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Your ref: Project Number 740
Our ref: DCP/NRC1901

May 24, 2007

Subject: AP1000 COL Standard Technical Report Submittal of APP-GW-GLN-121, Revision 0

In support of Combined License application pre-application activities, Westinghouse is submitting AP1000 Standard Combined License Technical Report Number 121. This report identifies and justifies standard changes to the AP1000 Design Control Document (DCD). The changes to the DCD identified in Technical Report 121 are intended to be incorporated into FSARs referencing the AP1000 Design Certification or incorporated into the design certification by an amendment to the design certification. This report is submitted as part of the NuStart Bellefonte COL Project (NRC Project Number 740). The information included in this report is generic and is expected to apply to all COL applications referencing the AP1000 Design Certification.

The purpose for submittal of this report was explained in a March 8, 2006 letter from NuStart to the NRC.

Pursuant to 10 CFR 50.30(b), APP-GW-GLN-121, Revision 0, "Spent Fuel Pool Water Level and Dose," (Technical Report Number 121), is submitted as Enclosure 1 under the attached Oath of Affirmation.

It is expected that when the NRC review of Technical Report Number 121 is complete, the changes to the DCD identified in Technical Report 121 will be considered approved generically for COL applicants referencing the AP1000 Design Certification.

Questions or requests for additional information related to content and preparation of this report should be directed to Westinghouse. Please send copies of such questions or requests for additional information to the prospective applicants for combined licenses referencing the AP1000 Design Certification. A representative for each applicant is included on the cc: list of this letter.

Westinghouse requests the NRC to provide a schedule for review of the technical report within two weeks of its submittal.

D079

Very truly yours,

A. Sterdis, Manager
Licensing and Customer Interface
Regulatory Affairs and Standardization

/Attachment

1. "Oath of Affirmation," dated May 24, 2007

/Enclosure

1. APP-GW-GLN-121, Revision 0, "Spent Fuel Pool Water Level and Dose," Technical Report Number 121

cc:	D. Jaffe	-	U.S. NRC	1E	1A
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	G. Curtis	-	TVA	1E	1A
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	P. Hastings	-	Duke Power	1E	1A
	C. Ionescu	-	Progress Energy	1E	1A
	D. Lindgren	-	Westinghouse	1E	1A
	A. Monroe	-	SCANA	1E	1A
	M. Moran	-	Florida Power & Light	1E	1A
	C. Pierce	-	Southern Company	1E	1A
	E. Schmiech	-	Westinghouse	1E	1A
	G. Zinke	-	NuStart/Entergy	1E	1A
	A. Pfister		Westinghouse	1E	1A

ATTACHMENT 1

"Oath of Affirmation"

ATTACHMENT 1

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of:	)
NuStart Bellefonte COL Project	)
NRC Project Number 740	)

APPLICATION FOR REVIEW OF
"AP1000 GENERAL COMBINED LICENSE INFORMATION"
FOR COL APPLICATION PRE-APPLICATION REVIEW

W. E. Cummins, being duly sworn, states that he is Vice President, Regulatory Affairs & Standardization, for Westinghouse Electric Company; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission this document; that all statements made and matters set forth therein are true and correct to the best of his knowledge, information and belief.

W. E. Cummins
Vice President
Regulatory Affairs & Standardization

Subscribed and sworn to
before me this 24th day
of May 2007.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Debra McCarthy, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires Aug. 31, 2009
Member, Pennsylvania Association of Notaries

Debra McCarthy
Notary

ENCLOSURE 1

APP-GW-GLN-121, Revision 0

"Spent Fuel Pool Water Level and Dose"

Technical Report 121

AP1000 DOCUMENT COVER SHEET

TDC: _____ Permanent File: _____ APY _____

RFS#: _____ RFS ITEM #: _____

AP1000 DOCUMENT NO.	REVISION NO.		ASSIGNED TO
APP-GW-GLN-121	0	Page 1 of 17	WINTERS

ALTERNATE DOCUMENT NUMBER: TR-121 WORK BREAKDOWN #: GW

ORIGINATING ORGANIZATION: Westinghouse Electric Company

TITLE: Spent Fuel Pool Water Level and Dose

ATTACHMENTS:	DCP #/REV. INCORPORATED IN THIS DOCUMENT REVISION:
N/A	N/A
CALCULATION/ANALYSIS REFERENCE: N/A	

ELECTRONIC FILENAME	ELECTRONIC FILE FORMAT	ELECTRONIC FILE DESCRIPTION
APP-GW-GLN-121.doc	Microsoft Word	APP-GW-GLN-121.doc

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LEGAL REVIEW S. C. VALENTINE	SIGNATURE/DATE S. C. Valentine 5/22/2007
PATENT REVIEW Mike Corletti	SIGNATURE/DATE M. M. Corletti 5/23/07

☐ WESTINGHOUSE PROPRIETARY CLASS 2

ORIGINATOR A. Pfister, S. Boyle	SIGNATURE/DATE A. Pfister 5/21/07 S. Boyle 5/22/07	
REVIEWERS	SIGNATURE/DATE	
VERIFIER J. Fernandez	SIGNATURE/DATE J. Fernandez 5/21/07	VERIFICATION METHOD Independent 3-Pass Review
AP1000 RESPONSIBLE MANAGER J. Winters	SIGNATURE* J. Winters for	APPROVAL DATE 5/22/07

* *Approval of the responsible manager signifies that document is complete, all required reviews are complete, electronic file is attached and document is released for use.*

Document Number: APP-GW-GLN-121 **Revision Number:** 0

Title: Spent Fuel Pool Water Level and Dose

Brief Description of the change (what is being changed and why):
This Technical Report increases the normal Spent Fuel Pool (SFP) water level from 133.25 ft to 134.25 ft. The change in water level limits exposure rates to personnel on the Spent Fuel Pool Fuel Handling Machine to less than or equal to 2.5 millirem per hour.

I. APPLICABILITY DETERMINATION

This evaluation is prepared to document that the change described above is a departure from Tier 2 information of the AP1000 Design Control Document (DCD) that may be included in plant specific FSARs without prior NRC approval.

A.	Does the proposed change include a change to:		
	1. Tier 1 of the AP1000 Design Control Document APP-GW-GL-700	☐ NO ☒ YES	(If YES prepare a report for NRC review of the changes)
	2. Tier 2* of the AP1000 Design Control Document, APP-GW-GL-700	☒ NO ☐ YES	(If YES prepare a report for NRC review of the changes)
*	3. Technical Specification in Chapter 16 of the AP1000 Design Control Document, APP-GW-GL-700	☐ NO ☒ YES	(If YES prepare a report for NRC review of the changes)
B.	Does the proposed change involve:		
	1. Closure of a Combined License Information Item identified in the AP1000 Design Control Document, APP-GW-GL-700	☒ NO ☐ YES	(If YES prepare a COL item closure report for NRC review.)
	2. Completion of an ITAAC item identified in Tier 1 of the AP1000 Design Control Document, APP-GW-GL-700	☒ NO ☐ YES	(If YES prepare an ITAAC completion report for NRC review.)

☐ The questions above are answered no, therefore the departure from the DCD in a COL application does not require prior NRC review unless review is required by the criteria of 10 CFR Part 52 Appendix D Section VIII B.5.b. or B.5c

*Note: The change in the Technical Specification involves a change to a previously bracketed number.

II. TECHNICAL DESCRIPTION AND JUSTIFICATION

Fuel handling activities in the spent fuel pool include normal fuel handling operations as performed during refueling outages, i.e., fuel offloaded and reloaded from/to the Reactor Building via the Fuel Handling System (FHS) into and out of the SFP storage racks. The AP1000 FHS component in the SFP which lifts and lowers the fuel during normal fuel handling operations is the Fuel Handling Machine (FHM). The FHM is a fixed mast manipulator type bridge crane. The FHM control console deck where the FHM manipulator operator stands on is located approximately 45 inches above the building operating deck.

Due to the radius of the FHM manipulator mast and the proximity to the SFP walls, approximately 25% of the SFP storage cells cannot be serviced by the mast crane. Also, there are instances where fuel inspection and/or fuel repair require the fuel to be moved from the SFP storage racks to the designated fuel inspection or fuel repair workstation. These non-normal fuel transfer operations are performed using the Spent Fuel Handling Tool (SFHT). The SFHT is a long handled tool which latches onto the fuel assembly top nozzle via manually actuated grippers. Lifting of the SFHT and attached fuel assembly is performed using an auxiliary hoist on

the FHM. The deck where the operator stands on during operation of the SFHT is located approximately 6 inches above the building operating floor.
During all fuel transfer operations, the fuel assembly is lifted to a specific maximum elevation in the pool which ensures that enough water coverage is maintained over the fuel assembly to prevent an increase in radiation dose rates at the water surface or at the operator's work stations. The current AP1000 SFP water level is 133.25 ft. As shown in Attachment 2 - Schematic of Current SFP Fuel Water Coverage Conditions, the AP1000 SFP water level of 133.25 ft (1599 inches), i.e., 24 inches from building operating floor, provides water coverage of 8.56 ft (102.77 inches) above the active fuel during fuel transfer. The calculated radiation dose rates based on the AP1000 design exceed the Utility Requirements Document that states exposure rates to personnel shall be ALARA or 2.5 mR/hr maximum.

This Technical Report increases the normal SFP water level from 133.25 ft to 134.25 ft (See Attachment 3). This change limits exposure rates to personnel on the Spent Fuel Pool Fuel Handling Machine to 2.5 millirem or less as shown in Attachment 5. Attachment 4 is included to show that raising the water level 6" is insufficient to provide the proper shielding.

III. DCD MARK-UP

The following are the affected DCD Sections:

- DCD Tier 1, Table 2.1.1-1
- DCD Tier 2, Section 9.1.2.2
- DCD Tier 2, Section 9.1.4.2.3
- DCD Tier 2, Section 9.1.4.3.7
- DCD Tier 2, Section 9.1.3.1.4
- DCD Tier 2, Table 9.1-2
- DCD Tier 2, Section 12.3.2.2.4
- DCD Tier 2, Section 12.5.3.4

As shown in Attachment 1 - Schematic of DCD Tier 1, Table 2.1.1-1, ITAAC Requirement, this DCD section specifies a FHM lift height acceptance criteria that the bottom of the fuel assembly cannot be raised to within 26 ft, 1 inch (313 inches) of the operating deck floor. Based on the AP1000 SFP design, the fuel assembly bottom nozzle is 7 inches inside the storage rack cell at 313 inches from the operating deck floor. This criterion will not allow the fuel assembly to be fully withdrawn from the storage racks. Therefore, the acceptance criteria is changed as noted in the markup of Table 2.1.1-1 below.

DCD Tier 1, Table 2.1.1-1, Paragraph 5 ITAAC Mark Up

Table 2.1.1-1
Inspections, Tests, Analyses, and Acceptance Criteria

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. The functional arrangement of the FHS is as described in the Design Description of this Section 2.1.1.	Inspection of the as-built system will be performed.	The as-built FHS conforms with the functional arrangement as described in the Design Description of this Section 2.1.1.
2. The FHS has the refueling machine (RM), the fuel handling machine (FHM), and the new and spent fuel storage racks.	Inspection of the system will be performed.	The FHS has the RM, the FHM, and the new and spent fuel storage racks.
3. The FHS preserves containment integrity by isolation of the fuel transfer tube penetrating containment.	See Tier 1 Material, Table 2.2.1-3, items 1 and 7.	See Tier 1 Material, Table 2.2.1-3, items 1 and 7.
4. The RM and FHM gripper assemblies are designed to prevent opening while the weight of the fuel assembly is suspended from the gripper.	The RM and FHM will be tested by operating the open controls of the gripper while suspending a dummy fuel assembly.	The gripper will not open while suspending a dummy test assembly.

5. The lift height of the RM and FHM masts is limited such that the minimum required depth of water shielding is maintained.	The RM and FHM will be tested by attempting to raise a dummy fuel assembly.	The bottom of the dummy fuel assembly cannot be raised to within ~~26 ft, 1 in~~ 25 ft, 3 in of the operating deck floor.

9.1.2.2 Facilities Description

The spent fuel storage facility is designed to the guidelines of ANS 57.2 (Reference 4). The spent fuel storage facility is located within the seismic Category I auxiliary building fuel handling area. The walls of the spent fuel pool are an integral part of the seismic Category I auxiliary building structure. The facility is protected from the effects of natural phenomena such as earthquakes (subsection 3.7.2), wind and tornados (Section 3.3), floods (Section 3.4), and external missiles (Section 3.5).

The facility is designed to maintain its structural integrity following a safe shutdown earthquake and to perform its intended function following a postulated event such as a fire. Refer to subsection 1.2.4.3 for further discussions of the auxiliary building fuel handling area.

Nonseismic equipment in the vicinity of the spent fuel storage racks is evaluated to confirm that its failure could not result in an increase of K_{eff} beyond the maximum allowable K_{eff}. Refer to subsection 3.7.3.13 for a discussion of the nonseismic equipment evaluation.

The spent fuel pool provides storage space for spent fuel. The pool is approximately 42.5 feet deep and constructed of reinforced concrete and concrete filled structural modules as described in subsection 3.8.4. The portion of the structural modules in contact with the water in the pool is stainless steel and the reinforced concrete portions are lined with a stainless steel plate. The normal water volume of the pool is about 191,500 ~~181,000~~ gallons of borated water (including racks without fuel at a water level ~~2 foot 6 inches~~ 12 inches below the operating deck) with a nominal boron concentration of 2500 ppm. Figures 1.2-7 through 1.2-10 show the spent fuel pool and other features of the fuel handling area.

The connections for the drain and makeup lines are located to preclude the draining of the spent fuel pool due to a break in a line or failure of a pump to stop. The connection for the spent fuel cooling pumps' suction is located below normal water level and above the level needed to provide sufficient water for shielding and for cooling of the fuel if the spent fuel pool cooling system is unavailable. Skimmers that normally follow the water level surface do not travel below the level of the spent fuel cooling suction. Connections for suction to the chemical volume and control system are located between the normal water level and the spent fuel cooling system pumps' suction connection level. Pipes which discharge into the spent fuel pool include a siphon break between the normal water level and the level of the spent fuel cooling system pumps' suction connection.

The piping which returns the water to the spent fuel pool from the spent fuel pool cooling system enters the pool at the opposite end from the spent fuel pool cooling system pumps' suction connection. The piping arrangement and location ensure thorough mixing of the cooled water into the pool to prevent stagnant or hot regions.

A gated opening connects the spent fuel pool and fuel transfer canal. The fuel transfer canal is connected to the in-containment refueling cavity by a fuel transfer tube. The spent fuel transfer

operation is completed underwater, and the waterways are of sufficient depth to maintain a minimum of ~~10 feet~~ 9.5 feet of shielding water above active fuel in the spent fuel assemblies. A metal gate with gasket assembly separates the spent fuel pool and fuel transfer canal. This allows the fuel transfer canal....

9.1.4.2.3 Spent Fuel Cask Loading

The spent fuel assemblies are normally stored in the spent fuel pool, until fission product activity is low enough to permit shipment. The spent fuel assemblies are then transferred to a shipping cask which is designed to shield radiation. Provisions for handling the spent fuel cask are discussed in subsection 9.1.5.

The following procedure briefly outlines the typical steps of this operation, assuming that the cask loading pit has been previously filled with water and the gate between the cask loading pit and the spent fuel pool has been removed:

1. A clean, empty cask is brought into the cask washdown pit and washed with demineralized water. The cask lid is removed and stored while the remainder of the cask is washed.

2. The clean empty cask is then properly positioned in the flooded cask loading pit.

3. The fuel handling machine is positioned over the specific fuel assembly to be shipped out of the spent fuel storage rack. The fuel assembly is picked up and transported into the cask loading pit. During the transfer process the fuel assembly is always maintained with the top of the active fuel at least ~~10 feet~~ 9.5 feet below the water surface. This provides confidence that the direct radiation from the fuel at the surface of the water is minimal.

4. Once the fuel transfer process is complete, the lid is placed on top of the cask to provide the required shielding.

5. The cask is then moved to the washdown pit and cleaned with demineralized water. Decontamination procedures can be started at this time.

6. When the cask is satisfactorily decontaminated, it is lifted out of the cask washdown pit and prepared for shipping.

During the operations, sufficient water is maintained between plant personnel and fuel assemblies that are being moved to limit dose levels to those acceptable for continuous occupational exposure.

9.1.4.3.7 Radiation Shielding

During spent fuel transfer, the gamma dose rate at the surface of the water is 20 millirem/hour or less. This is accomplished by maintaining a minimum of ~~10 feet~~ 9.5 feet of water above the top of the active fuel height during handling operations.

9.1.3.1.4 Spent Fuel Pool Purification

The spent fuel pool cooling system removes radioactive corrosion products, fission product ions and dust to maintain low spent fuel pool (SFP) activity levels and to maintain water clarity during all modes of plant operation. The spent fuel pool cooling system purification capability is such that the occupational radiation exposure (ORE) is minimized to support as-low-as-reasonably-achievable (ALARA) goals. The spent fuel pool cooling system clarification capability is sufficient to permit necessary operations that must be conducted in the spent fuel pool area. The spent fuel pool cooling

system is designed to perform its purification function in accordance with the following additional criteria:

- The spent fuel pool cooling system is designed to limit exposure rates *to* personnel on the Spent Fuel Pool Fuel Handling Machine ~~at the surface of the spent fuel pool~~ to less than 2.5 millirem per hour. This corresponds to an activity level in the water of approximately 0.005 microcurie per gram for the dominant gamma-emitting isotopes at the time of refueling.

Table 9.1-2

Table 9.1-2

SPENT FUEL POOL COOLING AND PURIFICATION SYSTEM DESIGN PARAMETERS

Spent fuel pool storage capacity	10 yrs spent fuel plus one core
Spent fuel pool water volume (including racks without fuel at water level of ~~2 foot 6~~ 12 inches below the operating deck) (gallons)	~~181,000~~ 191,500
Fuel transfer canal, including gate, water volume (gallons)	64,100
Minimum combined volume of spent fuel pool and fuel transfer canal above fuel to elevation 6 feet below the operating deck) (gallons)	46,700
Minimum volume of the cask washdown pit (gallons)	30,900
Nominal boron concentration of water (ppm)	2500
Maximum normal refueling case (full core offload) Water temperature with one spent fuel cooling system cooling train and one normal residual heat removal system cooling train in operation (°F)	<140
Maximum emergency core unload case Water temperature with both spent fuel cooling system cooling trains and one normal residual heat removal system cooling train in operation (°F)	<140

12.3.2.2.4 Fuel Handling Area Shielding Design

The concrete shield walls surrounding the spent fuel cask loading and decontamination areas, and the shield walls surrounding the fuel transfer and storage areas are sufficiently thick to limit radiation levels outside the shield walls in accessible areas to Zone II. The building external walls are sufficient to shield external plant areas which are not controlled to Zone I.

Spent fuel removal and transfer operations are performed under borated water to provide radiation protection and maintain subcriticality. Minimum allowable water depths above active fuel in a fuel assembly during fuel handling are ~~10~~ 9.5 feet in the reactor cavity and ~~10~~ 9.5 feet in the fuel transfer canal and spent fuel pool. This limits the dose to personnel on the Spent Fuel Pool Fuel Handling Machine ~~at the water surface~~ to less than 2.5 mrem/hr for an assembly in a vertical position. Normal water depth above the stored assemblies is about ~~26~~ 24.5 feet, and for this depth the dose rate at the pool surface is insignificant. The concrete walls of the fuel transfer canal and spent fuel pool walls supplement the water shielding and limit the maximum radiation dose levels in working areas to less than 2.5 mrem/hr.

12.5.3.4 Spent Fuel Cask Loading and Shipping

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Spent fuel handling and loading of a shipping cask is designed to be performed underwater, using the fuel handling cranes and/or manual extension tools.
Some of the design features included to maintain exposure ALARA are:

- Maintenance of at least ~~ten~~ 9.5 feet of water above the active fuel in a fuel assembly to minimize direct radiation.
- Purification of fuel pool water to minimize exposure due to water activity.
- Cooling of the spent fuel pool water.
- Providing continuous air sampling while moving fuel to evaluate airborne activity.

Tech Specs Table 3.3.2-1 (Note: This change is intended to make all tech specs concerning the SFP level consistent. All tech specs now require at least 23 feet of water above the top of the fuel assemblies during modes 1, 2, & 3).

Table 3.3.2-1 (page 12 of 13)
Engineered Safeguards Actuation System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	TRIP SETPOINT
23.	IRWST Containment Recirculation Valve Actuation						
	a. Manual Initiation	1,2,3,4[j]	2 switch sets	E,N	SR 3.3.2.3	N/A	N/A
		4[n],5,6	2 switch sets	G,Y	SR 3.3.2.3	N/A	N/A
	b. ADS Stage 4 Actuation	Refer to Function 10 (ADS Stage 4 Actuation) for all initiating functions and requirements.					
	Coincident with IRWST Level – Low 3	1,2,3,4[j]	4	B,N	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.6		≥ Contain-ment Elevation @ [107'2"]
		4[n],5[k],6[k]	4	I,Y	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.6		≥ Contain-ment Elevation @ [107'2"]
24.	Refueling Cavity Isolation						
	a. Spent Fuel Pool Level – Low	6	3	H,P	SR 3.3.2.1 SR 3.3.2.4 SR 3.3.2.5 SR 3.3.2.6		~~37.5~~ 39.75ft.

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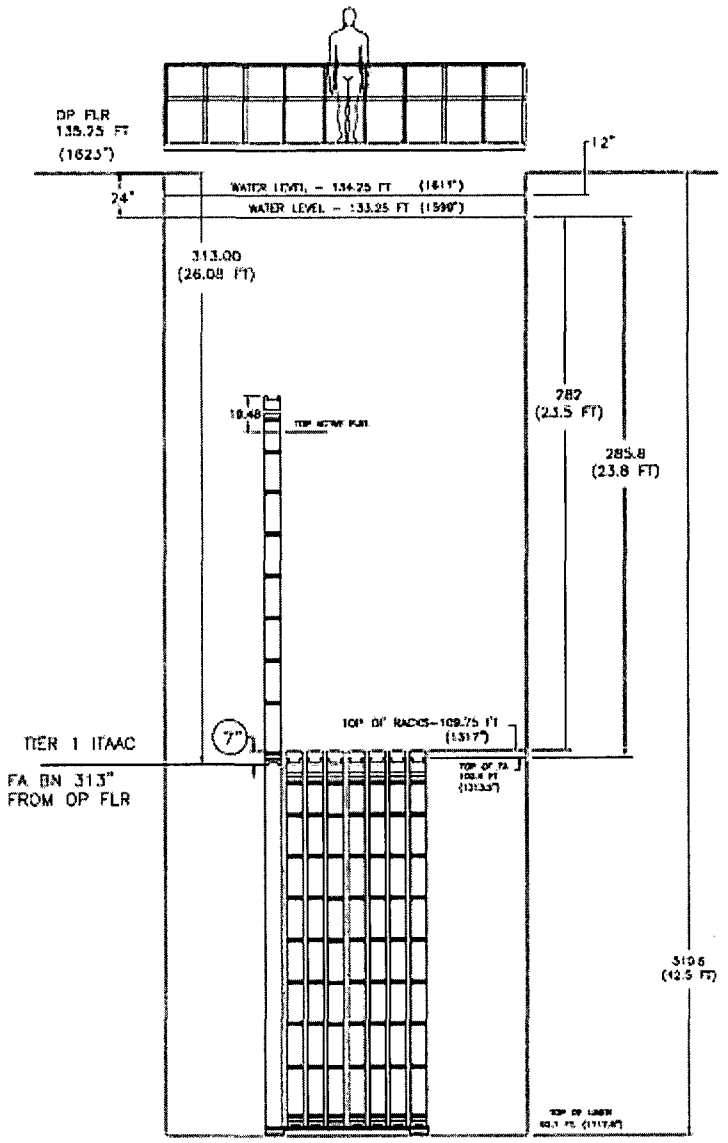
Note: The following figures are not intended to be included in the DCD. They are only to be used as a tool for reviewing this Technical Report.

Attachment 1 – Schematic of DCD Tier 1, Table 2.1.1-1, ITAAC Requirement



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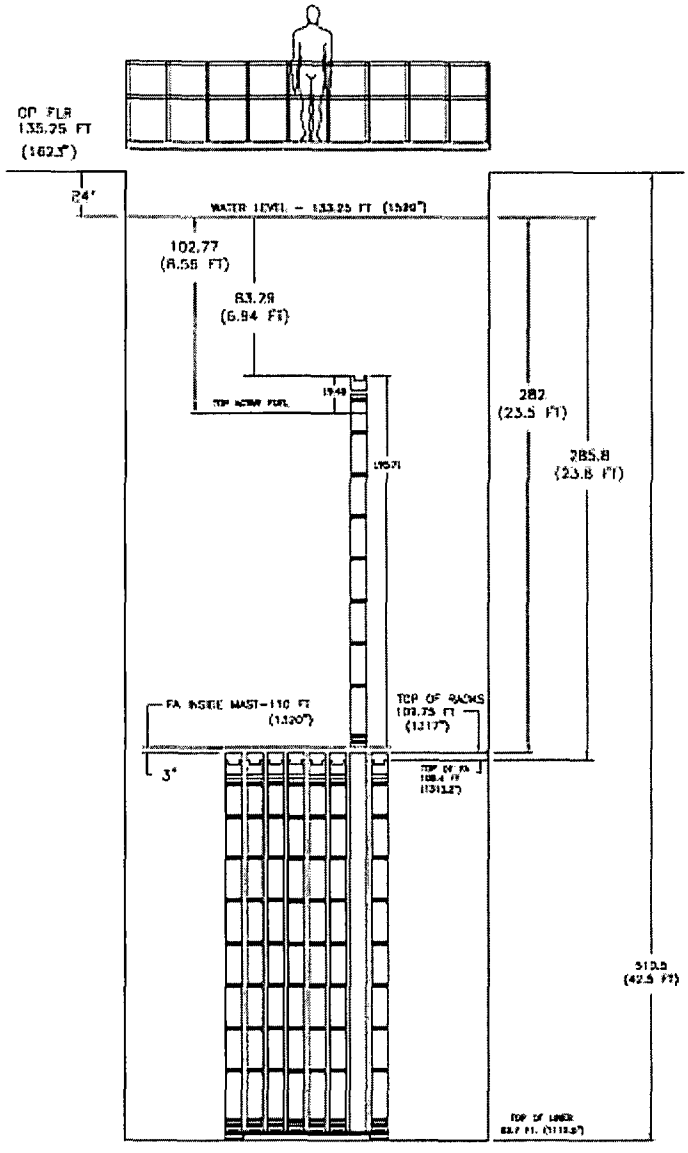
Attachment 2 – Schematic of Previous SFP Fuel Water Coverage Conditions



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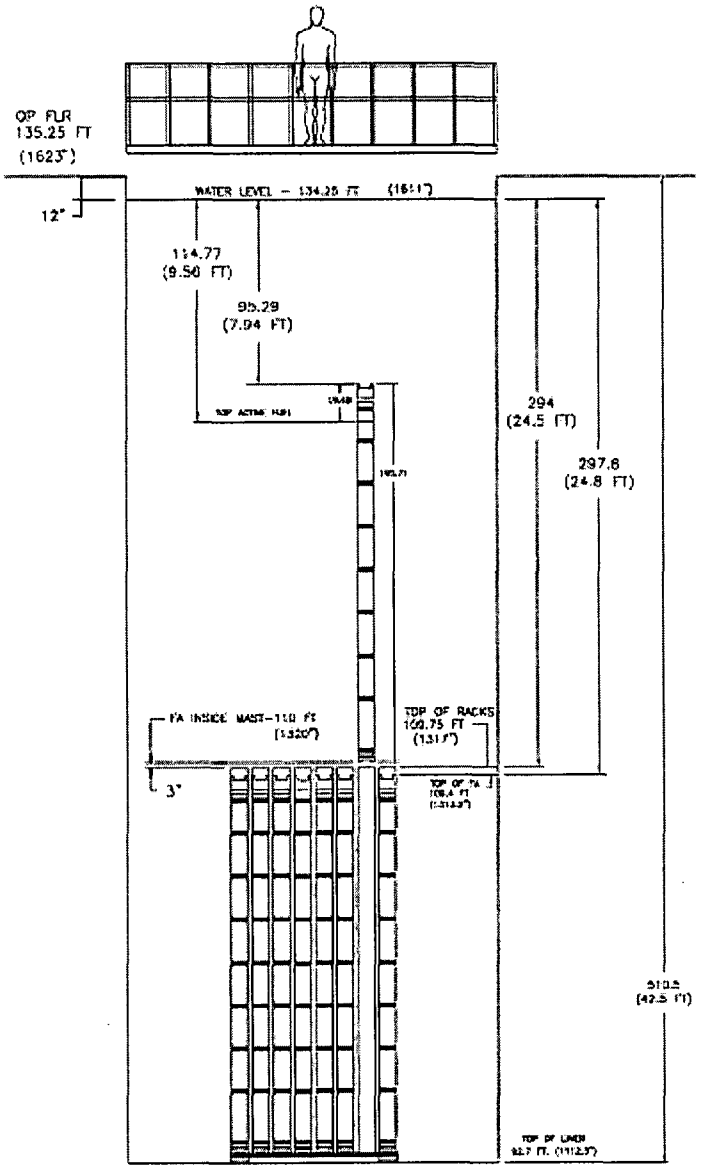
Attachment 3 – Schematic of New SFP Fuel Water Coverage Conditions

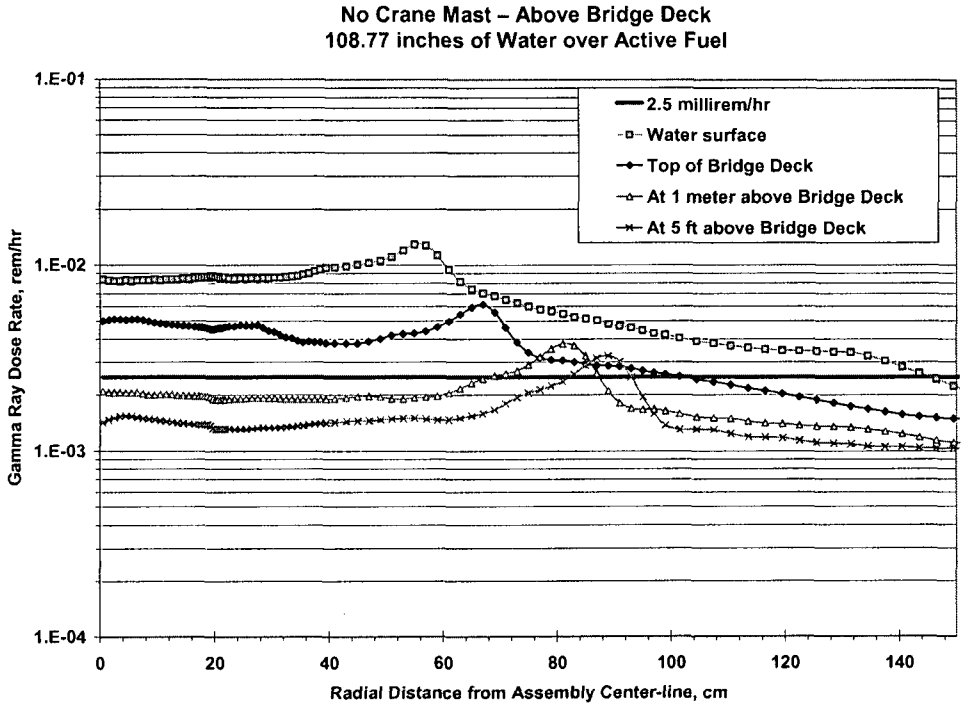


Document Number: APP-GW-GLN-121 **Revision Number:** 0

Title: Spent Fuel Pool Water Level and Dose

Attachment 4 – Radiation Dose Rates – 108.77" Water Coverage

Figure 1



Document Number: APP-GW-GLN-121 **Revision Number:** 0

Title: Spent Fuel Pool Water Level and Dose

Attachment 5 – Radiation Dose Rates – 114.77" Water Coverage

Figure 3

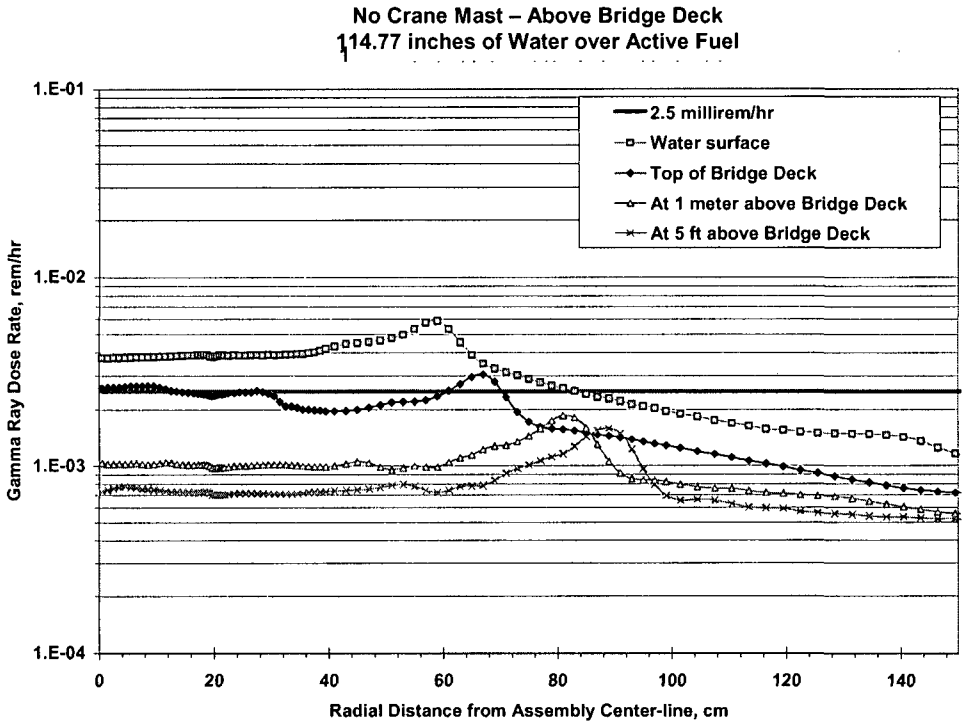


Figure 4

Document Number: APP-GW-GLN-121 **Revision Number:** 0

Title: Spent Fuel Pool Water Level and Dose

IV. REGULATORY IMPACT

A. FSER IMPACT

Section 9.1.3 of the FSER includes a discussion of Auxiliary Systems, in particular the Spent Fuel Pool Cooling System. Section 9.1.3 states that the main suction line connects to the SFP at an elevation 0.6 m (2 ft) below the normal water level of the pool. The distance between the main suction line connection and the normal water level has increased as a result of raising the normal SFP water level. The new distance between the main suction line and the normal water level is 3 ft.

Section 9.1.4 of the FSER concludes that the gamma dose rate at the surface of the water is 20 mrem/hr or less by maintaining a minimum of 3 m (10 ft) of water above the top of the active fuel height during handling operations. This Technical Report clarifies that the gamma dose rate at the surface of the water is less 20 mrem or less by maintaining a minimum of 9.5 ft of water above the top of the active fuel.

B. SCREENING QUESTIONS (Check correct response and provide justification for that determination under each response)

1. Does the proposed change involve a change to an SSC that adversely affects a DCD described design function? ☐ YES ☒ NO

   There is no change to a design function of any related equipment.

2. Does the proposed change involve a change to a procedure that adversely affects how DCD described SSC design functions are performed or controlled? ☐ YES ☒ NO

   The Spent Fuel Pool Level and Dose change have no negative effect of the function of a DCD described SSC. The change only makes operation of the system safer.

3. Does the proposed activity involve revising or replacing a DCD described evaluation methodology that is used in establishing the design bases or used in the safety analyses? ☐ YES ☒ NO

   The methods used to determine the level of the water in the Spent Fuel System do not require changes to the evaluation of the responses to postulated accident conditions.

4. Does the proposed activity involve a test or experiment not described in the DCD, where an SSC is utilized or controlled in a manner that is outside the reference bounds of the design for that SSC or is inconsistent with analyses or descriptions in the DCD? ☐ YES ☒ NO

   The change in Spent Fuel Pool Level and Dose do not require an additional test or experiment or changes to testing for an SSC.

Document Number: APP-GW-GLN-121 **Revision Number:** 0

Title: Spent Fuel Pool Water Level and Dose

C. EVALUATION OF DEPARTURE FROM TIER 2 INFORMATION (Check correct response and provide justification for that determination under each response)

10 CFR Part 52, Appendix D, Section VIII. B.5.a. provides that an applicant for a combined licensee who references the AP1000 design certification may depart from Tier 2 information, without prior NRC approval, if it does not require a license amendment under paragraph B.5.b. The questions below address the criteria of B.5.b.

1. Does the proposed departure result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD? ☐ YES ☒ NO

   Since there is no change to the design function or operation of the spent fuel pool there are no new accident initiators and no effect on the frequency of evaluated events.

2. Does the proposed departure result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety and previously evaluated in the plant-specific DCD? ☐ YES ☒ NO

   The Spent Fuel Pool Level and Dose change do not increase the likelihood of a malfunction of any SSC important to safety.

3. Does the proposed departure Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD? ☐ YES ☒ NO

   The Spent Fuel Water Level and Dose change has no effect on the operation, performance, and pressure boundary integrity of safety related equipment. Therefore, there is no increase in the calculated release of radioactive material during postulated accident conditions.

4. Does the proposed departure result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific DCD? ☐ YES ☒ NO

   The Spent Fuel Pool Level and Dose change has no effect on the design functions or reliability of the safety related equipment or other components. Therefore, there is no increase in the calculated release of radioactive material due to a malfunction of an SSC.

5. Does the proposed departure create a possibility for an accident of a different type than any evaluated previously in the plant-specific DCD? ☐ YES ☒ NO

   The changes to the Spent Fuel Pool have no effect of the operation, performance, and pressure boundary integrity of plant equipment. The only thing that changes is the amount of water that is added to the Spent Fuel Pool which does not introduce the possibility of a new accident occurring.

6. Does the proposed departure create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific DCD? ☐ YES ☒ NO

   There are no additional failure modes and there is no possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously.

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7. Does the proposed departure result in a design basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered? ☐ YES ☒ NO

   There is no change to the design function of the safety related equipment. The criteria to provide for pressure boundary integrity are not exceeded or altered.

8. Does the proposed departure result in a departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses? ☐ YES ☒ NO

   The methods used to determine the Spent Fuel Pool Level and Dose are not altered by subject changes in the pool level.

☒ The answers to the evaluation questions above are "NO" and the proposed departure from Tier 2 does not require prior NRC review to be included in plant specific FSARs as provided in 10 CFR Part 52, Appendix D, Section VIII. B.5.b

☐ One or more of the the answers to the evaluation questions above are "YES" and the proposed change requires NRC review.

D. IMPACT ON RESOLUTION OF A SEVERE ACCIDENT ISSUE

10 CFR Part 52, Appendix D, Section VIII. B.5.a. provides that an applicant for a combined licensee who references the AP1000 design certification may depart from Tier 2 information, without prior NRC approval, if it does not require a license amendment under paragraph B.5.c. The questions below address the criteria of B.5.c.

1. Does the proposed activity result in an impact to features that mitigate severe accidents. If the answer is Yes answer Questions 2 and 3 below. ☐ YES ☒ NO

   The changes have no effect on the operation and performance of the Spent Fuel Pool. Therefore, there is no effect on the calculation of the probability of a severe accident.

2. Is there is a substantial increase in the probability of a severe accident such that a particular severe accident previously reviewed and determined to be not credible could become credible? ☐ YES ☐ NO ☒ N/A

3. Is there is a substantial increase in the consequences to the public of a particular severe accident previously reviewed? ☐ YES ☐ NO ☒ N/A

☒ The answers to the evaluation questions above are "NO" or are not applicable and the proposed departure from Tier 2 does not require prior NRC review to be included in plant specific FSARs as provided in 10 CFR Part 52, Appendix D, Section VIII. B.5.c

☐ One or more of the he answers to the evaluation questions above are "YES" and the proposed change requires NRC review.

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E. SECURITY ASSESSMENT

1. Does the proposed change have an adverse impact on the security assessment of the AP1000. ☐ YES ☒ NO

The change in the Spent Fuel Level and Dose will not alter barriers or alarms that control access to protected areas of the plant nor will it alter requirements for security personnel.