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RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Responds to 810604 request for addl info re exemption from requirement to install fire rated dampers in safety-related duct penetrations in auxiliary bldg.

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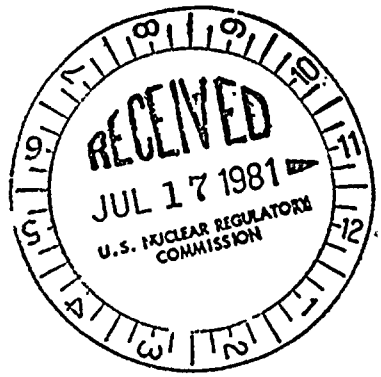

Office of Nuclear Reactor Regulation
Attention: Mr. Harold R. Denton, Director
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Denton:

Re: St. Lucie Unit 1
Docket No. 50-335
10 CFR Appendix R Exemption Request -
Additional Information on Fire Dampers in
Safety-Related Ductwork

Please find attached the additional information you requested in your letter dated June 4, 1981 regarding fire dampers in safety-related ductwork of the Auxiliary Building. This information is transmitted in support of our exemption request from the requirement to install fire rated dampers in safety-related duct penetrations.

Very truly yours,

Robert E. Uhrig
Vice President
Advanced Systems and Technology

REU/JEM/mbd

Attachment

cc: Mr. James P. O'Reilly, Region II
Harold F. Reis, Esquire

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ATTACHMENT 1

1. NRC REQUEST: List the safety-related duct penetrations of the auxiliary building in which you are requesting approval not to install dampers.

FPL RESPONSE: Table I provides a listing of those penetrations which are to be excluded from the requirements of Appendix R, Section III. G

2. NRC REQUEST: Provide details supporting your conclusion that the radiological boundary of the Auxiliary Building could be violated.

FPL RESPONSE: Duct penetration No.'s 2, 10, 14 & 15 from Table I are requested to be exempt from the requirements of Appendix R, Section III. G for the following reasons:

1) These penetrations exist in ventilation ducting which is commen to both emergency exhaust fans (HVE-9A,B) of the ECCS Area Ventilation System.

2) The single failure of a safety-related fire damper at one of these penetrations could result in the partial or total failure of the ECCS Area Ventilation System to perform its safety function.

3) The ECCSVentilation System is designed to provide post-LOCA filtration and adsorption of fission products in the exhaust air from areas of the Auxiliary Building which contain the following equipment:

a) Containment isolation valves.
b) Low pressure safety injection pumps.
c) High pressure safety injection pumps.
d) Containment spray pumps.
e) Shutdown heat exchangers.
f) Piping which contains recirculating containment sump water following a LOCA.

The ventilation system is sized to maintain a slightly negative pressure of between 1/4 and 1 inch wg in the ECCS area with respect to surrounding areas of the Reactor Auxiliary Building. The single failure described in paragraph (2) above, could result in the following:

a) Loss of the pressure differential between the ECCS area and the surrounding areas of the Auxiliary Building, thus disrupting the air flow from areas of low radioactivity to high radioactivity.

b) The build-up of airborne radioactivity in the ECCS area, and its subsequent escape to other areas of the Auxiliary Building.

Duct penetration No.'s 1, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 16, 17, 18, 19, 20 & 21 are requested to be exempt from the requirements of Appendix R, Section III. G for the following reasons:

1) These penetrations exist in ventilation ducting which is common to both main supply fans (HVS-4A, B) of the Reactor Auxiliary Building Main Ventilation System.

2) The single failure of a safety-related fire damper at one of these penetrations could result in the partial or total failure of the Auxiliary Building Main Ventilation System to perform its radiological safety function.

3) The Reactor Auxiliary Building Main Ventilation System is designed to provide air flow from areas of low potential radioactivity to areas of higher potential radioactivity. This function is accomplished by the proper distribution of supply air, concurrent with the operation of the ECCS area exhaust ventilation system. The single failure described in paragraph (2) above could result in the loss of air flow to an area adjacent to the ECCS rooms, thus enhancing the possibility of leakage out of the ECCS area.

Duct penetration No.'s 25, 26 and 27 from Table I are requested to be exempt from the requirements of Appendix R, Section III. G for the following reasons:

1) These penetrations exist in ventilation ducting which is common to both the booster fans and air conditioners of the Control Room HVAC System.

2) The single failure of a safety-related fire damper at one of these penetrations could result in the partial or complete failure of the Control Room HVAC System to perform its safety functions.

3) The control room ventilation system is designed to:

a) Limit Control Room doses due to airborne activity to within GDC 19 limits.

b) Permit personnel occupancy and proper functioning instrumentation and controls during normal and LOCA conditions.

c) Permit personnel occupancy during a chlorine release accident.

These functions are accomplished by isolating normal unfiltered air intakes during accident conditions, recirculating control room air through HEPA and charcoal filters, and maintaining the Control Room at a slight positive pressure when receiving outside air make up.

The single failure described in paragraph (2) above could prevent this system from inducing a positive pressure in the Control Room, or recirculating the Control Room air for filtration and adsorption of fission products.

3. NRC REQUEST: Provide details supporting your conclusion that the operation of vital emergency safeguards equipment could be affected.

FPL RESPONSE: Duct penetration No.'s 1, 11, 12, 13, 16 and 20 from Table I are requested to be exempt from the requirements of Appendix R, Section III. G for the following reasons:

1) These penetrations exist in ventilation ducting which is common to both main supply fans (HVS-4A, B) of the Reactor Auxiliary Building Main Ventilation System.

2) The single failure of a safety related fire damper at one of these penetrations could result in the partial or total failure of the Auxiliary Building Main Ventilation System to perform its safety related cooling function.

3) The Reactor Auxiliary Building ventilation system is designed to provide an air supply for meeting the cooling requirements of safety related equipment, such as the low and high pressure safety injection pump motors and the containment spray pump. This system provides a minimum of four air changes per hour for each of the rooms in the building, and is sized to achieve the design ambient maximum temperature of 104 degrees F. in the equipment areas with an outside air temperature of 93 degrees F. The initiation of a SIAS signal automatically directs the required air flow to safety related equipment, by the use of motor-operated dampers to isolate non-vital portions of the system. The single failure described in paragraph (2) above, would result in the loss of cooling to redundent components required for reactor safety, due to the utilization of a common supply duct. This would result in increased equipment temperatures with subsequent reduced reliability.

Duct penetration No.'s 22, 23 & 24 from Table I are requested to be exempt from the requirements of Appendix R, Section III. G for the following reasons:

1) These penetrations exist in ventilation ducting which is common to both supply fans (HVS-5A, B) of the Electrical Equipment Room Ventilation System.

2) The single failure of a safety-related fire damper at one of these penetrations could result in the partial or total failure of the Electrical Equipment Room Ventilation System to perform its safety-related function.

3) The Electrical Equipment Room Ventilation System is designed to provide cooling to the Electrical Equipment Rooms 1A and 1B, as well as the Cable Spreading Room. This ventilation

system is safety-related since it is required for the proper functioning of emergency electrical distribution equipment. The single failure described in paragraph (2) above could result in the loss of cooling to one or all three of these rooms due to the use of a common ventilation duct for the supply fans. The subsequent increase in equipment temperature would result in reduced equipment reliability.

TABLE I — SAFETY RELATED VENTILATION DAMPERS - REQUEST FOR EXCLUSION — Page 1

DUCT PENETRATION NO.	*BETWEEN FIRE AREA NO.___ AND FIRE AREA NO.____	SAFETY RELATED VENTILATION SYSTEM OF CONCERN	PENETRATION SIZE W x H (inches)	*APPROXIMATE LOCATION	SAFETY RELATED FUNCTION
1	35 & 47	Auxiliary Bldg. Main Ventilation System	64 x 30	Fire area 35; in ceiling by south wall	Refer to FPL response for Items 2 & 3
2	35 & 47	ECCS Ventilation System	36 x 48	Fire area 35; in ceiling between HPSI Pumps 1A & 1C	Refer to FPL response to Item 2
3	35 & 38	Auxiliary Bldg. Main Ventilation System	48 x 18	Fire area 35; east wall	Refer to FPL response for Item 2
4	75/76/38 & 36	Auxiliary Bldg. Main Ventilation System	26 x 10	Fire area 36; in north-south corridor by charging pump area	Refer to FPL response for Item 2
5	36 & 39	Auxiliary Bldg. Main Ventilation System	20 x 20	Fire area 36; east wall of north-south corridor by charging pump area	Refer to FPL response for Item 2
6	39 & 36	Auxiliary Bldg. Main Ventilation System	26 x 10	Fire area 39; south wall	Refer to FPL response for Item 2
7	39 & 36	Auxiliary Bldg. Main Ventilation System	18 x 8	Fire area 39; south wall in corridor	Refer to FPL response for Item 2
8	35 & 36	Auxiliary Bldg. Main Ventilation System	18 x 14	Fire area 35; south wall	Refer to FPL response for Item 2
9	35 & 36	Auxiliary Bldg. Main Ventilation System	32 x 8	Fire area 35; south wall	Refer to FPL response for Item 2

TABLE I

PENETRATION NO.	*BETWEEN FIRE AREA NO.____ AND FIRE AREA NO.	SAFETY RELATED VENTILATION SYSTEM	PENETRATION SIZE W x H (inches)	*APPROXIMATE LOCATION	SAFETY RELATED FUNCTION
10	34 & 32	ECCS Ventilation System	24 x 10	Fire area 34; west wall	Refer to FPL respons to Item 2
11	49 & 61	Auxiliary Bldg. Main Ventilation System	70 x 48	Fire area 49; in ceiling by west wall	Refer to FPL respons to Items 2 & 3
12	49 & 48	Auxiliary Bldg. Main Ventilation System	70 x 48	Fire area 49; west wall	Refer to FPL response to Items 2 & 3
13	47 & 48	Auxiliary Bldg. Main Ventilation System	70 x 48	Fire area 47; east wall	Refer to FPL response to Items 2 & 3
14	47 & 61	ECCS Ventilation System	48 x 36	Fire area 47; in ceiling by east wall	Refer to FPL response to Item 2
15	47 & 80	ECCS Ventilation System	48 x 36	Fire area 47; north wall	Refer to FPL response to Item 2
16	47 & 55	Auxiliary Bldg. Main Ventilation System	70 x 18	Fire area 47; south wall	Refer to FPL response to Items 2 & 3
17	78 & 55	Auxiliary Bldg. Main Ventilation System	26 x 10	Fire area 78; west wall	Refer to FPL response to Item 2
18	78 & 77	Auxiliary Bldg. Main Ventilation System	18 x 10	Fire area 78; east wall	Refer to FPL response to Item 2
19	77 & 45	Auxiliary Bldg. Main Ventilation System	12 x 8	Fire area 77; east wall	Refer to FPL response to Item 2
20	49 & 55	Auxiliary Bldg. Main Ventilation System	18 x 12	Fire area 49; south wall	Refer to FPL response to Item 2
21	55 & 50	Auxiliary Bldg. Main Ventilation System	12 x 8	Fire area 50; south wall of north-south	Refer to FPL response to Item 2

TABLE I

PENETRATION NO.	*BETWEEN FIRE AREA NO. ____ AND FIRE AREA NO.	SAFETY RELATED VENTILATION SYSTEM	PENETRATION SIZE W x H (inches)	*APPROXIMATE LOCATION	SAFETY RELATED FUNCTION
22	56 & 71	Electrical Equip. Rm. Supply System	56 x 48	Fire area 56; in ceiling by east wall	See FPL response For Item 3
23	56 & 57	Electric Equip. Rm. Supply System	62 x 26	Fire area 56; north wall	See FPL response For Item 3
24	56 & 60	Electric Equip. Rm. Supply System	96 x 25	Fire area 60; south wall	See FPL response For Item 3
25	71 & 70	Control Room HVAC System (Supply)	66 x 38	Fire area 71; west wall	See FPL respo For Item 2
26	71 & 70	Control Room HVAC System (Return)	66 x 38	Fire area 71; west wall	See FPL response For Item 2
27	70 & 73	Control Room HVAC System (Supply)	18 x 8	Fire Area 70; south wall	See FPL response For Item 2

* Refer to FPL's original submittal to the NRC (entitled "Fire Protection - A Reevaluation of Existing Plant Design Features and Administrative Controls" transmitted by letter L-77-102 dated 3/31/77) for reference to fire areas.