VOL III, CHAP 7, 2.3.2.3.1
REV 0

150 TONS
PQS - 28.1.5

28.2 ACREAGE

28.2.1 OFFICE FACILITIES

P/S [X] ---

0.75 ACRES(32,670 SQFT)
GE DWG 107E6278
REV A

28.2.2 PARKING LOTS

P/S [X] ---

2.25 ACRES
GE DWG 107E6278
REV A

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PARAMETERS LIST FOR SBWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECHTEL:Val/Refer/Rev
28.2.3 PERMANENT SUPPORT FACILITIES	P/S	[X] ---	APPROX 2 ACRES GE DWG 107E6278 REV A	
28.2.4 POWER BLOCK	P/S	[X] ---	3 ACRES GE DWG 107E6278 REV A	
28.2.5 PROTECTED AREA	P/S	[X] ---	30 ACRES GE DWG 107E6278 REV A	
28.4 MEGAWATTS - THERMAL	PLANT	[X] ---	2000 MW BLTR 6/24/92	
28.5 PLANT DESIGN LIFE	PLANT	[X] 60 years VOL III, CHAP 1,3.3 REV 0	URD BLTR 6/24/92	
28.6 PLANT POPULATION				
28.6.1 OPERATION	P/S	[X] ---	438 PEOPLE 6/30 MEETING, 5/1/92 Q & A	
28.6.2 REFUELING	P/S	[X] ---	688 PEOPLE FAX 7/20/92	
28.9 STATION PRODUCTION AVAILABILITY FACTOR	PLANT	[X] 87% VOL III, CHAP 1,6.3.5 REV 3	URD BLTR 6/24/92	
<hr/>				
29. CONSTRUCTION				
29.1 ACCESS ROUTES				
29.1.1 CONSTRUCTION MODULE DIMENSIONS	P/S	[X] ---	20(W) X 20(H) X 76(L) TELECON 8/31/92	
29.1.2 HEAVIEST CONSTRUCTION SHIPMENT	P/S	[X] ---	500 TONS (RPV) TELECON 8/31/92	

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PARAMETERS LIST FOR SBWR

Structure, System, Component / Primary / Secondary Parameter	Prmtr Type	[A] URD:Val/Refer/Rev	VENDOR:Val/Refer/Rev	BECNTEL:Val/Refer/Rev
.....				
29.2 ACREAGE				
29.2.1 LAYDOWN AREA	P/S	[X] ---		17 ACRES PQS - 29.2.1
29.2.2 TEMPORARY CONSTRUCTION FACILITIES	P/S	[X] ---		31 ACRES PQS - 29.2.1
29.3 CONSTRUCTION				
29.3.2 CONSTRUCTION WORKER RADIATION EXPOSURE	P/S	[X] ---		0 PQS - 29.3.2
29.3.6 NOISE	P/S	[X] ---		76-101 DBA @ 50 FT PQS - 29.3.5
29.3.12 WATER USE	P/S	[X] ---		47 GPM PQS - 29.3.12
29.4 PLANT POPULATION				
29.4.1 CONSTRUCTION	P/S	[X] ---	1800 PEOPLE (MAX) FAX 7/20/92	
29.5 SITE CONSTRUCTION DURATION	PLANT	[X] 42 MONTHS VOL III,CHAP1,7.2.2.2 REV 0	URD	
29.6 SITE PREPARATION DURATION	PLANT	[X] 18 MONTHS VOL III,CHAP 1,7.2.2.2 REV 0	URD	

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Appendix C

PLANT PARAMETERS ENVELOPES

The plant parameters envelopes utilize the qualitative plant parameters list and the numerical values from the individual plant parameters list to arrive at the most limiting value for each parameter and display it accordingly. The left half of each plant parameters envelopes sheet incorporates the qualitative plant parameters list used in the parameters applicability matrix (Appendix A). The numbering of parameters is consistent between the parameters applicability matrix, individual plant parameters lists, and the plant parameters envelopes. On the right side of each envelope sheet are three columns that identify the envelope values. The first column is for the evolutionary plant and shows the limiting numerical value for parameters applicable to the ABWR or System 80+ designs. Similarly, the middle column shows the limiting parameter values for the passive plant designs, AP600 or SBWR. Finally, the right column shows the most limiting value from the previous two columns and represents the generic plant envelope.

The value for the generic plant is the greater value between the passive and evolutionary values for the majority of the plant parameters. Instances where a lesser value is used for the generic plant are when the value is a more stringent requirement on the plant or environment. Those generic plant parameters using a lesser value as the limiting value are 1.11.1, 1.11.3, 1.11.4, 1.11.6, 1.11.7, and 2.6.

PARAMETERS ENVELOPES
(P-Plant, P/S-Plant/Site, S-Site, D-Detail)

Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
<hr/>				
1. STRUCTURES				
1.1 FOUNDATION EMBEDMENT	P	66'4" TO TOP OF BASEMAT BLTR 6/25/92	53'10" TO TOP OF BASEMAT BLTR 6/24/92	66'4" TO TOP OF BASEMAT
1.2 HEIGHT	P	174 FT CESSAR FIG 1.2-2 AMEND N	207'-3" WCAP 13202 FIG 7.2-8 REV 1	207'-3"
1.4 PRECIPITATION (FOR ROOF DESIGN)				
1.4.1 MAXIMUM RAINFALL RATE	P	19.4 IN/HR - 6.2 IN/SMIN VOL II, CHAP 1, T1.2-6 REV 1	19.4 IN/HR - 6.2 IN/SMIN VOL III, CHAP 1, T1.2-6 REV 0	19.4 IN/HR - 6.2 IN/SMIN
1.4.2 SNOW LOAD	P	50 LB/SQFT VOL II, CHAP 1, T1.2-6 REV 1	50 LB/SQFT VOL III, CHAP 1, T1.2-6 REV 0	50 LB/SQFT
1.5 SAFE SHUTDOWN EARTHQUAKE (SSE)				
1.5.1 DESIGN RESPONSE SPECTRA	P	REGULATORY GUIDE 1.60 VOL II, CHAP 1, T1.2-6 REV 2	REGULATORY GUIDE 1.60 VOL III, CHAP 1, T1.2-6 REV 1	REGULATORY GUIDE 1.60
1.5.2 PEAK GROUND ACCELERATION	P	0.30g VOL II, CHAP 1, T1.2-6 REV 1	0.30g VOL III, CHAP 1, T1.2-6 REV 0	0.30g
1.5.3 TIME HISTORY	P	ENVELOPE SSE RESP SPECTRA VOL II, CHAP 1, T1.2-6 REV 1	ENVELOPE SSE RESP SPECTRA VOL III, CHAP 1, T1.2-6 REV 0	ENVELOPE SSE RESP SPECTRA
1.8 SITE WATER LEVEL (ALLOWABLE)				
1.8.1 MAXIMUM FLOOD (OR TSUNAMI)	P	1 FT BELOW PLANT GRADE VOL II, CHAP 1, T1.2-6 REV 1	1 FT BELOW PLANT GRADE VOL III, CHAP 1, T1.2-6 REV 0	1 FT BELOW PLANT GRADE
1.8.2 MAXIMUM GROUND WATER	P	2 FT BELOW PLANT GRADE VOL II, CHAP 1, T1.2-6 REV 1	2 FT BELOW PLANT GRADE VOL III, CHAP 1, T1.2-6 REV 0	2 FT BELOW PLANT GRADE

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PARAMETERS ENVELOPES
(P-Plant, P/S-Plant/Site, S-Site, D-Detail)

Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
.....				
1.9 SOIL PROPERTIES DESIGN BASES				
1.9.1 LIQUEFACTION	P	NONE AT SITE-SPECIFIC SSE VOL II, CHAP 1, T1.2-6 REV 1	NONE AT SITE-SPECIFIC SSE VOL III, CHAP 1, T1.2-6 REV 0	NONE AT SITE-SPECIFIC SSE
1.9.2 MINIMUM BEARING CAPACITY (STATIC)	P	>= 15 KSF VOL II, CHAP 1, T1.2-6 REV 1	>= 15 KSF VOL III, CHAP 1, T1.2-6 REV 0	>= 15 KSF
1.9.3 MINIMUM SHEAR WAVE VELOCITY	P	>= 1000FPS VOL II, CHAP 1, T1.2-6 REV 1	>= 1000FPS VOL III, CHAP 1, T1.2-6 REV 0	>= 1000FPS
1.11 TORNADO (DESIGN BASES)				
1.11.1 MAXIMUM PRESSURE DROP	P	2.0 PSI VOL II, CHAP 1, T1.2-6 REV 4	1.46 PSI VOL III, CHAP 1, T1.2-6 REV 0	1.46 PSI
1.11.2 MAXIMUM ROTATIONAL SPEED	P	240 MPH VOL II, CHAP 1, T1.2-6 REV 4	240 MPH SSAR 3.3.2.1 REV 0	240 MPH
1.11.3 MAXIMUM TRANSLATIONAL SPEED	P	60 MPH VOL II, CHAP 1, T1.2-6 REV 4	57 MPH VOL III, CHAP 1, T1.2-6 REV 0	57 MPH
1.11.4 MAXIMUM WIND SPEED	P	300 MPH VOL II, CHAP 1, T1.2-6 REV 4	260 MPH VOL III, CHAP 1, T1.2-6 REV 0	260 MPH
1.11.5 MISSILE SPECTRA	P	SPECTRUM A OF SRP 3.5.1.4 VOL II, CHAP 1, T1.2-6 REV 4	SPECTRUM I OF SRP 3.5.1.4 VOL III, CHAP 1, T1.2-6 REV 0	SPECTRUM A OF SRP 3.5.1.4
1.11.6 RADIUS OF MAXIMUM ROTATIONAL SPEED	P	150 FT VOL II, CHAP 1, T1.2-6 REV 4	453 FT VOL III, CHAP 1, T1.2-6 REV 0	150 FT
1.11.7 RATE OF PRESSURE DROP	P	1.2 PSI/SEC VOL II, CHAP 1, T1.2-6 REV 4	0.27 PSI/SEC VOL III, CHAP 1, T1.2-6 REV 0	0.27 PSI/SEC

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PARAMETERS ENVELOPES
(P-Plant, P/S-Plant/Site, S-Site, D-Detail)

Structure, System, Component/Primary Par./Secondary Par.	Printer Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
1.12 WIND				
1.12.1 BASIC WIND SPEED	P	110 MPH VOL 11, COMP 1, 11.2-6 REV 1	110 MPH VOL 111, COMP 1, 11.2-6 REV 0	110 MPH
1.12.2 IMPORTANCE FACTORS	P	1.0 (MSR)/1.11 (SR) VOL 11, COMP 1, 11.2-6 REV 1	1.0 (MSR)/1.11 (SR) VOL 111, COMP 1, 11.2-6 REV 0	1.0 (MSR)/1.11 (SR)
2. NORMAL PLANT HEAT SINK				
2.1 AMBIENT AIR REQUIREMENTS				
2.1.1 NORMAL SHUTDOWN MAX AMBIENT TEMP (1% EXCEED)	P	100 F 00/ 77 F 1/2 COINCIDENT VOL 11, COMP 1, 11.2-6 REV 3	100 F 00/ 77 F 1/2 COINCIDENT VOL 111, COMP 1, 11.2-6 REV 2	100 F 00/ 77 F 1/2 COINCIDENT
2.1.2 NORMAL SHUTDOWN MAX WET BULB TEMP (1% EXCEED)	P	80 F 1/2 NON-COINCIDENT VOL 11, COMP 1, 11.2-6 REV 3	80 F 1/2 NON-COINCIDENT VOL 111, COMP 1, 11.2-6 REV 2	80 F 1/2 NON-COINCIDENT
2.1.3 NORMAL SHUTDOWN MIN AMBIENT TEMP (1% EXCEED)	P	-10 F VOL 11, COMP 1, 11.2-6 REV 1	-10 F VOL 111, COMP 1, 11.2-6 REV 0	-10 F
2.1.5 RX THERMAL POWER MAX AMBIENT TEMP (0% EXCEED)	P	115 F 00/ 80 F 1/2 COINCIDENT VOL 11, COMP 8, 2.2.2 REV 1	115 F 00/ 80 F 1/2 COINCIDENT VOL 111, COMP 8, 2.2.2 REV 0	115 F 00/ 80 F 1/2 COINCIDENT
2.1.6 RX THERMAL POWER MAX WET BULB TEMP (0% EXCEED)	P	81 F 1/2 NON-COINCIDENT VOL 11, COMP 8, 2.2.2 REV 1	81 F 1/2 NON-COINCIDENT VOL 111, COMP 8, 2.2.2 REV 0	81 F 1/2 NON-COINCIDENT
2.1.7 RX THERMAL POWER MIN AMBIENT TEMP (0% EXCEED)	P	-40 F VOL 11, COMP 8, 2.2.2 REV 1	-40 F VOL 111, COMP 8, 2.2.2 REV 0	-40 F
2.2 SHUTDOWN FORD ACRANGE	P/S	26 MB BLOWDOWN VOL 11, COMP 8, 7.2.2.5.5 REV 0	26 MB BLOWDOWN VOL 111, COMP 8, 7.2.2.5.5 REV 0	26 MB BLOWDOWN

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PARAMETERS ENVELOPES
(P-Plant, P/S-Plant/Site, S-Site, B-Detail)

Structure, System, Component/Primary Par./Secondary Par.	Prmr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
2.3 CONDENSER/HEAT EXCHANGER DUTY	P	9.7 E9 BTU/HR PQS - 2.3	4.630 E9 BTU/HR PEG/MISO179 REV 1	9.7 E9 BTU/HR
2.6 MAXIMUM INLET TEMP CONDENSER/HEAT EXCHANGER	P	100 F SSAR, T2.0-1 REV B, AMEND 16	91 F 7/1/92 MEETING	91 F
2.7 MECH DRAFT COOLING TOWERS				
2.7.1 ACREAGE	P/S	50 ACRES PQS - 2.7.1	25 ACRES PQS - 2.7.1	50 ACRES
2.7.3 APPROACH TEMPERATURE	P/S	10 F PQS - 2.7.3	10 F PQS - 2.7.3	10 F
2.7.5 BLOWDOWN FLOW RATE	P/S	5200 (17,700)GPM PQS - 2.7.5	2500 (8500) GPM PQS - 2.7.5	5200 (17,700)GPM
2.7.6 BLOWDOWN TEMPERATURE	P/S	100 F SSAR, T2.0-1 REV B, AMEND 16	95 F TELECON 7/16/92	100 F
2.7.7 COOLING TOWER TEMPERATURE RANGE	P/S	COND TEMP RISE 29F FAX 6/26/92 PQS - 2.7.7	23F SEI/PEG-0175 PQS - 2.7.7	COND TEMP RISE 29F
2.7.8 COOLING WATER FLOW RATE	P/S	696,000 GPM SSAR, T10.4-1 REV A, AMEND 11	466,000 GPM FAX 7/13/92	696,000 GPM
2.7.9 CYCLES OF CONCENTRATION	P/S	4 (2 MINIMUM) PQS - 2.7.9	4 (2 MINIMUM) PQS - 2.7.9	4 (2 MINIMUM)
2.7.10 EVAPORATION RATE	P/S	15,400 (17,700)GPM PQS - 2.7.10	7,400 (8,500) GPM PQS - 2.7.10	15,400 (17,700)GPM

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PARAMETERS ENVELOPES
(P-Plant, P/S-Plant/Site, S-Site, D-Detail)

Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
2.7.12 HEAT REJECTION RATE	P/S	26 E6 BTU/HR PQS - 2.7.12	12.5 E6 BTU/HR PQS - 2.7.12	26 E6 BTU/HR
2.7.13 HEIGHT	P/S	60 FT PQS - 2.7.13	60 FT PQS - 2.7.13	60 FT
2.7.15 MAKEUP FLOW RATE	P/S	20,600 (35,400) GPM PQS - 2.7.15	9,900 (17,000) GPM PQS - 2.7.15	20,600 (35,400) GPM
2.7.16 MAXIMUM CONSUMPTION OF RAW WATER	P/S	17,700 GPM PQS - 2.7.16	8,500 GPM PQS - 2.7.16	17,700 GPM
2.7.17 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	15,400 GPM PQS - 2.7.17	7,400 GPM PQS - 2.7.17	15,400 GPM
2.7.18 NOISE	P/S	55 DBA AT 1000 FT PQS - 2.7.18	55 DBA AT 1000 FT PQS - 2.7.18	55 DBA AT 1000 FT
2.7.22 STORED WATER VOLUME	P/S	10.5 E6 GAL PQS - 2.7.22	7 E6 GAL PQS - 2.7.22	10.5 E6 GAL
2.8 NATURAL DRAFT COOLING TOWERS				
2.8.1 ACREAGE	P/S	6 ACRES PQS - 2.8.1	2.3 ACRES WITHOUT BASIN SE1/PEG-0718	6 ACRES
2.8.2 APPROACH TEMPERATURE	P/S	10 F PQS - 2.7.3	10 F SE1/PEG-0715	10 F
2.8.4 BLOWDOWN FLOW RATE	P/S	5,200 (17,700) GPM PQS - 2.7.5	3500 (8,500) GPM WCAP-13202, 13.3.3 PQS - 2.7.5	5,200 (17,700) GPM

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PARAMETERS ENVELOPES
(P-Plant, P/S-Plant/Site, S-Site, D-Detail)

Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
2.8.5 BLOWDOWN TEMPERATURE	P/S	100 F SSAR, T2.0-1 REV B, AMEND 16	95 F TELECON 7/16/92	100 F
2.8.6 COOLING TOWER TEMPERATURE RANGE	P/S	CONDENSER TEMP RISE 29 F FAX 6/26/92	23 F SEI/PEG-0175	CONDENSER TEMP RISE 29 F
2.8.7 COOLING WATER FLOW RATE	P/S	696,000 GPM SSAR, T10.4-1 REV A, AMEND 11	466,000 GPM FAX 7/13/92	696,000 GPM
2.8.8 CYCLES OF CONCENTRATION	P/S	4 (2 MINIMUM) PQS - 2.7.9	4 (2 MINIMUM) PQS - 2.7.9	4 (2 MINIMUM)
2.8.9 EVAPORATION RATE	P/S	15,400 (17,700) GPM PQS - 2.7.10	2.6% OF CW FLOW (10,036 GPM) WLTR PEG/MISO173	15,400 (17,700) GPM
2.8.11 HEAT REJECTION RATE	P/S	26 E6 BTU/HR PQS - 2.7.12	12.5 E6 BTU/HR PQS - 2.7.12	26 E6 BTU/HR
2.8.12 HEIGHT	P/S	550 FT PQS - 2.7.13	500 FT SEI/PEG-0715	550 FT
2.8.14 MAKEUP FLOW RATE	P/S	20,600 (35,400) GPM PQS - 2.7.15	10,900 (18,536) GPM PEG/MISO173 PQS - 2.7.15	20,600 (35,400) GPM
2.8.15 MAXIMUM CONSUMPTION OF RAW WATER	P/S	17,700 GPM PQS - 2.7.16	10,660 GPM PEG/MISO173	17,700 GPM
2.8.16 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	15,400 GPM PQS - 2.7.17	7,400 GPM PQS - 2.7.17	15,400 GPM
2.8.17 NOISE	P/S	55 DBA AT 1000 FT PQS - 2.7.18	55 DBA AT 1000 FT PQS - 2.7.18	55 DBA AT 1000 FT

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PARAMETERS ENVELOPES
(P-Plant, P/S-Plant/Site, S-Site, D-Detail)

Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
2.8.20 STORED WATER VOLUME	P/S	10.5 E6 GAL PQS - 2.7.22	7 E6 GAL PQS - 2.7.22	10.5 E6 GAL
2.9 ONCE-THROUGH COOLING				
2.9.1 COOLING WATER DISCHARGE TEMPERATURE	P/S	118 F PQS - 2.9.1	118 F PQS - 2.9.1	118 F
2.9.2 COOLING WATER FLOW RATE	P/S	1,100,000 GPM PQS - 2.9.2	515,000 GPM PQS - 2.9.2	1,100,000 GPM
2.9.3 COOLING WATER TEMPERATURE RISE	P/S	18 F PQS - 2.9.3	18 F PQS - 2.9.3	18 F
2.9.4 EVAPORATION RATE	P/S	9,300 (10,700)GPM PQS - 2.7.10	4,400 (5,000)GPM PQS - 2.7.10	9,300 (10,700)GPM
2.9.5 HEAT REJECTION RATE	P/S	9.7 E9 BTU/HR PQS - 2.3	4.63 E9 BTU/HR PEG/MIS0179,7/10/92 REV 1	9.7 E9 BTU/HR
2.10 PONDS				
2.10.1 ACREAGE	P/S	3000 ACRES W/O SPRAY PQS - 2.10.1	1300 ACRES W/O SPRAY PQS - 2.10.1	3000 ACRES W/O SPRAY
2.10.3 BLOWDOWN FLOW RATE	P/S	5200 (17,700)GPM PQS - 2.7.5	2500 (8,500)GPM PQS - 2.7.5	5200 (17,700)GPM
2.10.4 BLOWDOWN TEMPERATURE	P/S	100 F SSAR, T2.0-1 REV B, AMEND 16	95 F TELECON 7/16/92	100 F
2.10.5 COOLING POND TEMPERATURE RANGE	P/S	COND TEMP RISE 29 F FAX 6/26/92 PQS - 2.7.7	23 F SEI/PEG-0175 PQS - 2.7.7	COND TEMP RISE 29 F

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PARAMETERS ENVELOPES
(P-Plant, P/S-Plant/Site, S-Site, D-Detail)

Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
2.10.6 COOLING WATER FLOW RATE	P/S	696,000 GPM SSAR, T10.4-1 REV A, AMEND 11	466,000 GPM FAX 7/13/92	696,000 GPM
2.10.7 CYCLES OF CONCENTRATION	P/S	4 (2 MINIMUM) PQS - 2.7.9	4 (2 MINIMUM) PQS - 2.7.9	4 (2 MINIMUM)
2.10.8 EVAPORATION RATE	P/S	15,400 (17,700)GPM PQS - 2.7.10	7,400 (8,500)GPM PQS - 2.7.10	15,400 (17,700)GPM
2.10.9 HEAT REJECTION RATE	P/S	26 E6 BTU/HR PQS - 2.7.12	12.5 E6 BTU/HR PQS - 2.7.12	26 E6 BTU/HR
2.10.10 MAKEUP FLOW RATE	P/S	20,600 (35,400)GPM PQS - 2.7.15	9,900 (17,000)GPM PQS - 2.7.15	20,600 (35,400)GPM
2.10.11 MAXIMUM CONSUMPTION OF RAW WATER	P/S	17700GPM (12400 NO SPRAY) PQS - 2.7.16	8500GPM (6000 W/O SRAY) PQS - 2.7.16	17700GPM (12400 NO SPRAY)
2.10.12 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	15,400 GPM (10,800 W/O SPRAY) PQS - 2.7.17	7,400 GPM (5,300 W/O SPRAY) PQS - 2.7.17	15,400 GPM (10,800 W/O SPRAY)
2.10.13 STORED WATER VOLUME	P/S	14.7 E9 GALLONS PQS - 2.7.22	6.4 E9 GALLONS PQS - 2.7.22	14.7 E9 GALLONS

3. ULTIMATE HEAT SINK

3.1 AMBIENT AIR REQUIREMENTS

3.1.1 MAXIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	P	115 F DB/80 F WB COINCIDENT VOL 11, CHAP 1, T1.2-6 REV 4	---	115 F DB/80 F WB COINCIDENT
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PARAMETERS ENVELOPES
(P-Plant, P/S-Plant/Site, S-Site, D-Detail)

Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
3.1.2 MAXIMUM WET BULB TEMPERATURE (0% EXCEEDANCE)	P	81 F WB (NON-COINCIDENT) VOL 11, CHAP 1, T1.2-6 REV 4	---	81 F WB (NON-COINCIDENT)
3.1.3 MINIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	P	-40 F VOL 11, CHAP 1, T1.2-6 REV 1	---	-40 F
3.2 CCW HEAT EXCHANGER DUTY	P	104 (374 S/D) E 6 BTU/HR SSAR, T9.2-4A/B/C AMEND 14&16	---	104 (374 S/D) E 6 BTU/HR
3.5 MAXIMUM INLET TEMP TO CCW HEAT EXCHANGER	P	95 F SSAR 9.2.11.1.1 REV B, AMEND 20	---	95 F
3.6 MECH DRAFT COOLING TOWERS				
3.6.1 ACREAGE	P/S	0.5 ACRES PQS - 2.7.1	---	0.5 ACRES
3.6.3 APPROACH TEMPERATURE	P/S	10 F PQS - 2.7.3	---	10 F
3.6.5 BLOWDOWN FLOW RATE	P/S	100 (700) GPM PQS - 2.7.5	---	100 (700) GPM
3.6.6 BLOWDOWN TEMPERATURE	P/S	95 F SSAR 9.2.11.1.1 REV B, AMEND 20	---	95 F
3.6.7 COOLING TOWER TEMPERATURE RANGE	P/S	25 F FAX 7/13/92	---	25 F
3.6.8 COOLING WATER FLOW RATE	P/S	28,150 GPM (SHUTDOWN) SSAR, T9.2-4A/B/C AMEND 14&16	---	28,150 GPM (SHUTDOWN)

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PARAMETERS ENVELOPES
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Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
3.6.9 CYCLES OF CONCENTRATION	P/S	4 (2 MINIMUM) PQS - 2.7.9	---	4 (2 MINIMUM)
3.6.10 EVAPORATION RATE	P/S	250 (700)GPM PQS - 2.7.10	---	250 (700)GPM
3.6.12 HEAT REJECTION RATE	P/S	.5 E6 BTU/HR PQS - 2.7.12	---	.5 E6 BTU/HR
3.6.13 HEIGHT	P/S	60 FT PQS - 2.7.13	---	60 FT
3.6.15 MAKEUP FLOW RATE	P/S	350 (1,400)GPM PQS - 2.7.15	---	350 (1,400)GPM
3.6.16 MAXIMUM CONSUMPTION OF RAW WATER	P/S	700 GPM PQS - 2.7.16	---	700 GPM
3.6.17 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	250 GPM PQS - 2.7.17	---	250 GPM
3.6.18 NOISE	P/S	55 DBA AT 1000 FT PQS - 2.7.18	---	55 DBA AT 1000 FT
3.6.22 STORED WATER VOLUME	P/S	30.6 E6 GAL PQS - 2.7.22	---	30.6 E6 GAL
3.7 ONCE-THROUGH COOLING				
3.7.1 COOLING WATER DISCHARGE TEMPERATURE	P/S	120 F PQS - 2.9.1	---	120 F

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PARAMETERS ENVELOPES
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Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
3.7.2 COOLING WATER FLOW RATE	P/S	28,150 GPM SSAR, T9.2-4 A/B/C AMEND 14&16	---	28,150 GPM
3.7.3 COOLING WATER TEMPERATURE RISE	P/S	25 F FAX 7/13/92 PQS - 2.9.3	---	25 F
3.7.4 EVAPORATION RATE	P/S	150 (400)GPM PQS - 2.7.10	---	150 (400)GPM
3.7.5 HEAT REJECTION RATE	P/S	104 (374 S/D) E 6 BTU/HR SSAR, T9.2-4A/B/C AMEND 14&16	---	104 (374 S/D) E 6 BTU/HR
3.7.6 MINIMUM ESSENTIAL FLOW RATE	P	14,500 GPM FAX 6/26/92	---	14,500 GPM
3.8 PONDS				
3.8.1 ACREAGE	P/S	60 ACRES (NO SPRAY) PQS - 2.10.1	---	60 ACRES (NO SPRAY)
3.8.3 BLOWDOWN FLOW RATE	P/S	100 (700)GPM PQS - 2.7.5	---	100 (700)GPM
3.8.4 BLOWDOWN TEMPERATURE	P/S	95 F SSAR 9.2.11.1.1 REV B, AMEND 20	---	95 F
3.8.5 COOLING POND TEMPERATURE RANGE	P/S	25 F FAX 7/13/92	---	25 F
3.8.6 COOLING WATER FLOW RATE	P/S	28,150 GPM (SHUTDOWN) SSAR T9.2-4A/B/C AMEND 14&16	---	28,150 GPM (SHUTDOWN)

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PARAMETERS ENVELOPES
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Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
3.8.7 CYCLES OF CONCENTRATION	P/S	4 (2 MINIMUM) PQS - 2.7.9	---	4 (2 MINIMUM)
3.8.8 EVAPORATION RATE	P/S	250 (700)GPM PQS - 2.7.10	---	250 (700)GPM
3.8.9 HEAT REJECTION RATE	P/S	.5E6BTU/HR(.3E6 NO SPRAY)) PQS - 2.7.12	---	.5E6BTU/HR(.3E6 NO SPRAY))
3.8.10 MAKEUP FLOW RATE	P/S	350 (1,400)GPM PQS - 2.7.15	---	350 (1,400)GPM
3.8.11 MAXIMUM CONSUMPTION OF RAW WATER	P/S	700 GPM (500 W/O SPRAY) PQS - 2.7.16	---	700 GPM (500 W/O SPRAY)
3.8.12 MONTHLY AVERAGE CONSUMPTION OF RAW WATER	P/S	250 GPM (150 W/O SPRAY) PQS - 2.7.17	---	250 GPM (150 W/O SPRAY)
3.8.13 STORED WATER VOLUME	P/S	196 E6 GALLONS PQS - 2.7.22		196 E6 GALLONS
4. CONTAINMENT HEAT REMOVAL SYSTEM (POST-ACCIDENT)				
4.1 AMBIENT AIR REQUIREMENTS				
4.1.1 MAXIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	P	---	115F DB/80F WB VOL III, CH 1, T1.2-6 REV 2	115F DB/80F WB
4.1.2 MINIMUM AMBIENT TEMPERATURE (0% EXCEEDANCE)	P	---	-40F VOL III, CH 1, T1.2-6 REV 0	-40F

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PARAMETERS ENVELOPES
(P-Plant, P/S-Plant/Site, S-Site, D-Detail)

Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
5. POTABLE WATER/SANITARY WASTE SYSTEM				
5.2 DISCHARGE TO SITE WATER BODIES				
5.2.1 FLOW RATE	P/S	20 (24) GPM POS - 5.2.1	35 (70) GPM POS - 5.2.1	35 (70) GPM
5.4 RAW WATER REQUIREMENTS				
5.4.1 MAXIMUM USE	P/S	24 GPM POS - 5.4.1	100,000 GPD (70 GPM) SEI/PEG-0718	100,000 GPD (70 GPM)
5.4.2 MONTHLY AVERAGE USE	P/S	20 GPM POS - 5.4.2	1,500,000 GAL/MONTH(35 GPM) SEI/PEG-0718	1,500,000 GAL/MONTH(35 GPM)
6. DENIMERALIZED WATER SYSTEM				
6.2 DISCHARGE TO SITE WATER BODIES (RO BRWE)				
6.2.1 FLOW RATE	P/S	50 (135) GPM POS - 5.2.1	25 (70) GPM POS - 5.2.1	50 (135) GPM
6.4 RAW WATER REQUIREMENTS				
6.4.1 MAXIMUM USE	P/S	400 GPM SSAR, 9.2.17.2 REV B, AMEND 20	200 GPM WCAP-13202, 16.1.1 REV 1	400 GPM
6.4.2 MONTHLY AVERAGE USE	P/S	150 GPM POS - 5.4.2	75 GPM POS - 5.4.2	150 GPM
7. FIRE PROTECTION SYSTEM				
7.1 RAW WATER REQUIREMENTS				

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Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
7.1.1 MAXIMUM USE	P	625 GPM PQS - 5.4.1	625 GPM PQS - 5.4.1	625 GPM
7.1.2 MONTHLY AVERAGE USE	P/S	0 GPM PQS - 5.4.2	225,000 GAL/MO (5GPM) BLTR 003681	225,000 GAL/MO (5GPM)
7.1.4 STORED WATER VOLUME	P	600,000 GALLONS(TANK STORAGE) CESSAR DC,9.5.1.5.1 AMEND I	775,000 GALLONS FPS M6 001,REV 1,BLTR 003681	775,000 GALLONS
8. MISCELLANEOUS DRAIN				
8.2 DISCHARGE TO SITE WATER BODIES				
8.2.1 FLOW RATE	P/S	25 (50) GPM PQS - 5.2.1	25 (50) GPM PQS - 5.2.1	25 (50) GPM
9. UNIT VENT/AIRBORNE EFFLUENT RELEASE POINT				
9.1 ATMOSPHERIC DISPERSION (CH1/0) (ACCIDENT)				
9.1.1 .5 MILE - 0-2HR	P	1.0E-3 SEC/M3 VOL II,CHAP 1,T1.2-6 REV 4	1.0E-3 SEC/M3 VOL III,CHAP 1,T1.2-6 REV 3	1.0E-3 SEC/M3
9.1.2 2 MILE - 0-8HR	P	1.35E-4 SEC/M3 VOL II,CHAP 1,T1.2-6 REV 4	1.35E-4 SEC/M3 VOL III,CHAP 1,T1.2-6 REV 3	1.35E-4 SEC/M3
9.1.3 2 MILE - 1-4DAY	P	5.4E-5 SEC/M3 VOL II,CHAP 1,T1.2-6 REV 4	5.4E-5 SEC/M3 VOL III,CHAP 1,T1.2-6 REV 3	5.4E-5 SEC/M3
9.1.4 2 MILE - 4-30DAY	P	2.2E-5 SEC/M3 VOL II,CHAP 1,T1.2-6 REV 4	2.2E-5 SEC/M3 VOL III,CHAP 1,T1.2-6 REV 3	2.2E-5 SEC/M3

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PARAMETERS ENVELOPES
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Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
9.1.5 2 MILE - 8-24HR	P	1.0E-4 SEC/M3 VOL II, CHAP 1, T1.2-6 REV 4	1.0E-4 SEC/M3 VOL III, CHAP 1, T1.2-6 REV 3	1.0E-4 SEC/M3
9.2 ATMOSPHERIC DISPERSION (CH1/0) (ANNUAL AVERAGE)	P	.5MI 7.2E-5/1MI 1.5E-5S CESSAR DC 11.3.6.3 AMEND 1	2E-5 SEC/M3 SSAR 11.3.3.4 REV 0	.5MI 7.2E-5/1MI 1.5E-5S
9.3 CONTAINMENT LEAKAGE RATE	P	.5X/DAY (+35SCFH/MS LINE BUR ONLY) VOL II, CHAP 5, 1.2.3.5 REV 1	.5X/DAY (+35SCFH/MS LINE BUR ONLY) VOL III, CHAP 5, 1.2.3.4 REV 0	.5X/DAY (+35SCFH/MS LINE BUR ONLY)
9.5 DOSE CONSEQUENCES				
9.5.1 NORMAL	P	10 CFR 20, 10 CFR 50 APP1 VOL II CHAP 12, 3.2.1. REV 3	10 CFR 20, 10 CFR 50 APP1 VOL III, CHAP 12, 3.2.1 REV 2	10 CFR 20, 10 CFR 50 APP1
9.5.2 POST-ACCIDENT	P	10 CFR 20, 50 APP1, 100 VOL II, CHAP 1, T1.2-2C REV 1	10 CFR 20, 50 APP1, 100 VOL III, CHAP 1, T1.2-2C REV 0	10 CFR 20, 50 APP1, 100
9.5.3 SEVERE ACCIDENTS	P	25REM WB IN 24HR 0.5MI<1E-6/RX-YR VOL II, CHAP 1, APP A 5.1 REV 4	25REM WB IN 24HR 0.5MI<1E-6/RX-YR VOL III, CHAP 1, APP A 5.1 REV 3	25REM WB IN 24HR 0.5MI<1E-6/RX-YR
9.6 RELEASE POINT				
9.6.1 CONFIGURATION (HORIZ VS VERT)	P	VERTICAL B LTR 6/25/92	VERTICAL B LTR 003681	VERTICAL
9.6.3 ELEVATION (NORMAL)	P	249'-4" SSAR 1.2.2.17.1 REV C, AMEND 20	187'-2" (22M ABOVE RX BLDG) 6/30/92 MEETING	249'-4"
9.6.4 ELEVATION (POST-ACCIDENT)	P	GROUND LEVEL SSAR, 15.6.5.5.3 AMEND 8, REV C	GROUND LEVEL SSAR, 15.6.5.3.3 REV 0	GROUND LEVEL
9.6.6 MINIMUM DISTANCE TO SITE BOUNDARY	P	0.5 MI EXCLUSION AREA SSAR 12.2.2.4 REV B, AMEND 18	0.5 MI EXCLUSION AREA SSAR, T2.0-1 REV 0	0.5 MI EXCLUSION AREA

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PARAMETERS ENVELOPES
(P-Plant, P/S-Plant/Site, S-Site, D-Detail)

Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
9.6.7 TEMPERATURE	P	120F (MAX) MEETING 6/24/92 & FAX 7/15/92	50-120F (ESTIMATE) BLTR 003681	120F (MAX)
9.6.8 VOLUMETRIC FLOW RATE	P	323,750 SCFM FAX 7/17/92	171,500 SCFM(NORM)(ESTIMATE) BLTR 003681	323,750 SCFM
9.7 SOURCE TERM				
9.7.1 GASEOUS (NORMAL)	P	200 CI/YR (PMR), 2000 CI/YR (BWR) VOL II, CHAP 12, 1.5.1 REV 1	200 CI/YR (PMR), 2000 CI/YR (BWR) VOL III, CHAP 12, 1.5.1 REV 0	200 CI/YR (PMR), 2000 CI/YR (BWR)
9.7.2 GASEOUS (POST-ACCIDENT)	P	TABLE 2 PQS - 9.7.1	TABLE 2 PQS - 9.7.1	
9.7.3 GASEOUS (SEVERE ACCIDENT)	P	TABLE 3 PQS - 9.7.1	TABLE 3 PQS - 9.7.1	
9.7.4 TRITIUM	P	1200 CI/YR CESSAR DC, T11.3-4 AMEND 1	77 CI/YR SSAR, T11.3-3 REV 0	1200 CI/YR
10. LIQUID RADWASTE SYSTEM				
10.1 DOSE CONSEQUENCES				
10.1.1 NORMAL	P	10 CFR 50 APP1, 10 CFR 20 VOL II, CHAP 12, 4.2.1.1 REV.3	10 CFR 50 APP1, 10 CFR 20 VOL III, CHAP 12, 4.2.1.1 REV.2	10 CFR 50 APP1, 10 CFR 20
10.1.2 POST-ACCIDENT	P	10 CFR 20, 10 CFR 100 VOL II, CHAP 1, T1.2-1/T1.2-2C REV 1	10 CFR 20, 10 CFR 100 VOL III, CHAP 1, T1.2-1/T1.2-2C REV 0	10 CFR 20, 10 CFR 100
10.2 RELEASE POINT				
10.2.1 FLOW RATE	P	100 GPM+10,000 GPM DILUTION FAX 7/15/92	100 GPM+10,000 GPM DILUTION FAX 7/15/92	100 GPM+10,000 GPM DILUTION

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PARAMETERS ENVELOPES
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Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
<hr/>				
10.3 SOURCE TERM				
10.3.1 LIQUID	P	0.05 CI/YR VOL II, CNAP 12,1.5.1 REV 1	0.05 CI/YR VOL III, CNAP 12,1.5.1 REV 0	0.05 CI/YR
10.3.2 TRITIUM	P	360 CI/YR CESSAR DC, T11.2-1 AMEND 1	690 CI/YR AP600 SSAR, T11.2-7 REV 0	690 CI/YR
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11. GASEOUS RADWASTE SYSTEM				
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12. SOLID RADWASTE SYSTEM				
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12.1 ACREAGE				
12.1.1 LOW LEVEL RADWASTE STORAGE	P	6 MD + 1 VEHICLE + 25% VOL II, CNAP 12,5.4.2.1 REV 1	6 MD + 1 VEHICLE + 25% VOL III, CNAP 12,5.4.2.1 REV 0	6 MD + 1 VEHICLE + 25%
12.2 SOLID RADWASTE				
12.2.1 ACTIVITY	P	2700 CI/YR POS - 12.2.1	2700 CI/YR POS - 12.2.1	2700 CI/YR
12.2.2 PRINCIPAL RADIONUCLIDES	P	SEE TABLE FOR NUCLIDES POS - 12.2.1	SEE TABLE FOR NUCLIDES POS - 12.2.1	SEE TABLE FOR NUCLIDES
12.2.3 VOLUME	P	1750 (PMR)/3500 (BAR) CUFT/YR DENTED VOL II, CNAP 12,1.5.1 REV 1	1750 (PMR)/3500 (BAR) CUFT/YR DENTED VOL III, CNAP 12,1.5.1 REV 0	1750 (PMR)/3500 (BAR) CUFT/YR DENTED
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13. REACTOR COOLANT SYSTEM				
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14. RCS CLEANUP SYSTEM				
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PARAMETERS ENVELOPES
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Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
.....				
15. CVCS LETDOWN SUBSYSTEM				
16. CVCS PURIFICATION SUBSYSTEM				
17. CVCS SHIM/BLEED SUBSYSTEM				
18. SPENT FUEL STORAGE				
18.3 SPENT FUEL DRY STORAGE				
18.3.1 ACREAGE	P/S	15 ACRES PQS - 18.3.1	15 ACRES PQS - 18.3.1	15 ACRES
18.3.2 MINIMUM DISTANCE TO NEAREST RESIDENCE	P/S	3500 FT PQS - 18.3.2	3500 FT PQS - 18.3.2	3500 FT
18.3.3 MINIMUM DISTANCE TO POWER BLOCK	P/S	1500-2200 FT PQS - 18.3.3	1500-2200 FT PQS - 18.3.3	1500-2200 FT
18.3.4 STORAGE CAPACITY	P	60 YEARS DRY STORAGE VOL II, CHAP 1, 3.7.1 REV 1	60 YEARS DRY STORAGE VOL III, CHAP 1, 3.7.1 REV 0	60 YEARS DRY STORAGE
19. STEAM GENERATOR BLOWDOWN SYSTEM				
20. STANDBY-GAS TREATMENT SYSTEM				

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PARAMETERS ENVELOPES
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Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
.....				
21. AUXILIARY BOILER SYSTEM				
21.1 EXHAUST ELEVATION	P/S	150 FT PQS - 21.1	150 FT PQS - 21.1	150 FT
21.2 FLUE GAS EFFLUENTS	P/S	SEE TABLE PQS - 21.2	SEE TABLE PQS - 21.2	SEE TABLE
21.3 FUEL				
21.3.2 TYPE	P/S	NO. 2 PQS - 21.3.2	NO. 2 SEI/PEG-0715	NO. 2
21.4 HEAT INPUT RATE (BTU/HR)	P/S	200,000,000 BTU/HR 6/30/92 MEETING	200,000,000 BTU/HR 6/30/92 MEETING	200,000,000 BTU/HR
22. CONDENSATE CLEANUP SYSTEM				
23. GAS STORAGE SYSTEM				
24. HEATING, VENTILATION AND AIR CONDITIONING SYSTEM				
24.1 AMBIENT AIR REQUIREMENTS				
24.1.2 NON-SAFETY HVAC MAX AMBIENT TEMP (1% EXCEED)	P	100 F DB/ 77 F WB COINCIDENT VOL 11, CHAP 1, T1.2-6 REV 3	100 F DB/ 77 F WB COINCIDENT VOL 111, CHAP 1, T1.2-6 REV 2	100 F DB/ 77 F WB COINCIDENT
24.1.3 NON-SAFETY HVAC MIN AMBIENT TEMP (1% EXCEED)	P	-10 F VOL 11, CHAP 1, T1.2-6 REV 1	-10 F VOL 111, CHAP 1, T1.2-6 REV 0	-10 F

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Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
24.1.4 SAFETY HVAC MAX AMBIENT TEMP (0% EXCEED)	P	115 F DB/80 F WB COINCIDENT VOL II, CHAP 1, T1.2-6 REV 4	115 F DB/80 F WB COINCIDENT VOL III, CHAP 1, T1.2-6 REV 2	115 F DB/80 F WB COINCIDENT
24.1.5 SAFETY HVAC MIN AMBIENT TEMP (0% EXCEED)	P	-40 F VOL II, CHAP 1, T1.2-6 REV 1	-40 F VOL III, CHAP 1, T1.2-6 REV 0	-40 F
24.1.6 VENT SYSTEM MAX AMBIENT TEMP (5% EXCEED)	P	5% EXCEEDANCE VOL II, CHAP 9, 8.2.1.1.1 REV 4	5% EXCEEDANCE VOL III, CHAP 9, 8.2.1.1.1 REV 3	5% EXCEEDANCE
24.1.7 VENT SYSTEM MIN AMBIENT TEMP (5% EXCEED)	P	5% EXCEEDANCE VOL II, CHAP 9, 8.2.1.1.1 REV 4	5% EXCEEDANCE VOL III, CHAP 9, 8.2.1.1.1 REV 3	5% EXCEEDANCE
25. ONSITE/OFFSITE ELECTRICAL POWER SYSTEM				
25.1 ACREAGE				
25.1.1 SWITCHYARD	P/S	12 ACRES PQS - 25.1.1	12 ACRES PQS - 25.1.1	12 ACRES
25.3 DUTY CYCLES	P	35 PEAK-TO-PEAK PER DAY VOL II, CHAP 1, 3.4.2.2 REV 1	35 PEAK-TO-PEAK PER DAY VOL III, CHAP 1, 3.4.2.2 REV 0	35 PEAK-TO-PEAK PER DAY
26. STANDBY POWER SYSTEM				
26.1 DIESEL CAPACITY (KW)	P	3 X 5000 KW SSAR, T8.3-1 REV B, AMEND 10	2 X 4000 KW BRC/PEG-355	3 X 5000 KW
26.2 DIESEL EXHAUST ELEVATION	P/S	50 FT PQS - 21.1	50 FT TELECON 7/15/92	50 FT

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Structure, System, Component/Primary Par./Secondary Par.	Prmtr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
26.3 DIESEL FLUE GAS EFFLUENTS	P/S	SEE TABLE PQS - 21.2	SEE TABLE PQS - 21.2	SEE TABLE
26.4 DIESEL FUEL				
26.4.1 RESUPPLY TIME	P	7 DAYS CESSAR DC, 9.5.4.1 AMEND E	7 DAYS SEI/PEG-0715	7 DAYS
26.4.2 TYPE	P	20 PER ASTM D975 CESSAR DC, 9.5.4.3 AMEND E	OIL ASTM D975, ANSI/ASTM D975 FAX 7/15/92	20 PER ASTM D975
26.5 DIESEL NOISE	P/S	55 DBA AT 1000 FT PQS - 26.5	55 DBA AT 1000 FT PQS - 26.5	55 DBA AT 1000 FT
26.6 GAS-TURBINE CAPACITY (KW)	P	13,000 KW TELECOM 7/15/92	---	13,000 KW
26.7 GAS-TURBINE EXHAUST ELEVATION	P/S	100 FT PQS - 21.1		100 FT
26.8 GAS-TURBINE FLUE GAS EFFLUENTS	P/S	SEE TABLE PQS - 21.2		SEE TABLE
26.9 GAS-TURBINE FUEL				
26.9.2 TYPE	P/S	DISTILLATE PQS - 21.3.2	---	DISTILLATE
26.10 GAS-TURBINE NOISE	P/S	55 DBA AT 1000 FT PQS - 26.5	---	55 DBA AT 1000 FT

27. SEVERE ACCIDENT FEATURES

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PARAMETERS ENVELOPES
(P-Plant, P/S-Plant/Site, S-Site, D-Detail)

Structure, System, Component/Primary Par./Secondary Par.	Prmr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
<hr/>				
28. PLANT CHARACTERISTICS				
28.1 ACCESS ROUTES				
28.1.3 HEAVY HAUL ROUTES	P/S	7 ACRES POS - 28.1.3	7 ACRES POS - 28.1.3	7 ACRES
28.1.5 SPENT FUEL CASK WEIGHT	P	150 TONS VOL II, CNAP 7,2.3.2.3.1 REV 1	150 TONS VOL III, CNAP 7,2.3.2.3.1 REV 0	150 TONS
28.2 ACREAGE				
28.2.1 OFFICE FACILITIES	P/S	1.09 ACRES (47,600 SQFT) ADMIRAL PLOT PLAN	0.75 ACRES (32,670 SQFT) GE DWG 107E6278 REV A	1.09 ACRES (47,600 SQFT)
28.2.2 PARKING LOTS	P/S	APPROX 20 ACRES CESSAR DC, FIG 1.2-1 AMEND II (SCALED FROM FIGURE)	2.28 ACRES AP600 CONST PLAN, FAX 6/29/92	APPROX 20 ACRES
28.2.3 PERMANENT SUPPORT FACILITIES	P/S	APPROX 4.2 ACRES ADMIRAL PLOT PLAN	2.81 ACRES AP600 CONST PLAN, FAX 6/29/92	APPROX 4.2 ACRES
28.2.4 POWER BLOCK	P/S	APPROX 5 ACRES CESSAR DC, FIG 1.2-1 AMEND II (SCALED FROM FIGURE)	3 ACRES GE DWG 107E6278 REV A	APPROX 5 ACRES
28.2.5 PROTECTED AREA	P/S	APPROX 75 ACRES CESSAR DC, FIG 1.2-1 AMEND II (SCALED FROM FIGURE)	APPROX 46 ACRES UCAP-13202, 7.1 REV 1	APPROX 75 ACRES
28.4 MEGAWATTS - THERMAL	P	3926 MW SSAR, T1.3-1 REV C, AMEND 15	2000 MW BLTR 6/24/92	3926 MW
28.5 PLANT DESIGN LIFE	P	60 years VOL II, CNAP 1,3.3 REV 1	60 years VOL III, CNAP 1,3.3 REV 0	60 years

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PARAMETERS ENVELOPES
(P-Plant, P/S-Plant/Site, S-Site, D-Detail)

Structure, System, Component/Primary Par./Secondary Par.	Prmr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
<hr/>				
28.6 PLANT POPULATION				
28.6.1 OPERATION	P/S	795 PEOPLE FAX 6/26/92	500 PEOPLE ULTR, PEG/MIS0173, FAX 6/29/92	795 PEOPLE
28.6.2 REFUELING	P/S	875-955 PEOPLE FAX 6/26/92	1000 PEOPLE ULTR, PEG/MIS0173, FAX 6/29/92	1000 PEOPLE
28.9 STATION PRODUCTION AVAILABILITY FACTOR	P	87% VOL 11, CMP 1,6.3.5 REV 4	87% VOL 111, CMP 1,6.3.5 REV 3	87%
<hr/>				
29. CONSTRUCTION				
29.1 ACCESS ROUTES				
29.1.1 CONSTRUCTION MODULE DIMENSIONS	P/S	22(W) X 21(W) X 67(L) ADD FAX, 6/30/92	15(W) X 15(W) X 69(L) UCAP 13202 T2.1 REV. 1	22(W) X 21(W) X 67(L)
29.1.2 HEAVIEST CONSTRUCTION SHIPMENT	P/S	773 TONS (1,546,000 LBS) ADD FAX, 6/30/92	500 TONS (RPV) TELECON 8/31/92	773 TONS (1,546,000 LBS)
29.2 ACREAGE				
29.2.1 LAYDOWN AREA	P/S	29 ACRES POS - 29.2.1	17 ACRES POS - 29.2.1	29 ACRES
29.2.2 TEMPORARY CONSTRUCTION FACILITIES	P/S	52 ACRES POS - 29.2.1	31 ACRES POS - 29.2.1	52 ACRES
29.3 CONSTRUCTION				
29.3.2 CONSTRUCTION WORKER RADIATION EXPOSURE	P/S	0 POS - 29.3.2	0 POS - 29.3.2	0

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PARAMETERS ENVELOPES
(P-Plant, P/S-Plant/Site, S-Site, D-Detail)

Structure, System, Component/Primary Par./Secondary Par.	Prmr Type	EVOLUTIONARY Plant (Value/Refer/Rev)	PASSIVE Plant (Value/Refer/Rev)	GENERIC Plant (Value)
29.3.6 NOISE	P/S	76-101 DBA @ 50 FT POS - 29.3.5	76-101 DBA @ 50 FT POS - 29.3.5	76-101 DBA @ 50 FT
29.3.12 WATER USE	P/S	162 GPM POS - 29.3.12	47 GPM POS - 29.3.12	162 GPM
29.4 PLANT POPULATION 29.4.1 CONSTRUCTION	P/S	2600-6410 PEOPLE FAX 6/26/92	1000 PEOPLE (MAX) FAX 7/20/92	2600-6410 PEOPLE
29.5 SITE CONSTRUCTION DURATION	P	54 MONTHS VOL II, CHAP 1, 7.2.2.2 REV 1	42 MONTHS VOL III, CHAP 1, 7.2.2.2 REV 0	54 MONTHS
29.6 SITE PREPARATION DURATION	P	18 MONTHS VOL II, CHAP 1, 7.2.2.2 REV 1	18 MONTHS VOL III, CHAP 1, 7.2.2.2 REV 0	18 MONTHS

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Appendix D

PARAMETERS QUANTITY SUMMARY SHEETS

For each PLANT and P/S parameter, a parameter quantity summary (PQS) sheet is prepared. Each PQS provides the following information:

- Structure, System, Component
- Parameter Identification
- Parameter Definition
- Parameter Units
- Parameter Design Envelope
- Parameter Basis

When the parameter value is defined by the URD or vendor information, a specific document citation is included on the plant parameters list, and the associated PQS simply states URD or vendor value. In some cases, minor clarifications to the use of the vendor values are also included.

For those parameters with neither an URD nor vendor value, engineering assessments have been performed. A summary of each assessment is provided in the basis section of the PQS, and the PQS sheet is listed on the plant parameters list as the reference for the numerical value. Engineering assessments consist of review of relevant industry literature, surveys of existing similar plants, simple numerical assessments, and engineering judgment.

PARAMETER QUANTITY SUMMARY

STRUCTURES

Structure, System, Component

**PRIMARY
PARAMETER:** Foundation Embedment (1.1)

**SECONDARY
PARAMETER:** None

DEFINITION: The depth in feet from finished grade to the
bottom of the basemat for the most deeply embedded
power block structure.

UNITS: Feet

**DESIGN
ENVELOPE:**

BASIS: Vendor Value

PARAMETER QUANTITY SUMMARY

STRUCTURES

Structure, System, Component

**PRIMARY
PARAMETER:** Height (1.2)

**SECONDARY
PARAMETER:** None

DEFINITION: The height in feet from finished grade to the top of the tallest power block structure (excludes cooling towers which are addressed on PQS-2.7.13).

UNITS: Feet

**DESIGN
ENVELOPE:**

BASIS: Vendor Value

PARAMETER QUANTITY SUMMARY

STRUCTURES
Structure, System, Component

**PRIMARY
PARAMETER:** **PRECIPITATION (FOR ROOF DESIGN)**

**SECONDARY
PARAMETER:** **MAXIMUM RAINFALL RATE (1.4.1)**

DEFINITION: The probable maximum precipitation (PMP) value for
1 hour in 1 square mile with a ratio for five
minutes to the 1 hour PMP of .32 as found in
National Weather Service Publication HMR No. 52.

UNITS: Inches per hour; Inches in 5 minutes

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

STRUCTURES
Structure, System, Component

**PRIMARY
PARAMETER:** Precipitation (for Roof Design)

**SECONDARY
PARAMETER:** Snow Load (1.4.2)

DEFINITION: The maximum load on structure roofs due to the accumulation of snow.

UNITS: Pounds per square foot

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

STRUCTURES
Structure, System, Component

**PRIMARY
PARAMETER:** Safe Shutdown Earthquake (SSE)

**SECONDARY
PARAMETER:** Design Response Spectra (1.5.1)

DEFINITION: The relatively smooth relationship obtained by analyzing, evaluating and statistically combining a number of individual response spectra derived from the records of significant past earthquakes. (Response spectrum means a plot of the maximum response of a family of idealized single-degree-of-freedom damped oscillators as a function of natural frequencies of the oscillators to a specified vibratory motion input at their supports.)

UNITS: Acceleration in Gs vs frequency in cycles per second.

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

STRUCTURES

Structure, System, Component

PRIMARY
PARAMETER: Safe Shutdown Earthquake

SECONDARY
PARAMETER: Peak Ground Acceleration (1.5.2)

DEFINITION: The acceleration which corresponds to the zero
period in the response spectra taken in the free
field at plant grade elevation.

UNITS: Acceleration in terms of gravity (G)

DESIGN
ENVELOPE:

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

STRUCTURES
Structure, System, Component

**PRIMARY
PARAMETER:** Safe Shutdown Earthquake

**SECONDARY
PARAMETER:** Time History (1.5.3)

DEFINITION: The plot of earthquake ground motion as a function
of time.

UNITS:

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

STRUCTURES
Structure, System, Component

**PRIMARY
PARAMETER:** Site Water Level (Allowable)

**SECONDARY
PARAMETER:** Maximum Flood (or Tsunami) (1.8.1)

DEFINITION: The difference in elevation between finished plant grade and the water level due to the probable maximum flood as defined in ANSI/ANS 2.8-1983.

UNITS: Feet

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

STRUCTURES
Structure, System, Component

PRIMARY
PARAMETER: Site Water Level (Allowable)

SECONDARY
PARAMETER: Maximum Ground Water (1.8.2)

DEFINITION: The difference in elevation between finished plant grade and the maximum ground water level.

UNITS: Feet

DESIGN
ENVELOPE:

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

STRUCTURES
Structure, System, Component

**PRIMARY
PARAMETER:** Soil Properties Design Bases

**SECONDARY
PARAMETER:** Liquefaction (1.9.1)

DEFINITION: The potential for site soils to undergo
liquefaction at the site-specific safe shutdown
earthquake conditions.

UNITS: Dimensionless (Go/No-Go)

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

STRUCTURES

Structure, System, Component

**PRIMARY
PARAMETER:** Soil Properties Design Bases

**SECONDARY
PARAMETER:** Minimum Bearing Capacity (1.9.2)

DEFINITION: The minimum required capacity of the competent bearing layer to support the loads exerted by plant structures.

UNITS: Pounds (in thousands) per square foot

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

STRUCTURES

Structure, System, Component

**PRIMARY
PARAMETER:** Soil Parameters Design Bases

**SECONDARY
PARAMETER:** Minimum Shear Wave Velocity (1.9.3)

DEFINITION: The propagation velocity of shear waves through the foundation materials. It is determined from the square root of the quotient of the shear modulus (modulus of rigidity) to the density of the material or by direct field measurement.

UNITS: Feet per second

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

STRUCTURES
Structure, System, Component

**PRIMARY
PARAMETER:** Tornado (Design Bases)

**SECONDARY
PARAMETER:** Maximum Pressure Drop (1.11.1)

DEFINITION: The decrease in ambient pressure from normal
atmospheric pressure due to the passage of the
tornado.

UNITS: Pounds per square inch

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

STRUCTURES
Structure, System, Component

**PRIMARY
PARAMETER:** Tornado (Design Bases)

**SECONDARY
PARAMETER:** Maximum Rotational Speed (1.11.2)

DEFINITION: The component of tornado wind speed due to the rotation within the tornado.

UNITS: Miles per hour

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

STRUCTURES
Structure, System, Component

**PRIMARY
PARAMETER:** Tornado (Design Bases)

**SECONDARY
PARAMETER:** Maximum Translational Speed (1.11.3)

DEFINITION: The component of tornado wind speed due to the
movement of the tornado over the ground.

UNITS: Miles per hour

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

STRUCTURES
Structure, System, Component

**PRIMARY
PARAMETER:** Tornado (Design Bases)

**SECONDARY
PARAMETER:** Missile Spectra (1.11.5)

DEFINITION: These credible missiles that may be ejected either horizontally or vertically from a tornado. The spectra identify mass, dimensions and velocity of credible missiles.

UNITS: Dimensionless (Spectrum I, II, A or B of SRP 3.5.1.4)

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

STRUCTURES
Structure, System, Component

**PRIMARY
PARAMETER:** Tornado (Design Bases)

**SECONDARY
PARAMETER:** Maximum Wind Speed (1.11.4)

DEFINITION: The sum of maximum rotational and maximum translational wind speed components.

UNITS: Miles per hour

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

STRUCTURES
Structure, System, Component

**PRIMARY
PARAMETER:** Tornado (Design Bases)

**SECONDARY
PARAMETER:** Radius of Maximum Rotational Speed (1.11.6)

DEFINITION: The distance from the center of the tornado at
which the maximum rotational wind speed occurs.

UNITS: Feet

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

STRUCTURES
Structure, System, Component

**PRIMARY
PARAMETER:** Tornado (Design Bases)

**SECONDARY
PARAMETER:** Rate of Pressure Drop (1.11.7)

DEFINITION: The rate at which the pressure drops due to the
passage of the tornado.

UNITS: Pounds per square inch per second

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

STRUCTURES
Structure, System, Component

PRIMARY
PARAMETER:

Wind

SECONDARY
PARAMETER:

Basic Wind Speed (1.12.1)

DEFINITION:

The wind speed with a 50-year recurrence interval.

UNITS:

Miles per hour

DESIGN
ENVELOPE:

BASIS:

URD Value

PARAMETER QUANTITY SUMMARY

STRUCTURES
Structure, System, Component

**PRIMARY
PARAMETER:** Wind

**SECONDARY
PARAMETER:** Importance Factors (1.12.2)

DEFINITION: Multiplication factors to be applied to basic wind speed as defined in ANSI A58.1-1982.

UNITS: Dimensionless

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
Structure, System, Component

**PRIMARY
PARAMETER:** Ambient Air Requirements

**SECONDARY
PARAMETER:** Normal Shutdown Max Ambient Temp (1% Exceed) (2.1.1)
Normal Shutdown Max Wet Bulb Temp (1% Exceed) (2.1.2)
Normal Shutdown Min Ambient Temp (1% Exceed) (2.1.3)

DEFINITION: The plant cooling water systems shall be capable of supporting normal shutdown cooling based upon 1% exceedance ambient temperatures. Normal shutdown capacity shall have sufficient capacity to:

1. Reduce RCS temperature to 140°F within 24 hours following reactor shutdown.
2. Reduce RCS temperature to 130°F by the time reactor vessel head stud detensioning operations are started.
3. Reduce RCS temperature to 120°F by the time refueling cavity flooding operations are completed.

UNITS: Degrees Fahrenheit

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
Structure, System, Component

PRIMARY
PARAMETER: Ambient Air Requirements

SECONDARY
PARAMETER: RX Thermal Power Max. Ambient Temp. (0% exceed) (2.1.5)
RX Thermal Power Max. Wet Bulb Temp. (0% exceed) (2.1.6)
RX Thermal Power Min. Ambient Temp. (0% Exceed) (2.1.7)

DEFINITION: The plant cooling water systems shall be capable of supporting full reactor thermal output based upon 0% exceedance ambient temperatures.

UNITS: Degrees Fahrenheit

DESIGN
ENVELOPE:

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
Structure, System, Component

PRIMARY

PARAMETER: Blowdown Pond Acreage (2.2)

SECONDARY

PARAMETER: None

DEFINITION: The land usage required to provide a blowdown pond with a capacity to holdup 24 hours of expected blowdown.

UNITS: Acres

DESIGN

ENVELOPE:	<u>1300 MWe</u>	<u>600 MWe</u>
	4 Acres	2 Acres

BASIS: The size of the blowdown pond is based upon the volume of expected cooling tower blowdown over a 24-hour period. For the evolutionary plants, both normal plant heat sink and ultimate heat sink blowdown are included. For the passive plants, the only blowdown is from the normal plant heat sink. The blowdown pond is assumed to be 8 feet deep with a free board of 2 feet providing a net usable depth of 6 feet.

Evolutionary Plant:

$\frac{(5200 + 200) \text{ GPM} \times 1440 \text{ MIN}}{7.48 \text{ GAL/FT}^3 \times 6 \text{ FT} \times 43560 \text{ FT}^2/\text{Acre}}$	$\approx 4 \text{ Acres}$
--	---------------------------

Passive Plant:

$\frac{2500 \text{ GPM} \times 1440 \text{ MIN}}{7.48 \text{ GAL/FT}^3 \times 6 \text{ FT} \times 43,560 \text{ FT}^2/\text{Acre}}$	$\approx 2 \text{ Acres}$
---	---------------------------

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
Structure, System, Component

PRIMARY
PARAMETER: Condenser/Heat Exchanger Duty (2.3)

SECONDARY
PARAMETER: None

DEFINITION: The waste heat rejected to the circulating water system across the condensers, plus the heat transferred to service water systems from turbine plant or reactor plant auxiliaries.

UNITS: BTU/HR

DESIGN
ENVELOPE:

BASIS: Vendor Value - For the evolutionary plants, the vendor value for condenser duty has been increased by a factor of 1.1 to account for turbine and reactor plant auxiliary heat loads that are also rejected in the circulating water heat removal devices. The values for condenser duty supplied by the vendors for the passive plants already includes an allowance for auxiliary heat loads.

	Condenser Duty	Auxiliary Heat Load	Total
ABWR	8.7×10^9	1×10^9	9.7×10^9
System 80 ⁺	8.6×10^9	$.9 \times 10^9$	9.5×10^9

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
Structure, System, Component

PRIMARY
PARAMETER: Maximum Inlet Temp. Condenser/Heat Exchanger (2.6)

SECONDARY
PARAMETER: None

DEFINITION: The maximum acceptable circulating water temperature at the inlet to the condenser or cooling water system heat exchanges to ensure proper condenser (backpressure) or component performance.

UNITS: Degrees Fahrenheit

DESIGN
ENVELOPE:

BASIS: Vendor Value

For the passive plants, this value is based upon the 0% exceedance non-coincident wet bulb temperature and the heat removal device approach temperature:

AP600 $81^{\circ}\text{F} + 10^{\circ}\text{F} = 91^{\circ}\text{F}$

SBBW $81^{\circ}\text{F} + 14^{\circ}\text{F} = 95^{\circ}\text{F}$

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
ULTIMATE HEAT SINK
Structure, System, Component

**PRIMARY
PARAMETER:** Mech Draft Cooling Towers

**SECONDARY
PARAMETER:** Acreage (2.7.1, 3.6.1)

DEFINITION: The land usage required for mechanical draft cooling towers to support the standard plants of 600 MWe and 1300 MWe with due consideration for recirculation and interference effects. The land usage should include any basins or canals directing cooling water between the power block and the cooling towers.

UNITS: Acres

DESIGN ENVELOPE:		<u>1300 MWe</u>	<u>600 MWe</u>
	Normal Plant Heat Sink	50	25
	Ultimate Heat Sink	.5	-

BASIS: The above acreage for the 1300MWe plant is based on as-built mechanical draft cooling towers for Palo Verde Nuclear Generating Station, Browns Ferry Nuclear Plant and Farley Nuclear Plant. Each plant involves multiple towers per unit. The estimated land usage includes canals.

The acreage for 600 MWe unit towers is estimated as half of the acreage required for the 1300 MWe unit towers.

For the ultimate heat sink mechanical draft cooling towers, Vogtle Electric Generating Plant and Grand Gulf Nuclear Plant ultimate heat sink designs were used as the basis for the land estimate. Both used deep basins beneath the towers as the 30-day storage volume for water and system piping was buried.

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
ULTIMATE HEAT SINK
Structure, System, Component

**PRIMARY
PARAMETER:**

MECH DRAFT COOLING TOWERS
NATURAL DRAFT COOLING TOWERS

**SECONDARY
PARAMETER:**

APPROACH TEMPERATURE (2.7.3, 2.8.2, 3.6.3)

DEFINITION:

The difference between the cold water temperature
and the ambient wet bulb temperature

UNITS:

Degrees Fahrenheit

**DESIGN
ENVELOPE:**

10°F

BASIS:

Vendor value supplied for ABWR, SBWR and AP600 for
natural draft cooling towers.

10°F approach temperature is based on good
engineering practice in optimizing the size of a
cooling tower.

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK

ULTIMATE HEAT SINK

Structure, System, Component

PRIMARY

PARAMETER: Mech Draft Cooling Towers
Natural Draft Cooling Towers
Ponds

SECONDARY

PARAMETER: Blowdown Constituents and Concentrations
(2.7.4, 2.8.3, 2.10.2, 3.6.4, 3.8.2)

DEFINITION: The maximum expected concentrations for anticipated constituents in the cooling water systems blowdown to the receiving water body.

UNITS: Parts Per Million (PPM)

DESIGN

ENVELOPE:

<u>Constituent</u>	<u>River Source</u>	<u>CONCENTRATION</u> <u>Well/Treated Water</u>	<u>Envelope</u>
chlorine demand	10.1	-	10.1
free avail. chlorine	.5	-	.5
chromium	-	-	-
copper	-	6	6
iron	.9	3.5	3.5
zinc	-	.6	.6
phosphate	-	7.2	7.2
sulfate	599	3500	3500
oil and grease	-	-	-
total dissolved solids	-	17,000	17000(1)
total suspended solids	49.5	150	150
BOD, 5-day	-	-	-

(1) Assumed cycles of concentration equals 4.

BASIS:

Periodic blowdown from towers or ponds is required to remove suspended solids in the cooling water system. The blowdown constituents and concentrations are highly dependent upon the sources of the raw water. To address this variability, values have been found for two likely sources of water and an enveloping value selected.

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK ULTIMATE HEAT SINK Structure, System, Component

PRIMARY PARAMETER:

Mech Draft Cooling Towers
Natural Draft Cooling Towers
Ponds

SECONDARY PARAMETER:

Blowdown Flow Rate
(2.7.5, 2.8.4, 2.10.3, 3.6.5, 3.8.3)

DEFINITION:

The expected (and maximum) flow rate of the blowdown stream from the cooling water systems to the receiving water body for closed system designs.

UNITS:

Gallons Per Minute

DESIGN ENVELOPE:

	<u>1100 MWe</u>	<u>600 MWe</u>
NPWS Cooling Towers & Spray Ponds	5200 (17,700)	2500 (8500)
NPWS Cooling Ponds	3600 (12,400)	1800 (6000)
UWS Cooling Towers & Spray Ponds	100 (700)	--
UWS Cooling Ponds	50 (500)	--

BASIS:

Mechanical draft cooling towers, natural draft cooling towers, and ponds dissipate heat to the atmosphere from the turbine thermal cycle and other plant systems. A make up system is provided to replace water losses due to evaporation, blowdown and drift from the above cooling components.

Salinity and solid build up is controlled by blowing down to the blowdown treatment facility. Blowdown is taken from the circulating water

system pump discharge, with samples taken and analyzed for dissolved solids, pH, and radioactivity. The analysis verifies that blowdown meets the limitation of radioactivity release.

The blowdown rate (B) is derived from the evaporation rate (E), the drift rate (D) and the cycles of concentration (C) in the cooling water system. The relationship between these parameters is given by

$$B = \frac{E - [(C-1) \times D]}{(C-1)}$$

Ignoring drift and assuming 4 cycles of concentration, the blowdown rate simplifies to 1/3 of the evaporation rate. Similarly, for 2 cycles of concentration, the blowdown rate equals the evaporation rate. To determine the maximum blowdown rate, the maximum evaporation rate is assumed coincident with the minimum cycles of concentration. For the expected case, the expected evaporation rate is assumed coincident with operation at 4 cycles of concentration. (See PQS-2.7.10)

$$B_{MAX} = \frac{E_{MAX}}{(2-1)}$$

$$B_{EXPECTED} = \frac{E_{EXPECTED}}{(4-1)}$$

For AP600 natural draft cooling towers, the expected value is supplied by the vendor and the maximum value is an engineering assessment.

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
ULTIMATE HEAT SINK
Structure, System, Component

**PRIMARY
PARAMETER:**

Mech Draft Cooling Towers
Natural Draft Cooling Towers
Ponds

**SECONDARY
PARAMETER:**

Blowdown Temperature
(2.7.6, 2.8.5, 2.10.4, 3.6.6, 3.8.4)

DEFINITION:

The maximum expected blowdown temperature at the point of discharge to the receiving water body.

UNITS:

Degrees Fahrenheit

**DESIGN
ENVELOPE:**

BASIS:

Vendor Value - The blowdown from a closed cycle cooling system is discharged prior to the heat source to ensure minimum amount of heat given off to receiving water bodies. The value for blowdown temperature is based upon the maximum condenser or heat exchanger inlet temperature provided by the vendors.

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
ULTIMATE HEAT SINK
Structure, System, Component

**PRIMARY
PARAMETER:**

Mech Draft Cooling Towers
Natural Draft Cooling Towers
Ponds

**SECONDARY
PARAMETER:**

Cooling Tower Temperature Range
(2.7.7, 2.8.6, 3.6.7)
Cooling Pond Temperature Range
(2.10.5, 3.8.5)

DEFINITION:

The temperature difference between the cooling water entering and leaving the towers or ponds.

UNITS:

Degrees Fahrenheit

**DESIGN
ENVELOPE:**

BASIS:

The values for cooling temperature range have been provided by vendors or are based upon condenser/heat exchanger temperature rises provided by the vendors. In those cases where cooling tower range is inferred from the condenser/heat exchanger temperature rise, the value is considered to be independent of the heat removal device type. For AP600, the natural draft cooling tower temperature range (vendor supplied value of 23°F) is judged to be a reasonable value for mechanical draft cooling towers and ponds.

PARAMETER QUANTITY SUMMARY

Normal Plant Heat Sink
ULTIMATE HEAT SINK
Structure, System, Component

PRIMARY
PARAMETER:

Mech Draft Cooling Towers
Natural Draft Cooling Towers
Ponds

SECONDARY
PARAMETER:

Cooling Water Flow Rate
(2.7.8, 2.8.7, 2.10.6, 3.6.8, 3.8.6)

DEFINITION:

The total process cooling water flow rate (i.e.
condenser/heat exchanger flow rate)

UNITS:

Gallons Per Minute

DESIGN
ENVELOPE:

BASIS:

Vendor Value. This number is judged to be
independent of the heat removal device type.

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
ULTIMATE HEAT SINK
Structure, System, Component

PRIMARY

PARAMETER: Mech Draft Cooling Towers
Natural Draft Cooling Towers
Ponds

SECONDARY

PARAMETER: Cycles of Concentration
(2.7.9, 2.8.8, 2.10.7, 3.6.9, 3.8.7)

DEFINITION: The ratio of total dissolved solids in the cooling water streams to the total dissolved solids in the makeup water streams.

UNITS: Dimensionless

DESIGN

ENVELOPE: 4 Expected, 2 Minimum

BASIS: The cycles of concentration for the cooling water stream is a function of the quality of the make up stream and the plant requirements. This parameter will vary with each site. A value of 4 for cycles of concentration is a reasonable value as an envelope number based upon an inland water source. To assess the maximum blowdown flow rate and the consequential maximum makeup flow rate, a minimum value of 2 cycles of concentration has been assumed. The use of water related to the cycles of concentration has been consistently estimated. In those cases where the vendor has supplied a value of cycles of concentration, the related values for consumption of water have not been checked to ensure that they are consistent with the vendor's cycles of concentration.

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
ULTIMATE HEAT SINK
Structure, System, Component

PRIMARY

PARAMETER: Mech Draft Cooling Towers
Natural Draft Cooling Towers
Once-Through Cooling
Ponds

SECONDARY

PARAMETER: Evaporation Rate
(2.7.10, 2.8.9, 2.9.4, 2.10.8, 3.6.10, 3.7.4, 3.8.8)

DEFINITION: The expected (and maximum) rate at which water is lost by evaporation from the cooling water systems. The evaporation rate for the once-through system represents the additional evaporation in the receiving water body resulting from the heated water discharge. The evaporation rate for the ponds represents only the evaporation due to the discharge of heated water and does not address natural evaporation.

UNITS: Gallons Per Minute

DESIGN

ENVELOPE:	<u>1,300MWe</u>	<u>600MWe</u>
NPHS Cooling Towers & Spray Ponds	15,400 (17,700)	7,400 (8,500)
NPHS Cooling Ponds	10,800 (12,400)	5,300 (6,000)
NPHS Once-Through Cooling	9,300 (10,700)	4,400 (5,000)
UHS Cooling Towers & Spray Ponds	250 (700)	---
UHS Cooling Ponds	150 (500)	---
UHS Once-Through Cooling	150 (400)	---

BASIS: The maximum evaporation rate (E) from a closed cycle cooling system is a function of the heat removal rate (Q) by the cooling water and the latent heat of vaporization (L) at the ambient conditions.

$$E = \frac{Q}{L} \times \frac{1}{500} \quad (\text{lb/hr to gpm conversion factor})$$

For 1300MWe Units $Q = 9.7 \times 10^9$ Btu/hr (PQS-2.3) and L at ambient conditions is 1100 Btu/lb.

$$E = \frac{9.7 \times 10^9}{1100 \times 500} = 17,636 \text{ gpm} \approx 17,700 \text{ gpm}$$

Similarly for 600 MWe Unit

$$E = \frac{4.63 \times 10^9}{1100 \times 500} = 8,418 \text{ gpm} \approx 8,500 \text{ gpm}$$

For the AP600, the maximum evaporation rate is based on the vendor value supplied by Westinghouse of 2.6% of cooling water flow rate (10,036gpm).

For the 1300 MWe units UHS, the heat load $Q = 374 \times 10^6$ Btu/hr (see parameter 3.2)

$$E = \frac{374 \times 10^6}{1100 \times 500} = 680 \approx 700 \text{ gpm}$$

In the above estimates, the combined effects of rain, solar evaporation and leakage are site specific and not included in the overall water balance.

The evaporative losses for a cooling pond (w/o sprays) are assumed to be 70% of the tower evaporative losses.

The evaporative losses in a once-through cooling system are about 40% less than the losses in a closed cycle system and occur externally in the adjacent body of water. (Ref. NUREG-1437, Vol. 1, Sect. 2.3.2)

To arrive at the expected evaporation rate for the NPHS, the maximum evaporation rate was multiplied by the Station Production Availability Factor (e.g. $17,700 \text{ gpm} \times .87 = 15,399 \text{ gpm} \approx 15,400 \text{ gpm}$).

The expected evaporation rate for the UHS is based on the normal operating heat loads (e.g. $\frac{122 \times 10^6}{1100 \times 500} = 221.8 \approx 250 \text{ gpm}$).

PARAMETER QUANTITY SUMMARY
NORMAL PLANT HEAT SINK
ULTIMATE HEAT SINK
Structure, System, Component

PRIMARY

PARAMETER: Mech Draft Cooling Towers
Natural Draft Cooling Towers
Once-Through Cooling
Ponds

SECONDARY

PARAMETER: Heat Rejection Rate
(2.7.12, 2.8.11, 2.9.5, 2.10.9, 3.6.12, 3.7.5,
3.8.9)

DEFINITION: The expected heat rejection rate to an offsite receiving waterbody. For closed-cycle cooling systems, the majority of waste heat will dissipate directly to the atmosphere, and only the fraction contained in blowdown will reach the receiving waterbody.

UNITS: x 10⁶ BTU/HR

DESIGN

ENVELOPE:		<u>1300MWe</u>	<u>600MWe</u>
NPHS	Cooling Towers & Spray Ponds	26	12.5
NPHS	Cooling Ponds	18	9
NPHS	Once-through Cooling	9700	4630
UHS	Cooling Towers & Spray Ponds	.5	-
UHS	Cooling Ponds	.3	-
UHS	Once-through Cooling	122	-

BASIS:

Heat rejection rate (Q) from a closed cycle cooling system is a function of the blowdown rate (B) and the temperature difference (delta T) between the blowdown (T_b) and offsite receiving waterbody (T_o). The relationship between these parameters is given by:

$$\frac{Q}{(\text{BTU/hr})} = \frac{B}{(\text{GPM})} \times \frac{500}{(\text{lb/hr factor})} \times \frac{\text{delta } T}{(^{\circ}\text{F})}$$

$$\text{delta } T = T_b - T_o$$

The above heat rejection rates are estimated based on a 10°F delta T. Expected blowdown rates are given in PQS - 2.7.5.

For 1300 MWe plant with Cooling Towers or Spray Ponds:

$$Q = 5200 \times 500 \times 10 = 26 \times 10^6 \text{ Btu/hr}$$

For 1300 MWe plant with Ponds:

$$Q = 3600 \times 500 \times 10 = 18 \times 10^6 \text{ Btu/hr}$$

For 600MWe plant with Cooling Towers for Spray Ponds:

$$Q = 2500 \times 500 \times 10 = 12.5 \times 10^6 \text{ Btu/hr}$$

For 600MWe plant with Ponds:

$$Q = 1800 \times 500 \times 10 = 9 \times 10^6 \text{ Btu/hr}$$

For 1300MWe plant UHS with Cooling Tower or Spray Ponds:

$$Q = 100 \times 500 \times 10 = .5 \times 10^6 \text{ Btu/hr}$$

For 1300MWe plant UHS with Ponds:

$$Q = 50 \times 500 \times 10 \approx .3 \times 10^6 \text{ Btu/hr}$$

For the once-through cooling system, the heat rejection rate is the limiting condenser duty provided by the vendors (see PQS-2.3).

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
ULTIMATE HEAT SINK
Structure, System, Component

**PRIMARY
PARAMETER:**

MECH DRAFT COOLING TOWERS
NATURAL DRAFT COOLING TOWERS

**SECONDARY
PARAMETER:**

HEIGHT (2.7.13, 2.8.12, 3.6.13)

DEFINITION:

The vertical height above finished grade of either natural draft or mechanical draft cooling towers associated with the cooling water systems.

UNITS:

FEET

**DESIGN
ENVELOPE:**

Natural Draft Towers 550 FT (1300MWe)/500 FT
(600MWe)
Mechanical Draft Towers 60 FT

BASIS:

WASH-1355 suggests heights of 500 feet for natural draft towers and 60 feet for mechanical draft towers for a hypothetical plant of 1000 MWe assuming 2 natural draft towers or 6 mechanical draft towers. A study by Frank H. Rainwater, "Thermal Waste Treatment and Control" indicates that 2 natural draft towers with maximum height of 430 feet would be adequate for a 1000 MWe nuclear plant at 12 selected locations in the United States. For a later vintage PWR plant (1100 MWe per unit), one natural draft tower with a height of 540 feet is provided for each unit; for a later vintage BWR plant (1250 MWe), one natural draft tower with a height of 522 feet is provided.

Mechanical draft towers are significantly lower than natural draft towers and should also be lower than other nuclear island structures, such as the containment or reactor building. The envelope value of 60 feet for mechanical draft towers presented in WASH-1355 is judged to be a valid value.

The cooling towers for the circulating water system are expected to be significantly larger than cooling towers for either the service water system or ultimate heat sink. The design envelope is based upon the expected size of the circulating water system cooling towers.

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
ULTIMATE HEAT SINK
Structure, System, Component

PRIMARY

PARAMETER: Mech Draft Cooling Towers
Natural Draft Cooling Towers
Ponds

SECONDARY

PARAMETER: Makeup Flow Rate
(2.7.15, 2.8.14, 2.10.10, 3.6.15, 3.8.10)

DEFINITION: The expected (and maximum) rate of removal of water from a natural source for makeup to the closed cooling water systems.

UNITS: Gallons Per Minute

DESIGN

ENVELOPE:

	<u>1300 MWe</u>	<u>600 MWe</u>
NPHS Cooling Towers & Spray Ponds	20,600	9,900
	(35,400)	(17,000)
NPHS Cooling Ponds	14,400	7,100
	(24,800)	(12,000)
UHS Cooling Towers & Spray Ponds	350	---
	(1,400)	---
UHS Cooling Ponds	200	---
	(1,000)	---

BASIS: Makeup to closed-cycle cooling systems is estimated as the sum of blowdown (PQS-2.7.5) and evaporation (PQS-2.7.10). The effect of drift is negligible. Seepage from ponds is site specific and not included in the makeup estimate. The values in the above table are used for ABWR, System 80⁺, and the SBWR.

For AP600 natural draft cooling towers, the values are a combination of vendor supplied quantities and engineering assessments:

Expected Makeup = $E_{EXP} + B_{EXP} = 7,400 + 3,500 = 10,900$ gpm

Maximum Makeup = $E_{MAX} + B_{MAX} = 10,036 + 8,500 = 18,536$ gpm

PQS-2.7.15
Sheet 2 of 2

The expected blowdown and maximum evaporation values are based upon vendor input. This range of values includes the makeup value supplied by Westinghouse of 13,980 gpm.

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PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
ULTIMATE HEAT SINK
Structure, System, Component

**PRIMARY
PARAMETER:**

Mech Draft Cooling Towers
Natural Draft Cooling Towers
Ponds

**SECONDARY
PARAMETER:**

Maximum Consumption of Raw Water
(2.7.16, 2.8.15, 2.10.11, 3.6.16, 3.8.11)

DEFINITION:

The expected maximum short-term consumptive use of water by the cooling water systems.

UNITS:

Gallons Per Minute

**DESIGN
ENVELOPE:**

See Evaporation Rate (PQS-2.7.10)

BASIS:

The maximum consumption of raw water by the cooling water systems is equal to the evaporative losses from the heat removal devices (drift is considered to be negligible).

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
ULTIMATE HEAT SINK
Structure, System, Component

PRIMARY

PARAMETER: Mech Draft Cooling Towers
Natural Draft Cooling Towers
Ponds

SECONDARY

PARAMETER: Monthly Average Consumption of Raw Water
(2.7.17, 2.8.16, 2.10.12, 3.6.17, 3.8.12)

DEFINITION: The expected consumption of water by the cooling water systems.

UNITS: Gallons Per Minute (GPM)

DESIGN

ENVELOPE:

		<u>1300 MWe</u>	<u>600 MWe</u>
NP	HS Cooling Tower & Spray Ponds	15,400	7,400
NP	HS Cooling Ponds	10,800	5,300
UH	S Cooling Towers & Spray Ponds	250	--
UH	S Cooling Ponds	150	--

BASIS: Average NP

Average NP

HS consumption for plants having closed cycle cooling systems are estimated on the basis of adjusting the maximum consumption of raw water by the station production availability factor (.87).

The UH consumption is based upon the evaporation due to normal plant operations.

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
ULTIMATE HEAT SINK
Structure, System, Component

**PRIMARY
PARAMETER:**

Mech Draft Cooling Towers
Natural Draft Cooling Towers
(2.7.18, 2.8.17, 3.6.18)

**SECONDARY
PARAMETER:**

Noise

DEFINITION:

The maximum expected sound level produced by
operation of cooling towers.

UNITS:

Decibels

**DESIGN
ENVELOPE:**

55 dBA @ 1000 feet

BASIS:

The two most audible noise sources associated with
normal station operation are the switchyard and
the waterfall/fans within a cooling tower. On the
basis of the literature and operating experience
from other nuclear sites, the above sound level
can be expected from the operation of a cooling
tower.

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
ULTIMATE HEAT SINK
Structure, System, Component

**PRIMARY
PARAMETER:**

Mech Draft Cooling Towers
Natural Draft Cooling Towers

**SECONDARY
PARAMETER:**

Salt Deposition (2.7.20, 2.8.19, 3.6.20)

DEFINITION:

The quantity of salts discharged to the atmosphere in the drift from the cooling towers. This parameter may also be expressed in terms of percent of cooling water process flow rate.

UNITS:

Pounds Per Hour or Percent

**DESIGN
ENVELOPE:**

0.005% of cooling water flow

BASIS:

The quantity of salts discharged to the atmosphere in the drift from the cooling tower is a function of the percent or amount of the drift and the percent or amount of the salt in the drift. The AP600 Vendor has provided a range of 0.002 to 0.008 percent of cooling water flow for the salt deposition. A median value of 0.005% is considered for this parameter quantity, and the amounts of salt deposition are estimated proportional to the cooling water flows.

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
ULTIMATE HEAT SINK
Structure, System, Component

PRIMARY
PARAMETER: Raw Water Requirements

SECONDARY
PARAMETER: Stored Water Volume
(2.7.22, 2.8.20, 2.10.13, 3.6.22, 3.8.13)

DEFINITION: The quantity of water stored in cooling water
system impoundments, basins or tanks.

UNITS: Gallons

DESIGN
ENVELOPE:

<u>1. Normal Plant Heat Sinks</u>	<u>1300 MWe Units</u>	<u>600 MWe Units</u>
-Mech. Draft Cooling Tower Basin	10.5×10^6	7.0×10^6
-Natural Draft Cooling Tower Basin	10.5×10^6	7.0×10^6
-Pond	14.7×10^6	6.4×10^6
<u>2. Ultimate Heat Sinks</u>		
-Mech. Draft Cooling Tower Basin	30.6×10^6	---
-Pond	196×10^6	---

BASIS: The stored water volumes in the normal plant heat sink
tower basins are estimated based on 15 minutes
retention time corresponding to the flow of cooling
water in the circulating water system (PQS-2.7.8)

Normal Plant Heat Sink (gpm) (minutes)

For 1300 MWe units $700,000 \times 15 = 10.5 \times 10^6$ gallons
For 600 MWe units $466,000 \times 15 = 7.0 \times 10^6$ gallons

The stored water volumes in the ultimate heat sink
tower basins are estimated to include 15 minutes of
water at maximum system flow rate plus 30-days of
maximum evaporation (PQS-2.7.10).

The maximum safety-related service water flow rates for the evolutionary plants are:

ABWR	25,476 gpm	(SSAR t9.2-4a/b/c Amend 14/16)
System 80 ⁺	24,578 gpm	(CESSAR t9.2.2-3 Amend I)

For enveloping purposes, assume a maximum flow rate of 25,500 gpm.

$$V = 25,500 \text{ gpm} \times 15 \text{ m} + 43,200 \text{ m/month} \times (700) = 30.6 \times 10^6 \text{ gallons}$$

The stored water Volumes in ponds is estimated based on the area of the pond (see PQS-2.10.1 for Southern U.S.) and 15 feet depth for normal heat sinks and 10 feet depth for ultimate heat sinks.

Normal Plant Heat Sink

(Acres) (ft²/acre) (depth) (gal/ft³)

For 1300 MWe units

$$3000 \times 43560 \times 15 \times 7.5 = 14.7 \times 10^9 \text{ gallons}$$

For 600 MWe units

$$1300 \times 43560 \times 15 \times 7.5 = 6.4 \times 10^9 \text{ gallons}$$

Ultimate Heat Sink

For 1300 MWe units

$$60 \times 43560 \times 10 \times 7.5 = 196 \times 10^6 \text{ gallons}$$

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
Structure, System, Component

PRIMARY
PARAMETER: Natural Draft Cooling Towers

SECONDARY
PARAMETER: Acreage (2.8.1)

DEFINITION: The land usage required for natural draft cooling towers to support a standard plant of 600MWe or 1300MWe including any basins or canals directing circulating water between the power block and the cooling towers.

UNITS: Acres

DESIGN ENVELOPE:	<u>ABWR</u>	<u>SYS 80</u>	<u>AP600</u>	<u>SBWR</u>
	6	6	2.3*	2*

BASIS: *These values are provided by the vendors.

The natural draft cooling towers acreage for 1300MWe units is based on the as-built tower data for Grand Gulf. (Reference Grand Gulf ER, Figure 3.4-2) For SYS 80 unit, the vendor provided the tower acreage as 5.5 which is rounded to 6 acres and is consistent with the Grand Gulf data.

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
ULTIMATE HEAT SINK
Structure, System, Component

**PRIMARY
PARAMETER:** Once-Through Cooling

**SECONDARY
PARAMETER:** Cooling Water Discharge Temperature (2.9.1, 3.7.1)

DEFINITION: The temperature of heated cooling water discharged to a receiving water body from an open cooling system.

UNITS: Degrees Fahrenheit

**DESIGN
ENVELOPE:** Normal Plant Heat Sink 118°F
Ultimate Heat Sink
ABWR 120°F
System 80+ 106.3°F

BASIS: The cooling water discharge temperature is based on a cooling water supply temperature of 100°F for the Normal Plant Heat Sink and 95°F for the Ultimate Heat Sink. For the Normal Plant Heat Sink, the cooling water temperature rise in the condenser is 18°F as estimated in Parameter Quantity Summary Sheet 2.9.3.

$$\begin{array}{rcl} T_{in} + T_{rise} & = & T_{discharge} \\ 100 + 18 & = & 118 \end{array}$$

For the Ultimate Heat Sink, the temperature rise in the CCW (or equivalent) heat exchanger is 25 F (ABWR) or 11.3°F (System 80+) as estimated in PQS-2.9.3

$$\begin{array}{rcl} T_{in} + T_{rise} & = & T_{discharge} \\ 95 + 25 & = & 120 \\ 95 + 11.3 & = & 106.3 \end{array}$$

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
ULTIMATE HEAT SINK
Structure, System, Component

PRIMARY

PARAMETER: Once-Through Cooling

SECONDARY

PARAMETER: Cooling Water Flow Rate
(2.9.2, 3.7.2)

DEFINITION: The total discharge rate of heated cooling water for an open cooling system.

UNITS: Gallons per minute

DESIGN

ENVELOPE:		<u>1300MWe</u>	<u>600MWe</u>
	Normal Plant Heat Sink	1,100,000	515,000

BASIS: The cooling water flowrate is derived from enveloping values of heat removal rate and the temperature rise. The relationship between these parameters is given by

$$V = Q / (8.34) (60) (c_p) (\Delta T)$$

where V	=	Cooling water flowrate (gal/min)
Q	=	heat removal rate (BTU/hr)
8.34	=	Conversion factor (lb/gal) for water
60	=	conversion factor (min/hr)
c _p	=	Specific heat of water at constant pressure (BTU/lb F) = 1 BTU/lb F
Δ T	=	temperature rise (F)

The values of Q and Δ T are taken from the parameter quantity summary sheets.

Normal Plant Heat Sink

1300MWe Plant: $V = 9.7 \times 10^9 / (8.34) (60) (1) (18) \approx 1,100,000$ gpm

600MWe Plant: $V = 4.64 \times 10^9 / (8.34) (60) (1) (18) \approx 515,000$ gpm

Ultimate Heat Sink

The cooling water temperature rise and cooling water flow rate across the component cooling water (or safety related equivalent) heat exchanger depend upon the design of the service water system which is a standardized feature of the reference plant. Therefore, the values for these parameters are vendor values and are assumed to be the same as if the service water system was a closed cooling water system. The flow rate is based upon shutdown conditions.

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK
ULTIMATE HEAT SINK
Structure, System, Component

PRIMARY

PARAMETER: Once-Through Cooling

SECONDARY

PARAMETER: Cooling Water Temperature Rise
(2.9.3, 3.7.3)

DEFINITION: The temperature difference between effluent and influent cooling water streams for an open cooling water system (equal to cooling water temperature rise across the condenser).

UNITS: Degrees Fahrenheit

DESIGN

ENVELOPE:	<u>1300MWe Unit</u>	<u>600MWe Unit</u>
Normal Plant Heat Sink	18	18
Ultimate Heat Sink		
ABWR	25	
System 80 ⁺	11.3	

BASIS: Based on recent experience with licensing and design of thermal power plants, a temperature rise of 18°F across the main condensers is an appropriate value for enveloping the characteristics of once-through cooling systems.

The cooling water temperature rise and cooling water flow rate across the component cooling water (or safety related equivalent) heat exchanger depend upon the design of the service water system which is a standardized feature of the reference plant. Therefore, the values for these parameters are vendor values and are assumed to be the same as if the service water system was a closed cooling water system.

PARAMETER QUANTITY SUMMARY

NORMAL PLANT HEAT SINK ULTIMATE HEAT SINK Structure, System, Component

PRIMARY
PARAMETER: PONDS

SECONDARY
PARAMETER: ACREAGE (2.10.1, 3.8.1)

DEFINITION: The land usage required for a recirculation pond to support the operation of a standard plant of 600MWe or 1300MWe including any canals directing cooling water between the power block and the pond.

UNITS: ACRES

DESIGN ENVELOPE:			In Southern US	
	1300MWe	600MWe	1300MWe	600MWe
Normal Plant Heat Sink	2000	900	3000	1300
Ultimate Heat Sink				
efficient design w/divider dike	20	-	30	
irregular shape	40	-	60	

BASIS: Cooling ponds are generally designed with a surface area of 1-2 acres/MWe A (EPA - 600/2-74-085, Dec. 1974, "Effect of Geographical Variation on Performance of Recirculating Cooling Ponds"). In regions of relatively low relative humidity, an efficient pond design requires about 0.75 acres per MWe B (Ryan P.J. & Harleman, D.R.F., "Analytical and Experimental Study of Transient Cooling Pond Behavior," MIT, Ralph M. Parsons Laboratory, Report No. 161 (R73-11), January 1973.). However, the area of the pond is affected, also, by the depth and initial condition of the discharge into the pond. Deep ponds (depths greater than 15 feet) with relatively low mixing at the inlet tend to stratify resulting in an efficient heat dissipation from the surface. A shallow pond with high initial mixing tends to

eliminate the stratification resulting in a less efficient cooling; i.e., larger area will be required for the same heat load. Shallow ponds tend to show greater diurnal temperature fluctuation. A man made diked cooling pond is usually designed to minimize the length of the dikes and to dissipate the heat to minimize the condenser inlet temperatures. Both circulating water and service water are usually discharged into the pond for heat dissipation.

The cooling pond area for the ultimate heat sink is significantly smaller than the cooling pond for the circulating water system. Based on existing designs, the pond area is approximately 1 to 2 percent of that required for the normal plant heat sink. The small area is required for ponds with efficient design to prevent short circuiting. The larger area is for ponds with irregular shapes where there is a potential for short circuiting. The depth of the pond should meet the requirement for cooling plus storage to compensate for minor losses plus evaporation during worst 30 day-period of maximum evaporation. The estimated evaporation rate to dissipate the heat rejection from 1000 MWe is about 30 acre feet in 30 day period. The total water depth is selected to minimize the diurnal fluctuation at the intake, to account for the evaporation and minor losses, and to maintain a sufficient margin beyond the 30 days. Siltation due to deposition of suspended solids in the makeup water of the pond, or in case of damming a reservoir arm, sediment transported by runoff and deposition in the reservoir should be accounted for. For a man made pond with no natural runoff a depth of 10 feet is usually acceptable.

PARAMETER QUANTITY SUMMARY

**Ultimate Heat Sink
Structure, System, Component**

PRIMARY
PARAMETER: Ambient Air Requirements

SECONDARY
PARAMETER: Maximum Ambient Temperature (0% Exceedance) (3.1.1)
Maximum Wet Bulb Temperature (0% Exceedance) (3.1.2)
Minimum Ambient Temperature (0% Exceedance) (3.1.3)

DEFINITION: The plant cooling water systems shall be capable of supporting full reactor thermal output based upon 0% exceeded ambient temperature. (Safety grade cooldown is based on a worst case weather profile defined in Regulatory Guide 1.27. The worst case meteorology is characterized by parameters such as worst 30-day average dew point depression, worst 30-day average wind speed and worst 30-day solar radiation. The development of numerical values for these parameters is dependent upon site specific information).

UNITS: Degrees Fahrenheit

DESIGN
ENVELOPE:

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

ULTIMATE HEAT SINK
Structure, System, Component

**PRIMARY
PARAMETER:** Maximum Inlet Temp to CCW Heat Exchanger (3.5)

**SECONDARY
PARAMETER:** None

DEFINITION: The maximum temperature of safety-related service water at the inlet of the component cooling water heat exchanger (or equivalent) to ensure proper post-accident or safe shutdown performance of components as analyzed in the safety analysis report.

UNITS: Degrees Fahrenheit

**DESIGN
ENVELOPE:**

BASIS: Vendor Value

PARAMETER QUANTITY SUMMARY

ULTIMATE HEAT SINK
Structure, System, Component

PRIMARY
PARAMETER: CCW Heat Exchanger Duty (3.2)

SECONDARY
PARAMETER: None

DEFINITION: The heat transferred to the safety-related service water system across the component cooling water heat exchanger (or equivalent) for rejection to the environment in UHS heat removal devices.

UNITS: $\times 10^6$ BTU/HR

DESIGN		<u>NORMAL</u>	<u>SHUTDOWN</u>
ENVELOPE:	ABWR	104	374
	SYSTEM 80 ⁺	122	327

BASIS: Vendor Value - Of the three operating conditions (normal operation, normal shutdown, and design basis accident) the highest heat load is associated with normal shutdown. The value for normal shutdown was selected to provide a conservative enveloping value for the maximum conditions of evaporation, blowdown and makeup. The expected values of evaporation, blowdown and makeup, are based on the normal operation heat loads.

PARAMETER QUANTITY SUMMARY

ULTIMATE HEAT SINK
Structure, System, Component

PRIMARY

PARAMETER: Mech Draft Cooling Towers
Once-Through Cooling
Ponds

SECONDARY

PARAMETER: Heat Rejection Rate (3.6.12, 3.7.5, 3.8.9)

DEFINITION: The maximum heat rejection rate to an offsite receiving water body. For closed-cycle cooling systems, the majority of waste heat will dissipate directly to the atmosphere, and only the fraction contained in blowdown will reach the receiving water body.

UNITS: 10⁶ BTU/HR

DESIGN

ENVELOPE:

1300MWe Units

Once through cooling	373.55 x 10 ⁶ Btu/hr
Mechanical draft cooling tower	1.15 x 10 ⁶ Btu/hr
Ponds	0.85 x 10 ⁶ Btu/hr

BASIS: The basis for developing the heat rejected to the site waterbodies is the heat being transferred across the CWV (or equivalent) heat exchanger (see parameter 3.2). For enveloping purposes, the highest heat load is used.

In the case of a once-through cooling system, the full heat exchanger heat load will be rejected to the offsite receiving water body. In the case of mechanical draft cooling towers or a pond, the heat rejected (Q) in blowdown (B) to the receiving water body is estimated as follows:

$$Q = \begin{matrix} \text{(Heat} \\ \text{Rejected)} \end{matrix} = \begin{matrix} \text{(B)} \\ \text{(gpm)} \end{matrix} \times \begin{matrix} \text{(500)} \\ \text{(lb/hr} \\ \text{factor)} \end{matrix} \times \begin{matrix} \text{(T}_b \text{ - T}_o\text{)} \\ \text{(Blowdown Temp. -} \\ \text{Receiving Water Temp.)} \end{matrix}$$

Assuming $T_s - T_o = 10^\circ\text{F}$, and a blowdown rate of 230 gpm, the heat rejected for a mechanical draft tower is:

$$Q = 230 \times 500 \times 10 = 1.5 \times 10^6 \text{ Btu/hr}$$

In the case of a pond with a blowdown rate of 170 gpm the heat rejected is:

$$Q = 170 \times 500 \times 10 = 0.85 \times 10^6 \text{ Btu/hr.}$$

PARAMETER QUANTITY SUMMARY

ULTIMATE HEAT SINK
Structure, System, Component

PRIMARY
PARAMETER: Once - Through Cooling

SECONDARY
PARAMETER: Minimum Essential Flow Rate (3.7.6)

DEFINITION: The minimum flow from site waterbodies to ensure
adequate heat removal from safety-related systems
as analyzed in the safety analysis report.

UNITS: Gallons Per Minute

DESIGN
ENVELOPE:

BASIS: Vendor Value - The flow rate is based upon a
single division of safety-related service water
operating under design basis accident conditions.

1.0

1.1

1.25

1.4

1.6

4.5
5.0
5.6
6.3
7.1
8.0
9.0
10
11.2
12.5

2.8

3.2

3.6

4.0

2.5

2.2

2.0

1.8

4 of 4

PARAMETER QUANTITY SUMMARY

CONTAINMENT HEAT REMOVAL SYSTEM (POST-ACCIDENT)
Structure, System, Component

PRIMARY
PARAMETER: Ambient Air Requirements

SECONDARY
PARAMETER: Maximum Ambient Temperature (0% exceedance) (4.1.1)
Minimum Ambient Temperature (0% exceedance) (4.1.2)

DEFINITION: The maximum and minimum ambient temperatures for the design of the containment heat removal system (post-accident) based upon 0% exceedance values.

UNITS: Degrees Fahrenheit

DESIGN
ENVELOPE:

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

PORTABLE WATER/SANITARY WASTE SYSTEM
DEMINERALIZED WATER SYSTEM
MISCELLANEOUS DRAIN SYSTEM
Structure, System, Component

PRIMARY

PARAMETER: Discharge To Site Water Bodies

SECONDARY

PARAMETER: Flow Rate (5.2.1, 6.2.1, 8.2.1)

DEFINITION: The expected (and maximum) effluent flow rate from the plant water systems to the receiving water body due to water treatment or regeneration of water treatment system processes, if applicable. Discharge to plant systems should be addressed as use.

UNITS: Gallons Per Minute

DESIGN

ENVELOPE:

	<u>ABWR</u>	<u>SYS80</u>	<u>AP600</u>	<u>SBWR</u>
Potable Water/Sanitary Waste	13(19)	20(24)	35(70)	11(17)
Demineralized Water (RO Brine)	50(135)	50(60)	25(70)	25(30)
Miscellaneous Drain	25(50)	25(50)	25(50)	25(50)

BASIS: The potable water/sanitary waste system is assumed to represent a direct throughput of raw water to the receiving water body. The only treatment of the raw water to assumed to be filtration. Therefore, the discharge from the potable water/sanitary waste system is assumed to be the same as the potable water expected (and maximum) use (PQS-5.4.1 and 5.4.2). These values are rounded up to the nearest whole gallon per minute.

The demineralized water treatment system is assumed to include a two-pass reverse osmosis (RO) unit. Each membrane in the unit yields 50% of the input stream as usable water, so a two-pass system results in 75% water recovery with 25% being discharged as brine. The expected (and maximum) discharge of RO unit brine to the receiving water body is estimated as one-third of the demineralized water use (PQS-5.4.1 and 5.4.2).

These values are rounded up to the nearest five gallons per minute.

Based upon a review of the water use diagrams documented in the Environmental Reports of six nuclear power plants, it is observed that 25 gpm (expected) and 50 gpm (maximum) are reasonable values for the miscellaneous drain flow to the receiving water body. It should be noted that this flow does not necessarily result in a balanced water flow diagram.

PARAMETER QUANTITY SUMMARY

**POTABLE WATER/SANITARY WASTE SYSTEM
DEMINERALIZED WATER SYSTEM
FIRE PROTECTION SYSTEM
Structure, System, Component**

**PRIMARY
PARAMETER:** Raw Water Requirements

**SECONDARY
PARAMETER:** Maximum Use (5.4.1, 6.4.1, 7.1.1)

DEFINITION: The maximum short-term use of water by the plant water systems.

UNITS: Gallons Per Minute

DESIGN ENVELOPE:	<u>ABWR</u>	<u>SYS 80</u>	<u>AP600</u>	<u>SBWR</u>
1. Potable Water/Sanitary Waste	19	24	70*	17
2. Demineralized Water	400*	175	200*	90
3. Fire Protection	625	625	625*	625

BASIS: The maximum potable water/sanitary waste water use value is based upon a 35 gallons per day per capita water use assuming a refueling population. These values are rounded up to the nearest whole gallon.

The 35 gallons per day is based on engineering judgement and is approximately 30% greater than the typical rate of water use in a factory per shift per person (Table 2-2 of Waste Water Engineering: Treatment, Disposal, Reuse, second edition).

The maximum demineralized water use values are scaled-up from the monthly average use values to account for a station production availability factor of 1 as opposed to the expected station production availability factor of 0.87. These values are rounded up to the nearest five gallons.

The fire protection water use is based on refilling a 300,000 gallon tank in 8 hours.

The steam generator blowdown and condensate cleanup systems are considered as closed-loop systems and essentially all water in the system is recycled and reused. Therefore, there is no use of raw water by these systems.

The values marked by an * are vendor supplied values.

PARAMETER QUANTITY SUMMARY

POTABLE WATER/SANITARY WASTE SYSTEM
DEMINERALIZED WATER SYSTEM
FIRE PROTECTION SYSTEM
Structure, System, Component

PRIMARY
PARAMETER: Raw Water Requirements

SECONDARY
PARAMETER: Monthly Average Use (5.4.2, 6.4.2, 7.1.2)

DEFINITION: The expected monthly average use of water by the plant water systems.

UNITS: Gallons Per Minute

DESIGN ENVELOPE:	<u>ABWR</u>	<u>SYS 80</u>	<u>AP600</u>	<u>SBWR</u>
1. Potable Water/Sanitary Waste	13	20	35*	11
2. Demineralized Water	150	150	75	75
3. Fire Protection	0	0	5*	0

BASIS: The monthly average potable water/sanitary waste water use values are based upon a 35 gallon per day per capita water use assuming an operating plant population. These values are rounded up to the next nearest whole gallon.

The monthly demineralized water use values are based upon the values from the Environmental Reports for six recent nuclear power plants.

The steam generator blowdown and condensate cleanup systems are considered as closed-loop systems and essentially all water in the system is recycled and reused. Therefore there is no use of raw water by these systems.

Fire protection water use due to fighting of fires is not included in monthly average use.

The values marked by an * are vendor supplied values.

PARAMETER QUANTITY SUMMARY

FIRE PROTECTION SYSTEM
Structure, System, Component

PRIMARY
PARAMETER: Raw Water Requirements

SECONDARY
PARAMETER: Stored Water Volume (7.1.4)

DEFINITION: The quantity of water stored in fire protection
system impoundments, basins or tanks.

UNITS: Gallons

DESIGN
ENVELOPE:

BASIS: Vendor Value

PARAMETER QUANTITY SUMMARY

UNIT VENT/AIRBORNE EFFLUENT RELEASE POINT
Structure, System, Component

**PRIMARY
PARAMETER:**

Atmospheric Dispersion (CHI/Q) (accident)
Atmospheric Dispersion (CHI/Q) (annual average)

**SECONDARY
PARAMETER:**

0.5 mile - 0-2 Hr (9.1.1)
2.0 mile - 0-8 Hr (9.1.2)
2.0 mile - 8-24 Hr (9.1.5)
2.0 mile - 1-4 Day (9.1.3)
2.0 mile - 4-30 Day (9.1.4)
Annual Average (9.2)

DEFINITION: The atmospheric dispersion co-efficients used in the safety analysis for the dose consequences of accident and normal airborne releases.

UNITS: Seconds Per Cubic Meter

**DESIGN
ENVELOPE:** 1E-6 (Annual Average)

BASIS: The annual average CHI/Q for System 80⁺ and AP600 was taken from the SSAR for the respective plant.

The determination of annual average CHI/Q is highly site dependent and is the result of significant data collection and reduction. Based upon engineering judgement a value of 1E-6 seconds/M³ is reasonable for preliminary assessments, but confirmation with site-specific information should be performed at ESP application.

The accident CHI/Q values used in the design basis accident analyses for System 80⁺ and AP-600 are taken from the URD. For ABWR, a worst case meteorology is determined that results in design basis accident dose consequences that are less than or equal to the appropriate regulatory guidelines. This approach is discussed in the ABWR SSAR and corresponds to the CHI/Q values identified as "MAX" in the SSAR tables. It should be noted that the values reported in the plant parameter envelope are for LOCA, as reported in ABWR SSAR Table 15.6-14 (Amend 8) for a boundary distance of 800 meters for the 0-2 hr. duration and 3000 meters for the 0-30 day duration. For short term releases, other accidents than LOCA may govern the worst case meteorology.

PARAMETER QUANTITY SUMMARY

UNIT VENT/AIRBORNE EFFLUENT RELEASE POINT
Structure, System, Component

**PRIMARY
PARAMETER:** Containment Leakage Rate (9.3)

**SECONDARY
PARAMETER:** None

DEFINITION: The percent of containment volume leaking from the containment during the first 24 hours following an accident. For BWRs, also includes the leakage from the main steam system.

UNITS: Containment = volume percent per day
BWR main steam = standard cubic feet per minute

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

UNIT VENT/AIRBORNE EFFLUENT RELEASE POINT
Structure, System, Component

**PRIMARY
PARAMETER:** Dose Consequences

**SECONDARY
PARAMETER:** Normal (9.5.1)
Post-Accident (9.5.2)
Severe Accident (9.5.3)

DEFINITION: The radiological dose consequences due to gaseous releases from normal, post-accident and severe accident operation of the plant. The dose consequences address the whole body, skin and critical organs, pathways and limitations established in 10CFR20, 10CFR50 Appendix I and 10CFR100 for normal operations and the accidents defined in NUREG-0800 (Standard Review Plan). The severe accident dose consequences are stated in terms of public risk (i.e. cumulative frequency for event sequences exceeding a particular dose target over a given period of time at a specified distance from the reactor).

UNITS: REM

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

UNIT VENT/AIRBORNE EFFLUENT RELEASE POINT
Structure, System, Component

**PRIMARY
PARAMETER:** Release Point

**SECONDARY
PARAMETER:** Configuration (9.6.1)

DEFINITION: The orientation of the release point discharge
flow, either vertical or horizontal.

UNITS: Dimensionless

**DESIGN
ENVELOPE:**

BASIS: Vendor Value

PARAMETER QUANTITY SUMMARY

UNIT VENT/AIRBORNE EFFLUENT RELEASE POINT
Structure, System, Component

**PRIMARY
PARAMETER:** Release Point

**SECONDARY
PARAMETER:** Elevation (Normal) (9.6.3)
Elevation (Post-Accident) (9.6.4)

DEFINITION: The elevation of the release point above finished grade.

UNITS: Feet

**DESIGN
ENVELOPE:**

BASIS: Vendor Value

PARAMETER QUANTITY SUMMARY

UNIT VENT/AIRBORNE EFFLUENT RELEASE POINT
Structure, System, Component

PRIMARY

PARAMETER: Release Point

SECONDARY

PARAMETER: Minimum Distance To Site Boundary (9.6.6)

DEFINITION: The minimum lateral distance from the release point to the site boundary.

UNITS: Feet

DESIGN

ENVELOPE: 2000 Feet

BASIS:

There is no specific limit for the minimum distance to the site boundary. The offsite dose limit from airborne radionuclides is 5 mrem/yr per reactor from 10CFR50 Appendix I. This is not directly related to the distance to the site boundary but depends on site-specific Chi/Q (atmospheric dispersion factor). Generally, larger distances mean better dispersion. The distance necessary to get adequate dispersion is approximately 2000 ft. to the nearest permanent resident. The inhalation and food ingestion pathways are the important pathways. It is judged to be not realistic to expect resin beads or any significant particulate airborne radioactivity to be blown to the site boundary from a dropped high integrity container (HIC) because the dewatered resin has the consistency of damp sand. The food chain pathway is worst since it may concentrate the radioactivity. Vendor value is provided for ABWR, SYS 80, and AP 600.

PARAMETER QUANTITY SUMMARY

UNIT VENT/AIRBORNE EFFLUENT RELEASE POINT
Structure, System, Component

**PRIMARY
PARAMETER:** Release Point

**SECONDARY
PARAMETER:** Temperature (9.6.7)

DEFINITION: The temperature of the airborne effluent stream at
the release point.

UNITS: Degrees Fahrenheit

**DESIGN
ENVELOPE:**

BASIS: Vendor Value

PARAMETER QUANTITY SUMMARY

UNIT VENT/AIRBORNE EFFLUENT RELEASE POINT
Structure, System, Component

**PRIMARY
PARAMETER:** Release Point

**SECONDARY
PARAMETER:** Volumetric Flow Rate (9.6.8)

DEFINITION: The volumetric flow rate of the airborne effluent stream at the release point.

UNITS: Standard Cubic Feet Per Minute

**DESIGN
ENVELOPE:**

BASIS: Vendor Value

PARAMETER QUANTITY SUMMARY

UNIT VENT/AIRBORNE EFFLUENT RELEASE POINT
Structure, System, Component

PRIMARY

PARAMETER: Source Term

SECONDARY

PARAMETER: Gaseous (Normal) (9.7.1)
Gaseous (Post-Accident) (9.7.2)
Gaseous (Severe Accident) (9.7.3)
Tritium (9.7.4)

DEFINITION: The nuclides and associated annual activity contained in the normal airborne effluent streams. The nuclides and associated activity contained in post-accident airborne effluent.

UNITS: Curies Per Year (Normal, Tritium)
Curies (Post-Accident, Severe Accident)

DESIGN

ENVELOPE: Gaseous (Normal) See Table 1
Gaseous (Post accident) See Table 2
Gaseous (Severe Accident) See Table 3

BASIS: Normal Gaseous Source Term

Limiting values for the source term for the normal gaseous release were determined for the evolutionary plant by comparing Table 12.1-19 (ABWR) and Table 11.3-4 (System 80⁺). For the passive plant, a comparison of Table 11.3-3 (AP600) and Table 12.2-21 (SBWR) was performed. The limiting generic values were determined from comparing the evolutionary and passive plant values.

Design Basis Accident Gaseous Source Term

Limiting values for the design basis accident gaseous release to the environment were determined for the LOCA in a similar fashion as above using ABWR SSAR Table 15.6-10, SBWR Table 15.6-11, AP600 SSAR Table 15.6.5-3, and a System 80⁺ table provided by telecopy, 9/9/92. The limiting generic valves were determined from comparing the evolutionary & passive plant values.

Severe Accident Gaseous Source Term Risk

The following assessment method is a proposed technique for enveloping the radiological effluents due to potential severe accident scenarios.

The assessment of severe accident source terms and dose consequences must recognize the following limitations:

- o The topic is a highly complex, evolving technology subject to change as various studies and rule makings are completed.
- o The assessment of the source terms is dependent upon the work of the vendors.
- o It is not reasonable within the scope and budget of this task to assess the existing ALWR probabilistic risk assessments (PRA) and to complete them in advance of the vendor's own efforts.

The source term risk is a reasonable method for assessing the impact of severe accidents. In this approach, the probability of occurrence for each release class is multiplied times the appropriate release class dose to arrive at the individual release class dose risks.

Summing the release class dose risks for the release classes provides a straightforward method of assessing the risk of severe accident consequences of plant operation.

Calculating the release class dose risk for each release class, permits identification of the most significant contributor to the risk due to plant operation. Then reporting the activity for each isotopic group for this release class shows the source term risk which is most significant to the dose risk due to severe accidents. Implicitly, this addresses the dose conversion factors applicable to each isotope.

Selecting the greatest activity for each isotopic group irrespective of release class yields a conservative, bounding quantification of the radiological effluent risks expected due to severe accidents. However, this method is not recommended because it may not represent any postulated release class.

This process is depicted pictorially in the following steps:

1. Determine Release Class Dose Risk

<u>Release Class</u>	<u>Dose</u>	<u>Probability of Occurrence</u>			<u>Release Class Dose Risk</u>
RC ₁	D ₁	x	P ₁	=	D ₁ P ₁
RC ₂	D ₂	x	P ₂	=	D ₂ P ₂
.	.	.	.	.	.
.	.	.	.	.	.
RC _i	D _i	x	P _i	=	D _i P _i

The total dose risk from severe accidents = $\sum_i D_i P_i$

2. Select Release Class with Maximum Dose Risk

RC_{max} corresponding to (DP)_{max} with probability P_{max}

3. Report the Severe Accident Source Term Risk for RC_{max} as follows:

<u>Release Fraction Per Group_j</u>	<u>Probability of Occurrence</u>	<u>Core Inventory Per Group_j</u>	<u>Severe Accident Source Term Risk (Ci/Yr)</u>
RF ₁	x P _{max}	x A ₁	= RF ₁ P _{max} A ₁
RF ₂	x P _{max}	x A ₂	= RF ₂ P _{max} A ₂
.	.	.	.
.	.	.	.
RF _j	x P _{max}	x A _j	= RF _j P _{max} A _j

As stated in Section 2.4 of NUREG/CR-2239, the predicted consequences of an accidental release of radioactive material are dependent upon four factors: 1) the assumed source term, 2) the meteorological conditions during and following the release, 3) the number of people exposed to the released material, and 4) the effectiveness of population protective measures. The source term is addressed in the previous paragraphs. The meteorological conditions for the ALWR PRAs are stated in URD Volume II/III,

from the reactor; land use and population distribution input to the analysis is not required because the dose is determined at a fixed distance. The effectiveness of population protective measures is not a plant-site interface parameter.

Tritium Source Term
Vendor value

Table 1. Annual Average Normal Gaseous Releases (Ci/yr)

<u>EVOLUTIONARY</u>		<u>PASSIVE</u>		<u>GENERIC</u>	
Nuclide	Total	Nuclide	Total	Nuclide	Total
Kr-83m	8.45E-4	Kr-83m	4.05E-4	Kr-83m	8.45E-4
Kr-85	7.70E+2	Kr-85	2.97E+2	Kr-85	7.70E+2
Kr-85m	2.07E+1	Kr-85m	2.40E+1	Kr-85m	2.40E+1
Kr-87	4.00E+0	Kr-87	1.00E+1	Kr-87	4.00E+0
Kr-88	3.77E+1	Kr-88	3.00E+1	Kr-88	3.77E+1
Kr-89	2.43E+2	Kr-89	5.40E+1	Kr-89	2.43E+2
Kr-90	3.30E-4	Kr-90	1.54E-4	Kr-90	3.30E-4
Xe-131m	1.60E+2	Xe-131m	9.30E+2	Xe-131m	9.30E+2
Xe-133m	1.00E+0	Xe-133m	5.10E+1	Xe-133m	5.10E+1
Xe-133	2.38E+3	Xe-133	2.65E+3	Xe-133	2.65E+3
Xe-135m	3.94E+2	Xe-135m	8.92E+1	Xe-135m	3.94E+2
Xe-135	4.40E+2	Xe-135	2.14E+2	Xe-135	4.40E+2
Xe-137	5.04E+2	Xe-137	1.13E+2	Xe-137	5.04E+2
Xe-138	4.04E+2	Xe-138	9.00E+1	Xe-138	4.04E+2
Xe-139	4.10E-4	Xe-139	1.92E-4	Xe-139	4.10E-4
I-131	2.59E-1	I-131	4.62E-1	I-131	4.62E-1
I-132	2.20E+0	I-132	1.69E+0	I-132	2.20E+0
I-133	1.70E+0	I-133	1.78E+0	I-133	1.78E+0
I-134	3.76E+0	I-134	2.69E+0	I-134	3.76E+0
I-135	2.38E+0	I-135	2.10E+0	I-135	2.38E+0
C-14	9.30E+0	C-14	5.94E+0	C-14	9.30E+0
Na-24	4.00E-3	Na-24	9.19E-2	Na-24	9.19E-2
P-32	9.20E-4	P-32	2.51E-2	P-32	2.51E-2
Ar-41	6.70E+0	Ar-41	5.40E+0	Ar-41	6.70E+0
Cr-51	3.46E-2	Cr-51	8.90E-1	Cr-51	8.90E-1
Mn-54	3.46E-2	Mn-54	6.19E-1	Mn-54	6.19E-1
Fe-55	6.50E-3	Fe-55	1.78E-1	Fe-55	1.78E-1
Mn-56	3.60E-3	Mn-56	5.68E-2	Mn-56	5.68E-2
Co-57	2.40E-6	Co-57	8.20E-6	Co-57	8.20E-6
Co-58	2.34E-3	Co-58	3.29E-2	Co-58	3.29E-2
Fe-59	6.62E-4	Fe-59	5.16E-3	Fe-59	5.16E-3
Co-60	1.08E-2	Co-60	7.49E-2	Co-60	7.48E-2
Ni-63	6.50E-6	Ni-63	1.78E-4	Ni-63	1.78E-4
Cu-64	1.00E-2	Cu-64	2.29E-1	Cu-64	2.29E-1
Zn-65	8.05E-3	Zn-65	3.89E-2	Zn-65	3.89E-2
Rb-89	4.20E-5	Rb-89	2.57E-3	Rb-89	2.57E-3
Sr-89	5.54E-3	Sr-89	1.08E-1	Sr-89	1.08E-1
Sr-90	6.69E-5	Sr-90	8.11E-3	Sr-90	8.11E-3
Y-90	4.60E-5	Y-90	8.11E-3	Y-90	8.11E-3

Table 1 (con't). Annual Average Normal Gaseous Releases
(Ci/yr)

<u>EVOLUTIONARY</u>		<u>PASSIVE</u>		<u>GENERIC</u>	
Nuclide	Total	Nuclide	Total	Nuclide	Total
Sr-91	1.00E-3	Sr-91	1.41E-1	Sr-91	1.41E-1
Y-91	2.40E-4	Y-91	4.32E-2	Y-91	4.32E-2
Sr-92	7.80E-4	Sr-92	8.11E-2	Sr-92	8.11E-2
Y-92	6.10E-4	Y-92	6.76E-2	Y-92	6.76E-2
Y-93	1.10E-3	Y-93	1.51E-1	Y-93	1.51E-1
Zr-95	1.23E-3	Zr-95	9.29E-3	Zr-95	9.29E-3
Nb-95	1.65E-3	Nb-95	1.16E-2	Nb-95	1.16E-2
Mo-99	1.48E-2	Mo-99	6.00E-1	Mo-99	6.00E-1
Tc-99m	3.10E-4	Tc-99m	5.14E-2	Tc-99m	5.14E-2
Ru-103	4.82E-4	Ru-103	2.23E-2	Ru-103	2.23E-2
Rh-103m	1.10E-4	Rh-103m	2.08E-2	Rh-103m	2.08E-2
Ru-106	1.90E-5	Ru-106	3.51E-3	Ru-106	3.51E-3
Rh-106	1.90E-5	Rh-106	3.51E-3	Rh-106	3.51E-3
Ag-110m	6.60E-7	Ag-110m	8.43E-7	Ag-110m	8.43E-7
Sb-124	1.73E-4	Sb-124	7.68E-5	Sb-124	1.73E-4
Sb-125	6.10E-7	Sb-125	6.10E-5	Sb-125	6.10E-5
Te-129m	2.20E-4	Te-129m	4.05E-2	Te-129m	4.05E-2
Te-131m	7.70E-5	Te-131m	1.27E-2	Te-131m	1.27E-2
Te-132	1.90E-5	Te-132	3.24E-3	Te-132	3.24E-3
Cs-134	1.70E-4	Cs-134	3.24E-2	Cs-134	3.24E-2
Cs-136	8.10E-5	Cs-136	1.35E-2	Cs-136	1.35E-2
Cs-137	4.70E-4	Cs-137	8.38E-2	Cs-137	8.38E-2
Cs-138	1.70E-4	Cs-138	1.13E-2	Cs-138	1.13E-2
Ba-140	1.33E-2	Ba-140	3.08E-1	Ba-140	3.08E-1
La-140	1.80E-3	La-140	2.87E-1	La-140	2.87E-1
Ce-141	8.70E-3	Ce-141	3.35E-2	Ce-141	3.35E-2
Ce-144	1.90E-5	Ce-144	3.51E-3	Ce-144	3.51E-3
Pr-144	1.90E-5	Pr-144	3.51E-3	Pr-144	3.51E-3
W-187	1.90E-4	W-187	4.59E-3	W-187	4.59E-3
Np-239	1.20E-2	Np-239	1.94E+0	Np-239	1.94E+0
In-54	2.00E-5			In-54	2.00E-5
Total	5385		4579		

Table 2. Post-Accident Gaseous Release (Ci)

<u>EVOLUTIONARY</u>		<u>PASSIVE</u>		<u>GENERIC</u>	
Nuclide	Total	Nuclide	Total	Nuclide	Total
I-130	-----	I-130	3.1E1	I-130	3.1E1
I-131	2.9E4	I-131	3.5E3	I-131	2.9E4
I-132	4.4E2	I-132	4.4E3	I-132	4.4E3
I-133	2.0E3	I-133	4.8E3	I-133	4.8E3
I-134	5.5E2	I-134	2.8E3	I-134	2.8E3
I-135	9.7E2	I-135	2.8E3	I-135	2.8E3
Kr-83M	3.8E2	Kr-83M	1.6E2	Kr-83M	3.8E2
Kr-85	2.0E5	Kr-85	9.1E4	Kr-85	2.0E5
Kr-85M	1.9E4	Kr-85M	3.4E7	Kr-85M	3.4E7
Kr-87	4.7E3	Kr-87	-----	Kr-87	4.7E3
Kr-88	2.5E4	Kr-88	3.1E3	Kr-88	2.5E4
Kr-89	8.0E2	Kr-89	-----	Kr-89	8.0E2
Xe-131M	5.4E4	Xe-131M	2.2E4	Xe-131M	5.4E4
Xe-133M	8.6E4	Xe-133M	5.1E4	Xe-133M	8.6E4
Xe-133	6.7E6	Xe-133	3.4E6	Xe-133	6.7E6
Xe-135M	6.2E2	Xe-135M	2.0E0	Xe-135M	6.2E2
Xe-135	8.8E4	Xe-135	1.5E4	Xe-135	8.8E4
Xe-137	1.5E3	Xe-137	-----	Xe-137	1.5E3
Xe-138	2.7E3	Xe-138	5.8E0	Xe-138	2.7E3
Sr-89	-----	Sr-89	1.5E2	Sr-89	1.5E2
Sr-90	-----	Sr-90	2.2E1	Sr-90	2.2E1
Ru-103	-----	Ru-103	4.9E1	Ru-103	4.9E1
Ru-106	-----	Ru-106	1.7E1	Ru-106	1.7E1
Te-129M	-----	Te-129M	6.7E1	Te-129M	6.7E1
Te-131M	-----	Te-131M	8.5E1	Te-131M	8.5E1
Te-132	-----	Te-132	9.4E2	Te-132	9.4E2
Cs-134	-----	Cs-134	5.6E2	Cs-134	5.6E2
Cs-136	-----	Cs-136	1.5E2	Cs-136	1.5E2
Cs-137	-----	Cs-137	3.0E3	Cs-137	3.0E3
<hr/>		<hr/>		<hr/>	
Total	7.2E6		3.8E7		

Table 3. Severe Accident Source Term Risk (Ci)

<u>ISOTOPIC GROUPS</u>	<u>EVOLUTIONARY</u>	<u>PASSIVE</u>	<u>GENERIC</u>
Xe-Kr	9.67E1	1.57E-0	9.67E1
Iodine	3.25E0	3.66E-1	3.25E0
Cesium	3.10E1	1.37E-2	3.10E1
Te-Sb	5.02E0	1.18E-4	5.02E0
Ba-Sr	2.64E-2	2.25E-3 ⁽²⁾	2.64E-2
Ru-No	5.11E-2	1.31E-2	5.11E-2
La group	1.15E-4	3.76E-4	3.76E-4
Ce	-----	2.36E-6	2.36E-6

(1) The data in this table is based upon input for System 80⁺ (evolutionary) and AP-600 (passive). The generic column is the limiting value (maximum) from the evolutionary or passive columns. For the ABWR, Case 1 of the risk assessment is the most significant contribution to the risk. The probability of Case 1 is 2.08×10^{-8} per year; the release fractions in terms of core inventory are 1.0 for noble gases, 1.5×10^{-7} for Iodine, 1.3×10^{-5} for Cesium and negligible for the other isotopic groups. Given the core inventory, the source term risk, as defined in this PQS, could be calculated and the evolutionary column adjusted as necessary to report the limiting value between System 80⁺ and ABWR. The necessary data to compute the source term risk for SBWR is not yet available.

(2) AP-600 reported separate values for Ba ($1.98E-3$) and Sr ($2.69E-4$) which have been combined and reported as Ba-Sr in this table.

PARAMETER QUANTITY SUMMARY

LIQUID RADWASTE SYSTEM
Structure, System, Component

PRIMARY
PARAMETER: Dose Consequences

SECONDARY
PARAMETER: Normal (10.1.1)
Post Accident (10.1.2)

DEFINITION: The radiological dose consequences due to liquid releases from normal operation of the plant. The dose consequences address whole body, skin and critical organs, pathways and limitations established in 10CFR20, 10CFR50 Appendix I and 10CFR100 for normal operations and the accidents defined in NUREG-0800 (Standard Review Plan).

UNITS: REM

DESIGN
ENVELOPE:

BASIS: URD Value

The dose consequences offsite due to a liquid radioactive holdup tank failure are not applicable to the ABWR/SBWR plant because the tanks are housed in rooms with stainless steel lines on the floors and extending up the walls to the height necessary to contain the tank contents.

PARAMETER QUANTITY SUMMARY

LIQUID RADWASTE SYSTEM
Structure, System, Component

**PRIMARY
PARAMETER:** Release Point

**SECONDARY
PARAMETER:** Flow Rate (10.2.1)

DEFINITION: The flow rate of potentially radioactive liquid
effluent streams to the receiving waterbody.

UNITS: Gallons Per Minute

**DESIGN
ENVELOPE:**

BASIS: Vendor Value

PARAMETER QUANTITY SUMMARY

LIQUID RADWASTE SYSTEM
Structure, System, Component

**PRIMARY
PARAMETER:** Source Term

**SECONDARY
PARAMETER:** Liquid (10.3.1)

DEFINITION: The nuclides and annual activity contained in the potentially radioactive normal liquid effluent streams.

UNITS: Curies Per Year

**DESIGN
ENVELOPE:** See Table 1

BASIS: Limiting values for the source term were determined for the evolutionary plant by comparing Table 12.2-22 (ABWR) and Table 11.2-1 (System 80⁺). For the passive plant, a megawatt power ratio of ABWR Table 12.2-22 was performed to determine the annual release for the SBWR. Limiting values for the passive plant were determined from comparing this table to Table 11.2-7 (AP600). Next, the limiting generic values were determined from comparing the evolutionary and passive plant values.

Table 1. Annual Average Liquid Releases (Ci/yr)

<u>EVOLUTIONARY</u>		<u>PASSIVE</u>		<u>GENERIC</u>	
Nuclide	Total	Nuclide	Total	Nuclide	Total
Na-24	5.50E-3	Na-24	3.20E-3	Na-24	5.50E-3
P-32	1.80E-4	P-32	1.80E-4	P-32	1.80E-4
Cr-51	6.34E-3	Cr-51	5.20E-3	Cr-51	6.34E-3
Mn-54	4.76E-3	Mn-54	4.00E-3	Mn-54	4.76E-3
Fe-55	7.93E-3	Fe-55	7.40E-3	Fe-55	7.93E-3
Mn-56	7.50E-3	Mn-56	3.80E-3	Mn-56	7.50E-3
Fe-59	2.37E-3	Fe-59	2.20E-3	Fe-59	2.37E-3
Co-58	1.05E-2	Co-58	8.60E-3	Co-58	1.05E-2
Co-60	1.43E-2	Co-60	1.40E-2	Co-60	1.43E-2
Ni-63	1.70E-3	Ni-63	1.70E-3	Ni-63	1.70E-3
Cu-64	1.50E-2	Cu-64	7.60E-3	Cu-64	1.50E-2
Zn-65	3.03E-4	Zn-65	9.20E-5	Zn-65	3.03E-4
Sr-89	1.71E-4	Sr-89	1.10E-4	Sr-89	1.71E-4
Rb-89	8.80E-5	Rb-89	4.50E-5	Rb-89	8.80E-5
Y-90	6.20E-6	Y-90	3.20E-6	Y-90	6.20E-6
Sr-90	2.01E-5	Sr-90	2.00E-5	Sr-90	2.01E-5
Y-91	9.00E-5	Y-91	9.00E-5	Y-91	9.00E-5
Sr-91	1.80E-3	Sr-91	9.20E-4	Sr-91	1.80E-3
Y-92	1.20E-3	Y-92	6.10E-4	Y-92	1.20E-3
Sr-92	1.60E-3	Sr-92	8.20E-4	Sr-92	1.60E-3
Y-93	1.80E-3	Y-93	9.20E-4	Y-93	1.80E-3
Zr-95	1.32E-3	Zr-95	1.20E-3	Zr-95	1.32E-3
Nb-95	2.07E-3	Nb-95	1.90E-3	Nb-95	2.07E-3
Mo-99	1.60E-3	Mo-99	8.20E-4	Mo-99	1.60E-3
Tc-99m	1.60E-3	Tc-99m	8.20E-4	Tc-99m	1.60E-3
Ru-103	4.42E-3	Ru-103	1.40E-3	Ru-103	4.42E-3
Rh-103m	4.09E-3	Rh-103m	1.10E-3	Rh-103m	4.09E-3
Ru-106	6.30E-2	Ru-106	2.20E-2	Ru-106	6.30E-2
Rh-106	5.36E-2	Rh-106	1.30E-2	Rh-106	5.36E-2
Ag-110m	1.98E-3	Ag-110m	1.40E-3	Ag-110m	1.98E-3
Ag-110	1.00E-4	Ag-110	3.00E-5	Ag-110	1.00E-4
Sb-124	4.30E-4	Sb-124	4.30E-4	Sb-124	4.30E-4
Te-129m	1.01E-4	Te-129m	3.00E-5	Te-129m	1.01E-4
Te-129	1.02E-4	Te-129	3.00E-5	Te-129	1.02E-4
Te-131m	1.47E-4	Te-131m	1.40E-4	Te-131m	1.47E-4
Te-131	3.43E-5	Te-131	3.00E-5	Te-131	3.43E-5
I-131	1.95E-2	I-131	3.30E-2	I-131	3.30E-2
Te-132	4.19E-4	Te-132	2.00E-4	Te-132	4.19E-4

Table 1 (con't). Annual Average Liquid Releases (Ci/yr)

<u>EVOLUTIONARY</u>		<u>PASSIVE</u>		<u>GENERIC</u>	
Nuclide	Total	Nuclide	Total	Nuclide	Total
I-132	5.10E-3	I-132	2.60E-3	I-132	5.10E-3
I-133	2.00E-2	I-133	2.00E-2	I-133	2.00E-2
I-134	3.40E-3	I-134	1.70E-2	I-134	1.70E-2
Cs-134	1.65E-2	Cs-134	2.70E-2	Cs-134	2.70E-2
I-135	1.50E-2	I-135	1.50E-2	I-135	1.50E-2
Cs-136	8.07E-4	Cs-136	1.50E-3	Cs-136	1.50E-3
Cs-137	2.33E-2	Cs-137	3.70E-2	Cs-137	3.70E-2
Ba-137m	6.79E-3	Ba-137m	1.90E-2	Ba-137m	1.90E-2
Cs-138	3.70E-4	Cs-138	1.90E-4	Cs-138	3.70E-4
Ba-140	6.86E-3	Ba-140	2.70E-3	Ba-140	6.86E-3
La-140	8.24E-3	La-140	2.80E-3	La-140	8.24E-3
Ce-141	3.11E-4	Ce-141	2.50E-4	Ce-141	3.11E-4
Ce-143	3.13E-4	Ce-143	2.70E-4	Ce-143	3.13E-4
Pr-143	1.10E-4	Pr-143	1.30E-6	Pr-143	1.10E-4
Ce-144	6.24E-3	Ce-144	4.50E-3	Ce-144	6.24E-3
Pr-144	2.32E-3	Pr-144	5.80E-4	Pr-144	2.32E-3
W-187	1.90E-4	W-187	2.20E-4	W-187	2.20E-4
Np-239	6.20E-3	Np-239	3.20E-3	Np-239	6.20E-3
		Y-91m	3.00E-5	Y-91m	3.00E-5
Total			2.93E-1		
	3.60E-1				

PARAMETER QUANTITY SUMMARY

LIQUID RADWASTE SYSTEM
Structure, System, Component

**PRIMARY
PARAMETER:** Source Term

**SECONDARY
PARAMETER:** Tritium (10.3.2)

DEFINITION: The annual activity of tritium contained in the
liquid effluent streams.

UNITS: Curies Per Year

**DESIGN
ENVELOPE:**

BASIS: Vendor Value

PARAMETER QUANTITY SUMMARY

SOLID RADWASTE SYSTEM
Structure, System, Component

**PRIMARY
PARAMETER:** Acreage

**SECONDARY
PARAMETER:** Low Level Radwaste Storage (12.1.1)

DEFINITION: The land usage required to provide onsite storage
of low level radioactive wastes.

UNITS: Acres

**DESIGN
ENVELOPE:** 1/3 Acre

BASIS: The 1/3 acre is the estimated land usage required
for a 5-year storage capacity for a BWR. PWRs
typically generate approximately one half as much
volume of low level radwaste as a BWR. The
radwaste generation rate varies greatly from plant
to plant depending on plant chemistry and
cleanliness and is generally independent of plant
size. The land usage is based upon a stacked
arrangement of 24 High Integrity Container (HIC)
casks and 96 vaults for low level resin and
compacted dry active wastes. A typical
arrangement is shown on the attached figure. The
estimated acreage includes a truck pad, unloading
area and fence around the perimeter of the storage
area. The 5 year storage capacity is the maximum
allowed by the NRC under Generic Letter 81-38.

Vendor value is provided for ABWR & AP600.

PARAMETER QUANTITY SUMMARY

SOLID RADWASTE SYSTEM
Structure, System, Component

**PRIMARY
PARAMETER:** Solid Radwaste

**SECONDARY
PARAMETER:** Activity (12.2.1)
Principal Radionuclides (12.2.2)

DEFINITION: The principal radionuclides contained in the solid radwaste generated by the standard plant and the estimated yearly curies discharged.

UNITS: Curies per year

**DESIGN
ENVELOPE:** See Attached Table
"Principal Radionuclides in Solid Radwaste"

BASIS: Actual data from 1990 and 1991 Semi-Annual Effluent and Waste Disposal Reports on solid radwaste shipped for burial for four plants were used.

The isotopes include activation products, fission products and transuranics. The presence of the transuranics indicates a certain amount of failed fuel. The isotopes present are largely independent of the type of reactor but the concentrations differ. PWRs have more tritium due to the use of boric acid. PWRs have more Co-58 due to the inconel in the steam generator tubes. BWRs have more Zn-65 due to admiralty metal in the condenser tubes. (Newer plants use stainless steel or titanium condenser tubes, so Zn-65 may be eliminated.) Ag-110m comes from PWRs with Ag-In-Cd rods as well as from fission products. Therefore, newer PWRs with Hf rods will have less Ag-110m.

Principal Radionuclides in Solid Radwaste

	BWR (Ci/yr)	PWR (Ci/yr)
Fe-55	1761.37	311.488
Fe-59	0.0819	--
Co-60	395.52	287.256
Mn-54	347.22	22.428
Cr-51	97.138	0.29151
Co-58	--	62.289
Ni-63	--	316.386
H-3	--	1.6057
C-14	--	0.285
Nb-95	--	0.3233
Ag-110m	--	0.04605
Zr-95	--	0.07163
Ba-140	--	0.08725
Pu-241	--	0.114027
La-140	--	0.04011
OTHER	<u>72.858</u>	<u>29.982</u>
TOTAL	2700	1100
(rounded to the nearest hundred)		

PARAMETER QUANTITY SUMMARY

SOLID RADWASTE SYSTEM
Structure, System, Component

**PRIMARY
PARAMETER:** Solid Radwaste

**SECONDARY
PARAMETER:** Volume (12.2.3)

DEFINITION: The expected annual volume of solid radwaste
generated by the standard plant.

UNITS: Cubic Feet Per Year

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

SPENT FUEL STORAGE
Structure, System, Component

**PRIMARY
PARAMETER:** Spent Fuel Dry Storage

**SECONDARY
PARAMETER:** Acreage (18.3.1)

DEFINITION: The land usage required to provide onsite dry storage of spent fuel for the expected plant lifetime, including the fenced off area necessary to provide an acceptable radiation zone.

UNITS: Acres

**DESIGN
ENVELOPE:** 15 Acres.

BASIS: The land usage is scaled up linearly from 84 casks to 90 casks from the requirements for a previous Independent Spent Fuel Storage Installation (ISFSI) using dry cask storage with 21 assemblies/cask, 3.5% enrichment, 35,000 MWD/MTU, and 5 years decay. 95 casks is the estimated number of casks for 60 years of onsite storage (33 assemblies off load per year x 60 years + 21 assemblies per cask. Any damaged assemblies are assumed to be left in the spent fuel pool. The projected dose rates at the fence line are appreciable (about 15 mrem/hr) and so the use of the surrounding land must be restricted. The same land usage is expected for the range of existing cask designs. Vendor value is provided for SYS 80 and SBWR.

PARAMETER QUANTITY SUMMARY

SPENT FUEL STORAGE
Structure, System, Component

**PRIMARY
PARAMETER:**

Spent Fuel Dry Storage

**SECONDARY
PARAMETER:**

Minimum Distance to Nearest Residence (18.3.2)

DEFINITION:

The minimum distance from the spent fuel dry storage facility to the nearest residence to ensure that radiation exposures meet 10CFR72 limitations.

UNITS:

Feet

**DESIGN
ENVELOPE:**

3500 feet

BASIS:

To meet the 10CFR72 dose limit of 1 mrem/yr to the nearest permanent resident, the distance must be large due to the high contact dose rates and the large skyshine component to the off-site doses. The contact dose rate on the dry casks is about 100 mrem/hr neutron and 20 mrem/hr gamma. The ventilation slots for the horizontal concrete modules result in a dose rate of about 200 mrem/hr neutron. (The gamma dose rate is negligible in comparison.) Additional shielding on the dry casks would make them too heavy for crane lifts. Reducing the number of assemblies per cask would make them uneconomical. Therefore a shielded building with a natural draft vent might be needed for dry casks on a small site. The horizontal concrete modules could be used on a small site if a double labyrinth is installed at each of the 4 air slots without adversely affecting the natural draft effect. These limits are essentially independent of the type or size of the plant.

PARAMETER QUANTITY SUMMARY

SPENT FUEL STORAGE
Structure, System, Component

**PRIMARY
PARAMETER:**

Spent Fuel Dry Storage

**SECONDARY
PARAMETER:**

Minimum Distance To Power Block (18.3.3)

DEFINITION:

The minimum distance from spent fuel dry storage facility to the power block necessary to ensure that occupational radiation exposures meet 10CFR20 limitations.

UNITS:

Feet

**DESIGN
ENVELOPE:**

1500 to 2200 ft.

BASIS:

The new 10CFR20 presently scheduled to take effect on 1/1/93, paragraphs 1502 (a) (1) and 1201 (a) (1) (i), limits the dose to unmonitored personnel on site to 500 mrem/yr. This limit is more than 4 times the natural background and is not considered ALARA. The 500 mrem/yr would be reached at about 1500 ft for a 95 cask storage facility. The dose rate drops to about 100 mrem/yr at 2200 ft, which the NRC has previously considered acceptable with regard to ALARA, even though it means doubling of the background dose to personnel.

The allowable distance to the power block will depend on the number of casks, the decay time, the fuel burnup of the assemblies, the number of assemblies per cask, and the shielding of the cask or concrete module. These values are based on a previous ISFSI with 84 GNSI CASTOR V casks, 21 assemblies per cask with 3.5% enrichment and 35,000 MWd/MTU for each assembly, total fuel stored of 811.5 MTU and 5 years minimum decay for the newest assemblies. A margin has been included in these values to address designs with varying decay times or cask shielding/capacity details.

Vendor value is provided for SBWR.

PARAMETER QUANTITY SUMMARY

SPENT FUEL STORAGE
Structure, System, Component

**PRIMARY
PARAMETER:** Spent Fuel Dry Storage

**SECONDARY
PARAMETER:** Storage Capacity (18.3.4)

DEFINITION: The years of operation for which spent fuel dry storage should be provided without taking credit for capacity in the spent fuel pool.

UNITS: Years

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

AUXILIARY BOILER SYSTEM
STANDBY POWER SYSTEM
Structure, System, Component

PRIMARY
PARAMETER: Flue Gas Effluents (21.2, 26.3, 26.8)

SECONDARY
PARAMETER: None

DEFINITION: The expected combustion products and anticipated quantities released to the environment due to operation of the auxiliary boilers, diesel engines and gas turbines.

UNITS: Pounds per year

DESIGN
ENVELOPE: See Tables 1 - 4

BASIS: Auxiliary Boiler

The flue gas effluents for auxiliary boilers are based on 30 days of operation per year. The effluent quantities are derived from data in Table D5 of the Air Pollution Engineering Manual, US HEW 1967, and External Combustion Boilers - Industrial data taken from page 23 of Airs Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants (EPA). The effluents for the auxiliary boilers are summarized in Table 1.

An example assessment for particulates is as follows:

$$200 \times 10^6 \frac{\text{BTU}}{\text{HR}} \times 30 \text{ DAYS} \times 24 \frac{\text{HR}}{\text{DAY}} \times \frac{1}{1.36 \times 10^5 \text{ BTU/HR}}$$
$$\times \frac{2 \text{ LB PARTICULATE}}{10^3 \text{ GAL}} \approx 2100 \text{ LB}$$

Standby Power System Diesel Generators

For purposes of enveloping the flue gas effluents, the evolutionary plant diesels were assumed to have a total capacity of 15,000 KW and passive

plant diesels were assumed to have a total capacity of 8,000 KW.

The standby diesel generators provide an alternate source of electric power to shutdown the reactor and to maintain the reactor in a safe shutdown condition during loss of power. The generators operate only under emergency conditions or when tested.

Tables 2 and 3 provide flue gas effluents from the diesel generators for the evolutionary and passive plants assuming a monthly run time of 4 hours.

The following is an example assessment of the particulate effluents in the flue gas based upon Table 3.4-1 from Supplement D to Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources (AP-42).

$$15000 \text{ KW} \times \frac{4 \text{ HR}}{\text{MO}} \times \frac{12 \text{ MO}}{\text{YR}} \times \frac{1.5 \text{ g Particulate}}{\text{KW-HR}} \times \frac{1 \text{ LB}}{453 \text{ g}} \\ \approx 2400 \text{ LB}$$

Gas Turbines

Gas turbine flue gas effluents are listed in Table 4.

The data is based upon the physical properties of fuel oils given in Table D5 of Air Pollution Engineering Manual and the emissions information for internal combustion engines for electric generation burning distillate oil (diesel) with a turbine application as opposed to reciprocating (page 31 of EPA document). The heat rate is based upon a GE LM 1600 gas turbine.

The following is an example assessment of the particulate effluents in the flue gas from the gas turbine system:

$$13,000 \text{ KW} \times \frac{4 \text{ HR}}{\text{MO}} \times \frac{12 \text{ MO}}{\text{YR}} \times \frac{9565 \text{ BTU}}{\text{KW HR}} \times \frac{1}{1.36 \times 10^5 \frac{\text{BTU}}{\text{GAL}}} \\ \times \frac{5 \text{ LB Particulate}}{10^5 \text{ GAL}} \approx 200 \text{ LBS}$$

The values in the tables are rounded to the nearest 100 pounds.

TABLE 1. YEARLY EMISSIONS FROM AUXILIARY BOILERS

<u>POLLUTANT DISCHARGED</u>	<u>ABWR/ SBWR</u>	<u>QUANTITY (LB)</u>	
		<u>SYSTEM 80⁺</u>	<u>AP600</u>
PARTICULATES	2,100	1,500	1,700
SULFUR OXIDES	152,200	104,300	118,700
CARBON MONOXIDE	5,300	3,600	4,100
HYDROCARBONS	200	100	200
NITROGEN OXIDES	21,200	14,500	16,500

TABLE 2. YEARLY EMISSIONS FROM 15,000 KW STANDBY DIESEL GENERATOR CAPACITY

<u>POLLUTANT DISCHARGED</u>	<u>QUANTITY (LB)</u>
PARTICULATES	2,400
SULFUR OXIDES	2,700
CARBON MONOXIDE	6,200
HYDROCARBONS	700
NITROGEN OXIDES	23,800

TABLE 3. YEARLY EMISSIONS FROM 8,000 KW STANDBY DIESEL GENERATOR CAPACITY

<u>POLLUTANT DISCHARGED</u>	<u>QUANTITY (LB)</u>
PARTICULATES	1,300
SULFUR OXIDES	1,400
CARBON MONOXIDE	3,300
HYDROCARBONS	400
NITROGEN OXIDES	12,700

TABLE 4. YEARLY EMISSIONS FROM 13,000 KW GAS TURBINE GENERATOR
CAPACITY

<u>POLLUTANT DISCHARGED</u>	<u>QUANTITY (LB)</u>
PARTICULATES	200
SULFUR OXIDES	6,100
CARBON MONOXIDE	700
HYDROCARBONS	200
NITROGEN OXIDES	3,000

PARAMETER QUANTITY SUMMARY

AUXILIARY BOILER SYSTEM
STANDBY POWER SYSTEM
Structure, System, Component

**PRIMARY
PARAMETER:** Fuel

**SECONDARY
PARAMETER:** Type (21.3.2, 26.4.2, 26.9.2)

DEFINITION: The type of fuel oil required for proper operation of the auxiliary boilers, diesel engines and gas turbines.

UNITS: Dimensionless

**DESIGN
ENVELOPE:** No. 2 fuel oil for auxiliary boilers and diesel engines, distillate for gas turbines.

BASIS: The fuel type for standby power diesel engines is an ALWR vendor value.

No. 2 fuel oil is a commonly used fuel for auxiliary boilers and diesel engines.

General Electric performance data for gas turbines lists distillate as an acceptable fuel for the turbines.

The above selections are generally recommended by the diesel/boiler vendors and are economic choices.

PARAMETER QUANTITY SUMMARY

AUXILIARY BOILER SYSTEM
Structure, System, Component

PRIMARY
PARAMETER: Heat Input Rate (BTU/HR) (21.4)

SECONDARY
PARAMETER: None

DEFINITION: The average heat input rate due to the periodic
operation of the auxiliary boilers.

UNITS: British Thermal Units (BTU) Per Hour

DESIGN
ENVELOPE: 200 x 10⁶ (For ABWR & SBWR)
137 x 10⁶ (For SYS 80)
156 x 10⁶ (For AP 600)

BASIS: The above values are converted from data provided
by the Vendors.

PARAMETER QUANTITY SUMMARY

HVAC SYSTEMS
Structure, System, Component

**PRIMARY
PARAMETER:** Ambient Air Requirements

**SECONDARY
PARAMETER:** Non-safety HVAC Max. Ambient Temp.
(14 exceed) (24.1.2)
Non-safety HVAC Min. Ambient Temp.
(14 exceed) (24.1.3)

DEFINITION: The maximum and minimum ambient temperatures for design of non safety-related HVAC systems based upon 14 exceedance values. The maximum conditions to be stated in terms of dry bulb and coincident wet bulb temperatures.

UNITS: Degrees Fahrenheit

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

HVAC SYSTEMS
Structure, System, Component

**PRIMARY
PARAMETER:** Ambient Air Requirements

**SECONDARY
PARAMETER:** Safety HVAC Max. Ambient Temp. (0% exceed) (24.1.4)
Safety HVAC Min. Ambient Temp. (0% exceed) (24.1.5)

DEFINITION: The maximum and minimum ambient temperatures for design of safety-related HVAC systems based upon 0% exceedance values. The maximum conditions to be stated in terms of dry bulb and coincident wet bulb temperatures.

UNITS: Degrees Fahrenheit

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

HVAC SYSTEMS
Structure, System, Component

**PRIMARY
PARAMETER:** Ambient Air Requirements

**SECONDARY
PARAMETER:** Vent System Max. Ambient Temp. (5% exceed) (24.1.6)
Vent System Min. Ambient Temp. (5% exceed) (24.1.7)

DEFINITION: The maximum and minimum ambient temperature for
design of ventilation systems (no air conditioning)
based upon 5% exceedance values.

UNITS: Degrees Fahrenheit

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

ONSITE/OFFSITE ELECTRICAL POWER SYSTEM
Structure, System, Component

**PRIMARY
PARAMETER:** Acreage

**SECONDARY
PARAMETER:** Switchyard (25.1.1)

DEFINITION: The land usage required for the high voltage
switchyard to support a single standard plant of
600MWe or 1300MWe, assuming a 500 KV switchyard.

UNITS: Acres

**DESIGN
ENVELOPE:** 12 Acres

BASIS:

- o One Switchyard electrical connection between the plant main generator step up transformers (Passive Plant URD 3.3.1, Rev. 0; Evolutionary plant URD 3.3.1, Rev. 0).
- o One Additional offsite electrical connection to Reserve Transformer (Evolutionary URD 3.3.2, Rev. 0) or one additional offsite electrical connection from Switchyard or other unit to plant (Passive URD Figures 11.2-5, Rev. 3, 11.2-5, Rev. 3, 11.2-6, Rev. 3). Will assume a single connection to the 500KV Switchyard.
- o Will assume 500 KV Switchyard with 3 Transmission lines (The site specific voltage level and number of transmission lines will require system study of the electrical grid and system loads). Two lines would be minimum; the third line is assumed for conservatism.

- o To envelope URD 3.3.6, Rev. 0 for an evolutionary plant and URD 3.3.3, Rev. 0 requirements for a passive plant, the length of 500kV switchyard (SWYD) will be 770' which allows room for three 500kV breakers (breaker-and-a-half arrangement) and room for two buses and two take-off towers. A width of 650' will be adequate for three bays with 200' center-to-center spacing plus space for the control house and vehicular access. Three bays are assumed based on five connections to the yard with one spare position. Area for main and auxiliary transformers is addressed elsewhere.
- o Overall Switchyard Area
 - = 770 feet(L) * 650 feet(W')
 - = 5.005×10^5 feet²
- o Enveloping Acreage
 - = $(5.005 \times 10^5 \text{ feet}^2) * (2.296 \times 10^{-3} \text{ Acres/feet}^2)$
 - = 11.49 Acres
 - Use 12 Acres

PARAMETER QUANTITY SUMMARY

ONSITE/OFFSITE ELECTRICAL POWER SYSTEM
Structure, System, Component

**PRIMARY
PARAMETER:** Duty Cycles (25.3)

**SECONDARY
PARAMETER:** None

DEFINITION: The design number of peak-to-peak swings per day
of operation to permit utilization of the
frequency control capability throughout the
operating life of the plant.

UNITS: Cycles per day

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

STANDBY POWER SYSTEM
Structure, System, Component

PRIMARY

PARAMETER: Diesel Capacity (26.1)
Gas-Turbine Capacity (26.6)

SECONDARY

PARAMETER: None

DEFINITION: The capacity of diesel engines and gas-turbines
used for generation of standby electrical power or
direct drive of plant components.

UNITS: Kilowatts (KW)

**DESIGN
ENVELOPE:**

BASIS: Vendor Value

PARAMETER QUANTITY SUMMARY

STANDBY POWER SYSTEM
Structure, System, Component

**PRIMARY
PARAMETER:** Fuel

**SECONDARY
PARAMETER:** Resupply Time (26.4.1)

DEFINITION: The time between order and delivery of fuel oil necessary to ensure continued operation of the systems as required in the safety analysis.

UNITS: Days

**DESIGN
ENVELOPE:**

BASIS: Vendor Value

PARAMETER QUANTITY SUMMARY

STANDBY POWER SYSTEM
Structure, System, Component

PRIMARY

PARAMETER: Diesel Noise (26.5)
Gas-Turbine Noise (26.10)

SECONDARY

PARAMETER: None

DEFINITION: The maximum expected sound level produced by
operation of diesel engines or gas turbines.

UNITS: Decibels

DESIGN

ENVELOPE: 55 dBA @ 1,000 feet

BASIS:

The power plants designs include features that minimize noise impact at the site boundary. Major equipment such as turbines, pumps, compressors, blowers, fans and emergency diesel generators are located inside of enclosures with concrete sides. The emergency generators have mufflers on the exhaust and are operated very infrequently. Therefore, the sound levels resulting from the operation of the diesel engines or gas turbines is not expected to exceed 55 dBA @ 1,000 feet.

PARAMETER QUANTITY SUMMARY

PLANT CHARACTERISTICS
Structure, System, Component

**PRIMARY
PARAMETER:** Access Routes

**SECONDARY
PARAMETER:** Heavy Haul Routes (28.1.3)

DEFINITION: The land usage required for permanent heavy haul routes to facilitate normal operations and refueling.

UNITS: Acres

**DESIGN
ENVELOPE:** 7 Acres

BASIS: It is assumed that the site will be served by one two-lane access road and one railroad spur. The length of these routes is assumed to be 0.5 miles (distance from center of reactor to site boundary).

Typical Plant Road Width

12 Feet	Of pavement for each lane (standard)
2-6 Feet	Each side of pavement for shoulders
<u>12-16 Feet</u>	Each side of road for grading to existing grade
60 Feet	Total Width

Typical Railroad Width

12 Feet	Either side of rail center line for railroad bed
13 Feet	Either side of railroad bed for grading to existing grade
<u>50 Feet</u>	Total Width

Disturbed Acreage

110 FT x 2,640 Ft $\approx$ 7 Acres
43,560 Ft²/Acre

PARAMETER QUANTITY SUMMARY

PLANT CHARACTERISTICS
Structure, System, Component

**PRIMARY
PARAMETER:** Access Routes

**SECONDARY
PARAMETER:** Spent Fuel Cask Weight (28.1.5)

DEFINITION: The weight of the heaviest expected shipment during normal plant operations and refueling.

UNITS: Tons

**DESIGN
ENVELOPE:**

BASIS: Vendor value - The spent fuel cask weight for System 80⁺ and AP600 were provided directly by the vendors. The spent fuel cask weight of 150 tons for the ABWR design is based upon the maximum capacity of the Reactor Building crane (SSAR 9.1.5.2.1). It is assumed that the SBWR spent fuel cask weight is the same as the ABWR cask weight.

PARAMETER QUANTITY SUMMARY

PLANT CHARACTERISTICS
Structure, System, Component

**PRIMARY
PARAMETER:** Acreage

**SECONDARY
PARAMETER:** Office Facilities (28.2.1)
 Parking Lots (28.2.2)
 Permanent Support Facilities (28.2.3)
 Power Block (28.2.4)
 Protected Area (28.2.5)

DEFINITION: The land usage required to support operation of
 the plant. The power block acreage is defined as
 the footprint of the principal plant structures
 (i.e. Containment/Reactor Building, Control
 Building, Fuel Building, Turbine Building and
 Auxiliary Building). The protected area acreage
 is the land contained within the plant's security
 barrier perimeter including the isolation zone.

UNITS: Acres

**DESIGN
ENVELOPE:**

BASIS: Vendor Value - For ABWR, SBWR and System 80⁺, the
 acreages were determined by dimensions taken from
 the reference plant site plan drawings.

PARAMETER QUANTITY SUMMARY

PLANT CHARACTERISTICS
Structure, System, Component

**PRIMARY
PARAMETER:** Megawatts - Thermal (28.4)

**SECONDARY
PARAMETER:** None

DEFINITION: The thermal power generated by the standard plant.

UNITS: Megawatts - Thermal

**DESIGN
ENVELOPE:**

BASIS: Vendor Value

PARAMETER QUANTITY SUMMARY

PLANT CHARACTERISTICS
Structure, System, Component

**PRIMARY
PARAMETER:** Plant Design Life (28.5)

**SECONDARY
PARAMETER:** None

DEFINITION: The design plant life for the standard plant

UNITS: Years

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

CONSTRUCTION
PLANT CHARACTERISTICS
Structure, System, Component

PRIMARY
PARAMETER: Plant Population

SECONDARY
PARAMETER: Operation (28.6.1)
Refueling (28.6.2)
Construction (29.4.1)

DEFINITION: The number of people required to construct,
operate and maintain the plant.

UNITS: Persons

DESIGN ENVELOPE:	ABWR	<u>SYS 80</u>	<u>AP600</u>	<u>SBWR</u>
Operation	531	795	500	438
Refueling	781	875/955	1000	688
Construction	3150	2600/6410	1250	1800

BASIS: Vendor Value

PARAMETER QUANTITY SUMMARY

PLANT CHARACTERISTICS
Structure, System, Component

**PRIMARY
PARAMETER:** Station Production Availability Factor (28.9)

**SECONDARY
PARAMETER:** None

DEFINITION: The percentage of time that a plant is capable of
providing power to the grid.

UNITS: Percent

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

CONSTRUCTION
Structure, System, Component

**PRIMARY
PARAMETER:** Access Routes

**SECONDARY
PARAMETER:** Construction Module Dimensions (29.1.1)

DEFINITION: The maximum expected length, width, and height of construction modules and delivery vehicles to be transported to the site over neighboring roads, rail lines or waterways.

UNITS: Feet

**DESIGN
ENVELOPE:**

BASIS: Vendor Value

These dimensions are based upon the largest nuclear steam supply system component to be shipped to the site. It should be noted that modules with alternative dimensions may be erected at locations remote from the site depending upon the capacity of existing or planned access routes to the site.

PARAMETER QUANTITY SUMMARY

CONSTRUCTION
Structure, System, Component

**PRIMARY
PARAMETER:** Access Routes

**SECONDARY
PARAMETER:** Heaviest Construction Shipment (29.1.2)

DEFINITION: The maximum expected weight of a construction shipment to the site using neighboring roads, rail lines, or waterways.

UNITS: Tons

**DESIGN
ENVELOPE:**

BASIS: Vendor Value

For SYSTEM 80+, AP600 and SBWR, the weight is based upon a vendor supplied value. For ABWR, the weight of the reactor vessel was assumed to be the same as for the Grand Gulf vessel, a recent vintage large BWR.

PARAMETER QUANTITY SUMMARY

CONSTRUCTION
Structure, System, Component

**PRIMARY
PARAMETER:** **Acreage**

**SECONDARY
PARAMETER:** **Laydown Area (29.2.1)**
 Temporary Construction Facilities (29.2.2)

DEFINITION: The land usage required during construction. Laydown Area addresses the land required for storage of components and staging of site fabrication activities including any area required for large module assembly and special crane erection and movement. Temporary construction facilities addresses the area for trailers/ temporary offices, warehouses, fabrication shops, receiving facilities, roadways, borrow and fill areas, barge slips, and concrete batch plant.

UNITS: **Acres**

DESIGN ENVELOPE:	1300 MWe	600 MWe
Laydown Area	29	17
Temporary Construction Facilities	52	31

BASIS: Laydown Area for 600 MWe plant construction was estimated as shown on markup of SBWR Reference Site Plan attached to Fax from M. P. Lagache dated 6/24/92. For the 1300 MWe plant, Laydown Area was increased by a factor of 1.7 which is the ratio of the ABWR/SBWR powerblock acreages. The ABWR and SBWR acreage envelope the SYS 80' and AP600 values.

Temporary Construction Facilities were estimated from construction guidelines utilized for past and present construction planning. The following table provides the basis for the estimated acreage.

	<u>1300 MWe</u>	<u>600 MWe</u>
Peak Construction Personnel (Par.29.4.1)	6,500	3,000
Office Space (ft ²) based on 50ft ² /person	325,000	150,000
Warehouse (ft ²)	43,200	34,000
Fabrication Shops Space (ft ²)	16,600	16,600
Number of Cars	5,000	2,310
Parking Lot Space (ft ²) based on 250ft ² /car	1,250,000	77,500
Total ft ² for above	1,634,800	778,700
Total Acreage for above	38	18
Acreage for Barge Slip, Roadways borrow and fill areas	11	11
Concrete Batch Plant Acreage	3	2
Total Acreage for Temporary Construction Facilities	52	31

PARAMETER QUANTITY SUMMARY

Construction
Structure, System, Component

**PRIMARY
PARAMETER:** Construction

**SECONDARY
PARAMETER:** Construction Worker Radiation Exposure (29.3.2)

DEFINITION: The estimated man-rem exposure to construction workers due to the operation of an adjacent plant(s) during the construction phase of subsequent units on the same site.

UNITS: Man-Rem

**DESIGN
ENVELOPE:** 0

BASIS: The scope of the present effort is limited to the construction of a single unit on a previously undeveloped site.

PARAMETER QUANTITY SUMMARY

CONSTRUCTION
Structure, System, Component

**PRIMARY
PARAMETER:** Construction

**SECONDARY
PARAMETER:** Noise (29.3.6)

DEFINITION: The maximum expected sound level due to construction activities.

UNITS: Decibels

**DESIGN
ENVELOPE:** 76 - 101 dBA at 50 feet
See attached table for typical noise levels associated with heavy construction equipment.

BASIS: The maximum expected sound levels due to construction are typically considered a constraint only at the site boundary and/or nearest resident or other off-site sensitive receptor location. Thus, these levels are a function of the site buffer (distance from the construction activity to site boundary or off-site receptor) and the activities themselves. Information regarding the amount of equipment in simultaneous use is a function of the size and type of facility construction schedule, and site characteristics. Examples of state/local sound level constraints off-site are described below:

a. New Jersey Department of Environmental Protection (NJDEPE)

Max. Permitted Noise Level (measured at inhabited residential land uses)

Day (7:00 am to 10:00 pm) - 65 dBa

Night (10:00 pm to 7:00 am) - 50 dBa

b. Logan Township, NJ Municipal Ordinance
Section d. Noise (pages VIII-23,24)

All residential districts - 55 dBa

All other districts - 65 dBa

c. Noise Regulations of State of Delaware
(Del. C. Chapter 71, Section 7105)

Operation of tools or equipment used in construction, drilling and demolition between the hours of 10:00 pm and 7:00 am which create noise disturbance in residential areas or exceed 85 dBa for more than one hour are not allowed.

Residential Area (Class A) - 65 dBa (day), 55 dBa (night). Slightly higher levels are allowed for commercial and industrial receptor areas.

Impulse Noise Levels - 80 dBa (Class A), 100 dBa elsewhere

MAXIMUM NOISE LEVELS FOR CONSTRUCTION EQUIPMENT

<u>Equipment</u>	<u>Maximum A-Level at 50 Feet, dB</u>
Air Compressor	81
Backhoe	85
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Derrick Crane	88
Mobile Crane	83
Dozer	87
Generator	78
Grader	85
Jackhammer	88
Loader	84
Paver	89
Piledriver	101
Pneumatic Tool	85
Pump	76
Roller	80
Saw	78
Scraper	88
Shovel	82
Truck	88

Source: "Power Plant Construction Noise Guide,"
ESEERCO, May 1977

PARAMETER QUANTITY SUMMARY

CONSTRUCTION
Structure, System, Component

**PRIMARY
PARAMETER:** Construction

**SECONDARY
PARAMETER:** Water Use (29.3.12)

DEFINITION: The expected rate of use of raw water to support construction activities, including potable water for construction workers, water for operation of concrete batch plant, and other incidental uses.

UNITS: Gallons per minute

**DESIGN
ENVELOPE:**

	<u>ABWR</u>	<u>System 80⁺</u>	<u>AP600</u>	<u>SBWR</u>
Construction Workers	77	64/156	31	44
Batch Plant	6	6	3	3
Total	83	70/162	34	47

BASIS: The construction water use is based upon the potable water demand for construction personnel plus an estimate of sustained potable water demand for operation of the concrete batch plant.

The potable water demand for construction personnel is equal to the number of construction workers multiplied by 35 gallons per day.

The potable water demand for the concrete batch plant is based upon the sustained concrete placement rate for two recent plants of approximately the same size as the evolutionary plant. The average monthly placement of concrete is approximately 3700-4100 cubic yards per month. A cubic yard of 4000PSI concrete requires 42 gallons of water. This results in a monthly water demand of 155,000 to 172,000 gallons of potable water. Assuming two 10-hour shifts per day and a six day work week, the potable water demand is approximately 6gpm. The passive plant batch plant requirements are assumed to be half of the evolutionary plant requirements.

PARAMETER QUANTITY SUMMARY

CONSTRUCTION
Structure, System, Component

**PRIMARY
PARAMETER:** Preparation Duration (29.5)

**SECONDARY
PARAMETER:** None

DEFINITION: The allowance in the ALWR construction schedule scenario to address site preparation.

UNITS: Months

**DESIGN
ENVELOPE:**

BASIS: URD Value

PARAMETER QUANTITY SUMMARY

Construction
Structure, System, Component

**PRIMARY
PARAMETER:** Site Construction Duration (29.6)

**SECONDARY
PARAMETER:** None

DEFINITION: The total duration from start of construction
(first concrete) to completion of the plant for
warranty demmonstration.

UNITS: Months

**DESIGN
ENVELOPE:**

BASIS: URD Value

Rev. 0
September 1992

Appendix E

DATABASE INFORMATION

INTRODUCTION

The database operates in a PC environment. There is a menu-driven set of tools created to aide the user in maintaining the data and generating reports. All the necessary databases, indices, and associated tools are provided on the enclosed disk. (Note: Distribution of disk made to EPRI only.)

SYSTEM DESCRIPTION

- **Hardware** IBM-compatible personal computer with a hard disk drive

 HP LaserJet II or III Printer
- **Software** DOS (version 3.1 or higher)

 dBase III Plus
- **Installation**

The installation batch file provided creates all the necessary directories needed and loads the database and associated tools to the C: drive of the PC.

To begin the installation, the PC should be at the root directory of drive C:. Place the installation disk in drive A:. At the DOS prompt, type the command A:SITE.

- **Accessing the Data**

To begin the menu-driven system, enter dBase III Plus and, at the dBase prompt, type DO C:\BECHTEL\MAIN.

MENU SYSTEM AND ASSOCIATED TOOLS

The working tools are created for a stand-alone PC. They are intended for use by individuals who have at least some experience using a PC and are acquainted with dBase III Plus software. All dBase III Plus commands apply to these tools (example: escape will abort editing).

There are two menus. Explanatory comments appear on the screen as various options are selected.

- **Main Menu.** This is the first menu that will appear on the screen. Each option and a brief summary are as follows:

1. **Maintain Database** (Edit existing record or add a new record)
2. **Print Reports** (Print available reports)
3. **Quit** (Exit to DOS)

- **Report Menu.** This is the only other tool provided with this data. Each report option and a brief summary are as follows:

1. **Parameter Applicability Matrix** (Generate a plant parameter applicability matrix or a composite parameter applicability matrix)
2. **ABWR** (Generate a parameter listing for an ABWR plant)
3. **SYS80+** (Generate a parameter listing for an SYS80+ plant)
4. **SBWR** (Generate a parameter listing for an SBWR plant)
5. **AP600** (Generate a parameter listing for an AP600 plant)
6. **Envelope** (Generate an enveloping report by evolutionary, passive, or generic)
7. **Record Sheet** (Generate a Record Sheet for the entire database)
8. **Return** (Return to the Main Menu)

DATABASE STRUCTURE

There is one main database (ESP01M.DBF) that contains the pertinent data reflected by the reports. It is important to note that there are several working data-bases and indices that are used to extract data from the main database. Refer to Table E-1 for the structure of ESP01M.DBF.

Table E-1

DATABASE STRUCTURE ESP01M.DBF

	<u>Field Name</u>	<u>Type</u>	<u>Width</u>
1	REVIEW CAT	CHARACTER	30
* 2	PRI PAR ID	CHARACTER	3
3	PRI PARAM	CHARACTER	50
* 4	SEC PAR ID	CHARACTER	3
5	SEC PARAM	CHARACTER	50
6	PARAM TYPE	CHARACTER	6
7	AP600 DES	CHARACTER	1
8	SBWR DES	CHARACTER	1
9	SYS80 DES	CHARACTER	1
10	ABWR DES	CHARACTER	1
11	PRI SSC	CHARACTER	10
*12	SEC SSC ID	CHARACTER	3
13	SEC SSC	CHARACTER	50
14	URD V E	CHARACTER	35
15	URD V R E	CHARACTER	35
16	URD V RR E	CHARACTER	35
17	URD V P	CHARACTER	35
18	URD V R P	CHARACTER	35
19	URD V RR P	CHARACTER	35
20	V V ABWR	CHARACTER	30
21	V V ABWR R	CHARACTER	30
22	V ABWR R R	CHARACTER	30
23	V V SYS80	CHARACTER	30
24	V V SYS8 R	CHARACTER	30
25	V SYS8 R R	CHARACTER	30
26	V V AP600	CHARACTER	30
27	V V AP60 R	CHARACTER	30
28	V AP60 R R	CHARACTER	30
29	V V SBWR	CHARACTER	30
30	V V SBWR R	CHARACTER	30
31	V SBWR R R	CHARACTER	30
32	B V ABWR	CHARACTER	30

*These fields do not contain pertinent data, but are working fields for generating data on reports.

Table E-1 (Sheet 2)

	<u>Field Name</u>	<u>Type</u>	<u>Width</u>
33	B V ABWR R	CHARACTER	30
34	B ABWR R R	CHARACTER	30
35	B V SYS80	CHARACTER	30
36	B V SYS8 R	CHARACTER	30
37	B SYS8 R R	CHARACTER	30
38	B V AP600	CHARACTER	30
39	B V AP60 R	CHARACTER	30
40	B AP60 R R	CHARACTER	30
41	B V SBWR	CHARACTER	30
42	B V SBWR R	CHARACTER	30
43	B SBWR R R	CHARACTER	30
44	SDB1	CHARACTER	25
45	SDB2	CHARACTER	25
46	OTHER REF	CHARACTER	25
47	COMMENTS	CHARACTER	80
48	COMMENTS2	CHARACTER	80
49	COMMENTS3	CHARACTER	80
50	URD ENV E	CHARACTER	1
51	URD ENV P	CHARACTER	1
52	ABWR ENV V	CHARACTER	1
53	SYS8 ENV V	CHARACTER	1
54	SBWR ENV V	CHARACTER	1
55	AP60 ENV V	CHARACTER	1
56	ABWR ENV B	CHARACTER	1
57	SYS8 ENV B	CHARACTER	1
58	SBWR ENV B	CHARACTER	1
59	AP60 ENV B	CHARACTER	1
60	MULT U IMP	CHARACTER	11
61	DSER1	CHARACTER	10
62	DSER2	CHARACTER	10
63	DSER3	CHARACTER	10
64	DSER4	CHARACTER	10

PLANT PARAMETER ENVELOPE REPORT AND DATABASE ERRATA

Plant Parameter 28.2.6 data sheet SDB1 should read 131.002.002.001 not 131.002.002.001.001 (Data Base should also be corrected)

REPORT CORRECTIONS

PQS-2.7.4 is considered a site parameter in the report, therefore it should be deleted.

Blowdown constituents and concentrations is considered to be a site parameter, consequently PQS-2.7.4 should be deleted from the report.

The cover sheet for Appendix C has been revised to address those limiting values that are not maximum values. Replace the existing cover sheet with the attached page C-1, Rev. 1.

DATABASE CORRECTIONS

For parameter number 6.2.1, correct the PRI PARAM to read as follows: "discharge to site water bodies (RO Brine)".

For parameter 28.2.6, correct the SOB1 to read as follows: "131.002.002.001". Under COMMENTS, "wellands" should be "wetlands".

DATE

FILMED

1 / 3 / 94

END