From: "Lindgren, Donald A." <lindg1da@westinghouse.com>
To: "'jnw@nrc.gov'" <jnw@nrc.gov>, Wesley Held <WWH@nrc.gov>, Lauren Quinones <LNQ@nrc.gov>
Date: Wed, Oct 26, 2005 4:41 PM
Subject: ITAAC Table

Attached are pdf filed of the relevant portions of the ITAAC tables for the latest proposal for the ITAAC on the water delivered to the spent fuel pool by the PCS storage tanks.

Note that we are withdrawing most of the proposed changes except that the acceptance criteria for the PCS tank volumes are not included in the SFS ITAAC but are referenced to specific items in the PCS ITAAC.

I have included a file with the changes in bold and in strikeout and a file that shows what the final product should look like.

D. A. Lindgren

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Subject: ITAAC Table
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Recipients
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Files	Size	Date & Time
MESSAGE	541	Wednesday, October 26, 2005 4:40 PM
SFSvol.pdf	92088	
SFSvol2.pdf	81013	
Mime.822	239261	

Options
Expiration Date: None
Priority: High
Reply Requested: No
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Concealed Subject: No
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Table 2.2.2-3 (cont.) Inspections, Tests, Analyses, and Acceptance Criteria		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
7.a) The PCS ~~provides the~~ delivers~~y of~~ water **from the PCCWST** to the outside**, top** of the containment vessel.	i) Testing will be performed to measure the PCCWST delivery rate from ~~two~~ **each one** of the three parallel flow paths.	i) When tested ~~two~~ **each one** of the three flow paths delivers **water at** greater than or equal to: – 469~~71~~.1 gpm at a PCCWST water level of 27.4 ft + 0.2, - 0.0 ft above the tank floor – 226.6~~38.4~~ gpm when the PCCWST water level uncovers the first (i.e. tallest) standpipe – 176.3~~84.0~~ gpm when the PCCWST water level uncovers the second tallest standpipe – 144.2~~51.4~~ gpm when the PCCWST water level uncovers the third tallest standpipe
	ii) Testing and or analysis will be performed to demonstrate the PCCWST inventory provides 72 hours of **adequate water flow.**~~cooling.~~	ii) When tested and/or analyzed with all flow paths delivering and an initial water level at 27.4 + 0.2, - 0.00 ft, the **PCCWST** water inventory provides greater than or equal to 72 hours of flow**, and the** ~~with a~~ flow ~~rate~~ **rate at 72 hours is** greater than or equal to 100.7 gpm.
	iii) Inspection will be performed to determine the PCCWST standpipes elevations.	iii) The elevations of the standpipes above the tank floor are: – 16.8 ft ± 0.2 ft – 20.3 ft ± 0.2 ft – 24.1 ft ± 0.2 ft

Table 2.2.2-3 (cont.) Inspections, Tests, Analyses, and Acceptance Criteria		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
7.b) The PCS ~~provides~~ wet~~sting of~~ the outside surface of the containment vessel. ~~and t~~The inside and the outside of the containment vessel above the operating deck ~~is~~**are** coated with an inorganic zinc material.	i) Testing will be performed to measure the **outside** wetted surface of the containment vessel ~~from~~**with** ~~two~~ **one** of the three parallel flow paths **delivering water** to the **top of the** containment vessel.	i) A report exists and concludes that when the water in the PCCWST uncovers the standpipes at the following levels, **the** water deliver~~y~~**ed by one of the three parallel flow paths** to the containment shell provides coverage measured at the spring line that is equal to or greater than the ~~corresponding~~ **stated** coverages. ~~used to calculate peak containment pressure in the safety analysis.~~ - 24.1 ± 0.2 ft above the tank floor; **at least 90% of the perimeter is wetted.** - 20.3 ± 0.2 ft above the tank floor; **at least 72.9% of the perimeter is wetted.** - 16.8 ± 0.2 ft above the tank floor; **at least 59.6% of the perimeter is wetted.**
	ii) Inspection of the containment vessel exterior coating will be conducted.	ii) A report exists and concludes that the containment vessel exterior surface is coated with an inorganic zinc coating above elevation 135'-3".
	iii) Inspection of the containment vessel interior coating will be conducted.	iii) A report exists and concludes that the containment vessel interior surface is coated with an inorganic zinc coating above 7' above the operating deck.
7.c) The PCS provides air flow over the outside of the containment vessel by a natural circulation air flow path from the air inlets to the **air** discharge structure.	Inspections of the air flow path segments will be performed.	Flow paths exist at each of the following locations: – Air inlets – Base of the outer annulus – Base of the inner annulus – Discharge structure
7.d) The PCS ~~provides~~ drain~~sage of~~ the excess water from the outside of the containment vessel through the two upper annulus drains.	Testing will be performed to verify the upper annulus drain flow performance.	With a water level within the upper annulus 10" ± 1" above the annulus drain inlet, the flow rate through each drain is greater than or equal to 525 gpm.

Table 2.2.2-3 (cont.) Inspections, Tests, Analyses, and Acceptance Criteria		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
7.e) The PCS provides a flow path for long-term **water** makeup to the PCCWST.	i) See item 1 in this table. ii) Testing will be performed to measure the delivery rate from the long-term makeup connection to the PCCWST.	i) See item 1 in this table. ii) With a water supply connected to the PCS long-term makeup connection, each PCS recirculation pump delivers greater than or equal to 100 gpm when tested separately.
7.f) The PCS provides **a flow path** for long-term **water** makeup from the PCCWST to the spent fuel pool.	i) Testing will be performed to measure the delivery rate from the PCCWST to the spent fuel pool. ii) Inspection of the PCCWST will be performed.	i) With the PCCWST water level at 27.4 ft + 0.2, - 0.0 ft above the bottom of the tank, the flow path from the PCCWST to the spent fuel pool delivers greater than or equal to 118 gpm. ii) The volume of the PCCWST is greater than 756,700 gallons.
8.a) The ~~PCS provides a~~ PCCAWST **contains an** ~~initial~~ inventory of cooling water **sufficient** for PCS **containment cooling** ~~delivery~~ from hour 72 through day 7.	Inspection of the PCCAWST will be performed.	The volume of the PCCAWST is greater than 780,000 gallons.
8.b) The PCS ~~provides the~~ delivers~~y of~~ water from the PCCAWST to the PCCWST and spent fuel pool simultaneously.	Testing will be performed to measure the delivery rate from the PCCAWST to the PCCWST and spent fuel pool simultaneously.	With PCCASWST aligned to the suction of the recirculation pumps, each pump delivers greater than or equal to 100 gpm to the PCCWST and 35 gpm to the spent fuel pool simultaneously when each pump is tested separately.
8.c) The PCCWST **includes a** ~~S provides~~ water inventory for the fire protection system.	See Tier 1 Material, **Table 2.3.4-2, items 1 and 2.**~~subsection 2.3.4, Fire Protection System.~~	See Tier 1 Material, **Table 2.3.4-2, items 1 and 2.**~~subsection 2.3.4, Fire Protection System.~~
9. Safety-related displays identified in Table 2.2.2-1 can be retrieved in the MCR.	Inspection will be performed for retrievability of the safety-related displays in the MCR.	Safety-related displays identified in Table 2.2.2-1 can be retrieved in the MCR.
10.a) Controls exist in the MCR to cause the remotely operated valves identified in Table 2.2.2-1 to perform active functions.	Stroke testing will be performed on the remotely operated valves identified in Table 2.2.2-1 using the controls in the MCR.	Controls in the MCR operate to cause remotely operated valves identified in Table 2.2.2-1 to perform active functions.

Table 2.3.7-4 (cont.) Inspections, Tests, Analyses, and Acceptance Criteria		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
6.b) Separation is provided between SFS Class 1E divisions, and between Class 1E divisions and non-Class 1E cable.	See Tier 1 Material, **Table 3.3-6, item 7.d.** ~~Section 3.3, Nuclear Island Buildings~~	See Tier 1 Material, **Table 3.3-6, item 7.d.** ~~Section 3.3, Nuclear Island Buildings~~
7.a) The SFS preserves containment integrity by isolation of the SFS lines penetrating the containment.	See Tier 1 Material, **Table 2.2.1-3, Items 1 and 7**~~subsection 2.2.1, Containment System.~~	See Tier 1 Material, **Table 2.2.1-3, Items 1 and 7**~~subsection 2.2.1, Containment System.~~
7.b) The SFS provides spent fuel cooling for 7 days by boiling **the spent fuel** pool water ~~in the pool~~ and ~~providing~~ makeup water from on-site storage tanks.	i) Inspection will be performed to verify that the spent fuel pool includes a sufficient volume of water.	i) The volume of the spent fuel pool and fuel transfer canal above the fuel and to the elevation 6 feet below the operating deck is greater than or equal to 46,700 gallons.
	ii) Inspection will be performed to verify the cask washdown pit includes sufficient volume of water.	ii) The **water** volume of the cask washdown pit is greater than or equal to 30,900 gallons.
	iii) A safety-related flow path exists from the cask washdown pit to the spent fuel pool.	iii) See item 1 of this table.
	iv) See Tier 1 Material **Table 2.2.2-3, item 7.f.** ~~subsection 2.2.2~~ for inspection, testing, and acceptance criteria for the makeup water supply ~~line~~ from the passive containment cooling system (PCS) water storage tank to the spent fuel pool.	iv) See Tier 1 Material **Table 2.2.2-3, item 7.f.** ~~subsection 2.2.2~~ for inspection, testing, and acceptance criteria for the makeup water supply ~~line~~ from the PCS water storage tank to the spent fuel pool.
	v) Inspection will be performed to verify that the passive containment cooling system water storage tank includes a sufficient volume of water.	v) **See Tier 1 Material Table 2.2.2-3, item 7.f) for** ~~T~~the volume of the passive containment cooling system water storage tank ~~is greater than or equal to 756,700 gallons~~.
	vi) **See Tier 1 Material Table** ~~subsection~~ **2.2.2-3 Items 8.a., and 8.b. for inspection, testing, and acceptance criteria** ~~for the SFS makeup water supply from the PCS Inspection will be performed~~ to verify that the passive containment cooling system ancillary water storage tank includes a sufficient volume of water.	vi) **See Tier 1 Material Table** ~~subsection~~ **2.2.2-3 Items 8.a., and 8.b. for inspection, testing, and acceptance criteria for the** ~~SFS makeup water supply from the PCS The~~ volume of the passive containment cooling system ancillary water storage tank. ~~is greater than or equal to 175,000 gallons~~

Table 2.2.2-3 (cont.) Inspections, Tests, Analyses, and Acceptance Criteria		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
7.a) The PCS delivers water from the PCCWST to the outside, top of the containment vessel.	i) Testing will be performed to measure the PCCWST delivery rate from each one of the three parallel flow paths.	i) When tested each one of the three flow paths delivers water at greater than or equal to: – 469.1 gpm at a PCCWST water level of 27.4 ft + 0.2, - 0.0 ft above the tank floor – 226.6 gpm when the PCCWST water level uncovers the first (i.e. tallest) standpipe – 176.3 gpm when the PCCWST water level uncovers the second tallest standpipe – 144.2 gpm when the PCCWST water level uncovers the third tallest standpipe
	ii) Testing and or analysis will be performed to demonstrate the PCCWST inventory provides 72 hours of adequate water flow.	ii) When tested and/or analyzed with all flow paths delivering and an initial water level at 27.4 + 0.2, - 0.00 ft, the PCCWST water inventory provides greater than or equal to 72 hours of flow, and the flow rate at 72 hours is greater than or equal to 100.7 gpm.
	iii) Inspection will be performed to determine the PCCWST standpipes elevations.	iii) The elevations of the standpipes above the tank floor are: – 16.8 ft ± 0.2 ft – 20.3 ft ± 0.2 ft – 24.1 ft ± 0.2 ft

Table 2.2.2-3 (cont.) Inspections, Tests, Analyses, and Acceptance Criteria		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
7.b) The PCS wets the outside surface of the containment vessel. The inside and the outside of the containment vessel above the operating deck are coated with an inorganic zinc material.	i) Testing will be performed to measure the outside wetted surface of the containment vessel with one of the three parallel flow paths delivering water to the top of the containment vessel.	i) A report exists and concludes that when the water in the PCCWST uncovers the standpipes at the following levels, the water delivered by one of the three parallel flow paths to the containment shell provides coverage measured at the spring line that is equal to or greater than the stated coverages. - 24.1 ± 0.2 ft above the tank floor; at least 90% of the perimeter is wetted. - 20.3 ± 0.2 ft above the tank floor; at least 72.9% of the perimeter is wetted. - 16.8 ± 0.2 ft above the tank floor; at least 59.6% of the perimeter is wetted.
	ii) Inspection of the containment vessel exterior coating will be conducted.	ii) A report exists and concludes that the containment vessel exterior surface is coated with an inorganic zinc coating above elevation 135'-3".
	iii) Inspection of the containment vessel interior coating will be conducted.	iii) A report exists and concludes that the containment vessel interior surface is coated with an inorganic zinc coating above 7' above the operating deck.
7.c) The PCS provides air flow over the outside of the containment vessel by a natural circulation air flow path from the air inlets to the air discharge structure.	Inspections of the air flow path segments will be performed.	Flow paths exist at each of the following locations: – Air inlets – Base of the outer annulus – Base of the inner annulus – Discharge structure
7.d) The PCS drains the excess water from the outside of the containment vessel through the two upper annulus drains.	Testing will be performed to verify the upper annulus drain flow performance.	With a water level within the upper annulus 10" ± 1" above the annulus drain inlet, the flow rate through each drain is greater than or equal to 525 gpm.

Table 2.2.2-3 (cont.) Inspections, Tests, Analyses, and Acceptance Criteria		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
7.e) The PCS provides a flow path for long-term water makeup to the PCCWST.	i) See item 1 in this table. ii) Testing will be performed to measure the delivery rate from the long-term makeup connection to the PCCWST.	i) See item 1 in this table. ii) With a water supply connected to the PCS long-term makeup connection, each PCS recirculation pump delivers greater than or equal to 100 gpm when tested separately.
7.f) The PCS provides a flow path for long-term water makeup from the PCCWST to the spent fuel pool.	i) Testing will be performed to measure the delivery rate from the PCCWST to the spent fuel pool. ii) Inspection of the PCCWST will be performed.	i) With the PCCWST water level at 27.4 ft + 0.2, - 0.0 ft above the bottom of the tank, the flow path from the PCCWST to the spent fuel pool delivers greater than or equal to 118 gpm. ii) The volume of the PCCWST is greater than 756,700 gallons.
8.a) The PCCAWST contains an inventory of cooling water sufficient for PCS containment cooling from hour 72 through day 7.	Inspection of the PCCAWST will be performed.	The volume of the PCCAWST is greater than 780,000 gallons.
8.b) The PCS delivers water from the PCCAWST to the PCCWST and spent fuel pool simultaneously.	Testing will be performed to measure the delivery rate from the PCCAWST to the PCCWST and spent fuel pool simultaneously.	With PCCASWST aligned to the suction of the recirculation pumps, each pump delivers greater than or equal to 100 gpm to the PCCWST and 35 gpm to the spent fuel pool simultaneously when each pump is tested separately.
8.c) The PCCWST includes a water inventory for the fire protection system.	See Tier 1 Material, Table 2.3.4-2, items 1 and 2.	See Tier 1 Material, Table 2.3.4-2, items 1 and 2.
9. Safety-related displays identified in Table 2.2.2-1 can be retrieved in the MCR.	Inspection will be performed for retrievability of the safety-related displays in the MCR.	Safety-related displays identified in Table 2.2.2-1 can be retrieved in the MCR.
10.a) Controls exist in the MCR to cause the remotely operated valves identified in Table 2.2.2-1 to perform active functions.	Stroke testing will be performed on the remotely operated valves identified in Table 2.2.2-1 using the controls in the MCR.	Controls in the MCR operate to cause remotely operated valves identified in Table 2.2.2-1 to perform active functions.

Table 2.3.7-4 (cont.) Inspections, Tests, Analyses, and Acceptance Criteria		
Design Commitment	**Inspections, Tests, Analyses**	**Acceptance Criteria**
6.b) Separation is provided between SFS Class 1E divisions, and between Class 1E divisions and non-Class 1E cable.	See Tier 1 Material, Table 3.3-6, item 7.d.	See Tier 1 Material, Table 3.3-6, item 7.d.
7.a) The SFS preserves containment integrity by isolation of the SFS lines penetrating the 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
7.b) The SFS provides spent fuel cooling for 7 days by boiling the spent fuel pool water and makeup water from on-site storage tanks.	i) Inspection will be performed to verify that the spent fuel pool includes a sufficient volume of water. ii) Inspection will be performed to verify the cask washdown pit includes sufficient volume of water. iii) A safety-related flow path exists from the cask washdown pit to the spent fuel pool. iv) See Tier 1 Material Table 2.2.2-3, item 7.f. for inspection, testing, and acceptance criteria for the makeup water supply from the passive containment cooling system (PCS) water storage tank to the spent fuel pool. v) Inspection will be performed to verify that the passive containment cooling system water storage tank includes a sufficient volume of water. vi) See Tier 1 Material Table 2.2.2-3 Items 8.a., and 8.b. for inspection, testing, and acceptance criteria to verify that the passive containment cooling system ancillary water storage tank includes a sufficient volume of water.	i) The volume of the spent fuel pool and fuel transfer canal above the fuel and to the elevation 6 feet below the operating deck is greater than or equal to 46,700 gallons. ii) The water volume of the cask washdown pit is greater than or equal to 30,900 gallons. iii) See item 1 of this table. iv) See Tier 1 Material Table 2.2.2-3, item 7.f. for inspection, testing, and acceptance criteria for the makeup water supply from the PCS water storage tank to the spent fuel pool. v) See Tier 1 Material Table 2.2.2-3, item 7.f) for the volume of the passive containment cooling system water storage tank. vi) See Tier 1 Material Table 2.2.2-3 Items 8.a., and 8.b. for inspection, testing, and acceptance criteria for the volume of the passive containment cooling system ancillary water storage tank.