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NUCLEAR ENERGY INSTITUTE

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May 17, 2000

Mr. Michael L. Marshall Jr., Project Manager
Division of Engineering Technology
Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: Clarified Responses for Sump Survey

PROJECT NUMBER: 689

In a January letter, the NRC staff identified certain licensee responses to the NEI sump design survey that appeared incomplete or inaccurate. The enclosed table provides the licensee's clarifications of the responses in question. Clarification on item 19 is forthcoming and will be provided to you when it is received.

If you have question, please call me at (202) 739-8085.

Sincerely,

Kurt Cozens

KOC/
Enclosure

c: Mr. Robert B. Elliott, U.S. Nuclear Regulatory Commission
Mr. Aleck W. Serkiz, U.S. Nuclear Regulatory Commission

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Enclosure

PLANT RESPONSE TO NRC QUESTIONS ON ORIGINAL PWR SUMP SURVEY

SURVEY QUESTION	ITEM NUMBER	PLANT(S)	PLANT RESPONSE	NRC COMMENT	CLARIFIED RESPONSE
Following a LBLOCA, when does the low-pressure safety injection (LPSI), residual heat removal (RHR), and/or recirculatiing pump start to draw suction from the sump? (sec)	1	Calvert Cliffs 1	480 minutes	This seems like too much time.	20 minutes
	2	Calvert Cliffs 2	480 minutes	This seems lime too much time.	20 minutes
	3	San Onofre 2	0.33 minutes	This seems like too little time.	20 minutes
Following a LBLOCA, when is the maximum containment flood level reached? (sec)	4	San Onofre 2	0.5 minutes	This seems like too little time.	30 minutes
How much trash rack is available? (ft. sq.)	5	St Lucie 2	883 ft^2	It appears credit is being taken for gates and other obstacles that are not located to the sump.	About 883 ft^2 [a]
What is the hole size in the trash rack? (inches)	6	Salem 1	.023 in^2	This seems too small.	0.23 in^2
	7	Salem 2	.023 in^2	This seems too small.	0.23 in^2
Does the sump have a debris curb? What is the height of the debris curb? (ft)	8	ANO-2	No Response	Any solid obstruction at the containment floor level, in front of, or under the pump screen can be considered a curb. A good example of this would be the angle iron channel used to fasten the screen to the floor.	Does not have a curb like device.
	9	Davis-Besse	No Response		Does not have a curb like device.
	10	Fort Calhoun	No Response		Does not have a curb like device.
	11	Indian Point 2	No Response		Does not have a curb like device.
	12	Indian Point 3	No Response		Does not have a curb like device.
	13	Farley 1 & 2	No Response		Does not have a curb like device.
	14	North Anna 1	No Response		Does not have a curb like device.

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SURVEY QUESTION	ITEM NUMBER	PLANT(S)	PLANT RESPONSE	NRC COMMENT	CLARIFIED RESPONSE
	15	North Anna 2	No Response		Does not have a curb like device.
	16	Point Beach 1 & 2	No Response		Does not have a curb like device.
	17	Surry 1 & 2	No Response		Does not have a curb like device.
Approach velocity (not a survey question.)	18	Vogtle	12 ft/s*	Based on screen area reported in survey and pump flow rates reported in GL 97-04, LANL staff calculated an approach velocity for each plant. Some of the calculated values seem too high or too low. * Calculated by LANL	Incorrect value; used incorrect screen area; see item 21, below
	19	Indian Point 3	1.4 ft/s*		Response forthcoming
	20	Callaway	0.05 ft/s*		Utility calculated value < 0.09 ft/sec; see item 23 below
How much screen area is available?	21	Vogtle	5.84 ft^2	Screen area reported in the survey seems too high or too low.	Actual value is approximate 54 ft^2, per sump, with 4 sumps (2 for RHR, and 2 for CS)
	22	St. Lucie 2	571 ft^2		Top 133 ft^2, 4 sides = 440 $ft^{2\,b}$
	23	Callaway	692 ft^2		This value is for both sumps. Flood up does not fully cover screens; actual flooded screen area is less.

a NRC question 5 questions the value of 883 sq. ft. for the trash rake area. This area is correct, and supported by the FPL survey response 3i, which states:

- Each of the 20 stationary trash racks is comprised of members forming a box with open area 4 ft.-2¾ in. wide, 4f-10½ in. high, and 1ft-5¾ in. deep. Therefore, the total area for each stationary trash rack is approximately 41 square feet.

- Each of the three gates which function as trash racks for the doorway openings has an open area 6'-3" high and 3'-4" wide. Therefore, the total area for each gate is approximately 21 square feet.

- We have 20 trash rakes @ 41 sq. ft. each and 3 gates at 21 sq. ft. each for a total of 883 sq. ft. This detail and reference drawings and sketches are provided in the submittal.

b NRC question 22 questions the value of 571 sq. ft. for the screen area. This value is not provided in the FPL response, but appears to be a combination of information provided. The FPL response to question 3e states:

The layouts of the horizontal and vertical screens are shown on Figure C-8. From this drawing, the approximate areas of the screens are determined as follows:

- Horizontal screen: Approximately 131 square feet.
- Vertical outer screens: Approximately 311 square feet of projected area.

This value does not take into account the corrugated pattern of the screen. When this pattern is considered, the total area of screen material is approximately 440 square feet.)

- Vertical divider screen: Approximately 57 square feet of projected area. This value does not take into account the corrugated pattern of the screen. When this pattern is considered, the total area of screen material is approximately 82 square feet.

These estimated quantities do not take into account the reduction in area blocked off by framing members.

The above value of 571 sq. ft. is a combination of the 131 sq. ft of the horizontal screen and the 440 sq. ft., for the vertical outer screen total area, based on corrugated pattern.