UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of	)	
	)	
THE CLEVELAND ELECTRIC	)	Docket Nos. 50-440
ILLUMINATING COMPANY, ET AL.	)	50-441
	)	
(Perry Nuclear Power Plant,	)	
Units 1 and 2)	)	

AFFIDAVIT OF DONALD H. STEVENS

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AFFIDAVIT OF DONALD H. STEVENS

City of Washington	)	
	:	ss:
District of Columbia	)	

Donald H. Stevens, being duly sworn, deposes and says as follows:

1. I, Donald H. Stevens, am a Senior Mechanical Engineer, Gilbert/Commonwealth, Inc. My business address is Route 10 and Pheasant Road, Green Hills, Reading, Pennsylvania 19603. I supervised the Steam Erosion Hazards Analysis performed by Gilbert Associates, Inc. (now Gilbert/Commonwealth, Inc.) ("Gilbert") for the Perry Nuclear Power Plant ("PNPP"). Gilbert is the Architect-Engineer for PNPP. A statement of my professional qualifications and experience is attached hereto as Exhibit A. I have personal knowledge of the matters set forth herein and believe them to be true and correct.

2. In my affidavit I describe the PNPP Steam Erosion Hazards Analysis.1/ The study was performed in response to Ohio Citizens for Responsible Energy's Issue No. 15, and was above and beyond the analyses required to demonstrate compliance with regulatory design criteria.

3. The purpose of the Steam Erosion Hazards Analysis was to evaluate the design of PNPP in order to determine effects of postulated piping failures, due to steam erosion, on the ability of the plant to achieve and maintain safe shutdown. This was an extensive study, which reviewed all safety-related systems and components in plant areas containing steam and steam drain piping. Over 4000 items were identified and reviewed. The conclusion of the Steam Erosion Hazards Analysis is that the design of PNPP assures the ability of the plant to achieve and maintain a safe shutdown condition in the event of any credible failure resulting from the effects of steam erosion.

4. The first task in the study was to identify all steam and steam drain piping, both safety-related and not safety-related. The second task was to identify all plant areas containing such piping.2/ This task was accomplished by a

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1/ Gilbert Associates, Inc., Report No. 2502, "Steam Erosion Hazards Analysis," Revision 1 (April 1984). This report was submitted to the NRC Staff by letter of May 15, 1984.

2/ The Steam Erosion Hazards Analysis reviewed PNPP Unit 1 and common areas. Since Unit 2 is essentially a duplicate of Unit 1 for purposes of the study, the analysis provides assurance of the ability of Unit 2 to achieve and maintain safe shutdown.

comprehensive review of PNPP process and instrumentation diagrams and physical drawings. A plant "area" was defined as a building or compartment separated from other areas by distance, or by physical barriers such as walls, sufficient to assure that the postulated steam erosion hazards could affect only systems and components in that area.

5. Third, all safety-related systems and components (both active and passive) in the plant areas containing steam and steam drain piping were identified.3/ Many areas of the plant contain no safety-related systems or components, while other areas containing such systems and components do not contain steam or steam drain piping. Review of these areas was therefore not required. All together, approximately 4,150 safety class systems and components, including pumps, valves, cable, piping, tubing, instruments and other equipment, were identified.

6. Fourth, in each area identified, failures in steam and steam drain piping were postulated which were assumed to prevent the safety-related systems and components within the area from performing their safety functions. Each system and component then was reviewed according to the following preliminary steps:

3/ The PNPP Equipment Qualification Review List was used to identify active safety-related components. Passive components were identified by comprehensive reviews of piping, duct, tray and conduit drawings; circuit lists; and block diagrams.

(1) If the safety function(s) of the system or component are performed by a redundant safety-related system or component located in an area separated from the postulated pipe failure being considered, no further review was required.

(2) If the safety function(s) of the system or component are not performed by a redundant safety-related system or component in a separate area, the item was reviewed to determine whether it is required to achieve or maintain safe shutdown, or is required to provide another important safety function,[4/] for any postulated event. If not, no further review was required.

(3) If the system or component was determined to be required under step (2), the item was further reviewed to determine whether it is required for the particular steam erosion failure or failures postulated as a hazard to that item, i.e., for the loss of the particular piping system or systems. If not, no further review was required.

7. The fifth task consisted of more detailed analyses and reviews of the approximately 270 items not resolved by the preliminary analyses described above. These analyses included more detailed reviews of system and component functional requirements, availability of other systems and components to

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4/ "Other important safety functions" are functions not strictly required to achieve and maintain safe shutdown, but which are otherwise required in emergency situations. Typical examples are containment isolation valves and instruments which provide important information to plant operators.

perform the required function(s) under the particular conditions of the postulated pipe failure, and consequences of the loss of the particular function(s).

8. In a few cases, resolution was supported by a determination that the postulated pipe failure was not a credible event. These determinations were based on the expected life of the pipe in the particular area of concern, calculated according to the Keller Equation. The Keller Equation is described in the Affidavit of Richard A. Pender. In addition, for each of these locations, the steam quality, temperature, velocity, and/or material properties were such that, based on industry experience, steam erosion failures would not be expected to occur.

9. Attachment 1 illustrates the level of detail of the Steam Erosion Hazards Analysis.

10. Based on an exhaustive review of potential steam erosion hazards for all safety class systems and components,

I conclude that the effects of steam erosion cannot prevent safe shutdown or maintenance of safe shutdown of PNPP.

Donald H. Stevens

Subscribed and sworn to before me
this 1st day of February, 1985

NOTARY PUBLIC

My Commission Expires:

ATTACHMENT 1

STEAM EROSION HAZARDS ANALYSIS

Auxiliary Building RCIC Pump Room Area

The attached portions of summary tables from the Steam Erosion Hazards Analysis Report illustrate the detailed review process outlined in the Affidavit. The reactor core isolation cooling (RCIC) pump room area in the Auxiliary Building was chosen as a typical example.

Table 2 lists steam and steam drain piping systems possibly subject to steam erosion. Review of the physical drawings for each system identified plant areas containing any parts of these piping sytems. This piping, including piping in the RCIC pump room area, is listed by area on Table 1.

The attached portions of Tables 3 through 6 summarize all safety-related items in the RCIC pump room area.

Table 3 lists safety-related piping and HVAC systems. The RCIC pump room contains five such systems which represent approximately 15 individual piping and duct runs.

Table 4 lists safety-related instrument tubing. The example area contains 14 connections to 22 instruments.

Table 5 lists active safety-related components (e.g., pumps, valves, instruments). The example area contains 54 of these items.

Table 6 lists safety-related electrical circuits, including pull boxes, terminal boxes and cable trays. The RCIC pump room area contains 70 circuits and one terminal box.

The example area contains approximately 150 items in Tables 3 through 6. Of these, 18 items required more detailed review as described in ¶ 7 of the Affidavit. Tables 7 and 8 summarize the resolution of these reviews. The example area contains two items in Table 7 (pipe, duct and tubing) and 16 items in Table 8 (circuits, active components, and equipment).

No items in the RCIC pump room area were identified which could prevent PNPP from achieving and maintaining safe shutdown in the event of a failure resulting from the effects of steam erosion.

TABLE 1

LIST OF STEAM PIPING REVIEWED BY AREA FOR STEAM EROSION

	Area	Contains
	Reactor Building Drywell	B21 Main Steam, B21 Head Vent, E51 RCIC Steam Supply, E51 RCIC Head Spray Fitting, N22 Main Steam Drains
	Auxiliary Building Steam Tunnel	B21-N11 Main Steam, B21-N22 Main Steam Vents and Drains, E32-MSIV Leakage Control, P61 Auxiliary Steam, P61 Drains, E51 RCIC and E12 Condensing Mode Steam
	Auxiliary Building RHR "A" (No effects in Room "B" or "C")	E51 RCIC and E12 Condensing Mode Steam, E51 Drain, E51 Turbine Exhaust
	Auxiliary Building RHR "B" (No effect in Room "A" or "C")	E12 Condensing Mode Steam (N22 Drain is guard piped)
*	Auxiliary Building RCIC Pump Room	E51 RCIC Steam, (P61 Aux. Steam)(1), and Steam Drains
	Auxiliary Building RWCU Pump Room "A" (No effects on ECCS and the RWCU is not required for safe shutdown)	(P61 Auxiliary Steam)(1)
	Condensate Demineralizer Building	N22 Main Steam Drain
	Turbine Building & Heater Bay	C85 Steam Bypass and Drains, N11 Main and Reheat Steam, N22 Drains, N25-N26 Heater Drains and Vents, N33 Steam Seal, N36 Extraction Steam, P61 Auxiliary Steam and Drains
	Auxiliary Boiler Building	P61 Auxiliary Steam
	Radwaste Building (El. 602'-0" and 623'-0", RW-10 and RW-4 and approx. 5'-0" S. of RW-C to 6'-0" N. of RWB, D-304-058 & 059)	P61 Auxiliary Steam and Drains (Condensate return portions below 623'-6" are not subject to steam erosion)

TABLE 1 (Cont'd)

Area	Contains
Control Building El. 679'-6"	M29 Control and Computer Room Humidification System(2)

NOTES:

1. This P61 line is used for test only. It is normally isolated, and is therefore not subject to steam erosion.

2. Consequences of breaks in the M29 system, including effects enveloping those of steam erosion breaks, were analyzed and found not to jeopardize safe shutdown (FSAR Section 3.6.1.2.2, p. 3.6-6, Am. 8).

   There are P61 auxiliary steam condensate return lines in the radwaste, auxiliary, and turbine buildings. These lines are operated at less than 200° F and 275 psig, and are not subject to steam erosion.

TABLE 2

SYSTEMS REVIEWED FOR STEAM EROSION

	System		System and Piping Drawings
	B21	Main Steam	302-605 to 608; 304-026 to 028; GE 762E829, 762E276C
	C85	Steam Bypass	302-021; GE 767E523 304-014, 015, 020, 251
	E12	Residual Heat Removal Condensing Steam Supply	302-641 to 643; 304-640 to 650
	E32	MSIV Leakage Control	302-341, 342; 304-341, 342
*	E51	Reactor Core Isolation Cooling Steam Supply, Exhaust and Drain, Head Spray Line	302-631, 632; 304-631, 632
	M29	Control and Computer Room Humidification System	913-018; 923-115, 116; 304-725
	N11	Main and Reheat Steam	302-011 to 014; 304-011 to 022
*	N22	Main, Reheat, Extraction and Miscellaneous Drains	302-121 to 126; 304-501, 121 to 130
	N25	High Pressure Heater Drains and Vents	302-111, 112, 114, 115; 304-109 to 117
	N26	Low Pressure Heater Drains and Vents	302-113; 304-118 to 120
	N33	Steam Seal	302-141; 304-141 to 144
	N36	Extraction Steam	302-041 304-041 to 045
*	P61	Auxiliary Steam	302-051 to 053 304-051 to 064

TABLE 3 (Cont'd)

AREA 5: RCIC PUMP ROOM

SYSTEM:	DWGS:	DESCRIPTION	REDUNDANT SYSTEM, ITEM OR RESOLUTION*
E12	304-642	8" RHR Flush, 4" Heat Exchanger - RCIC Suction.	2
E51	304-631	E51 Lines	1
	304-632	Pump Suction, Suppression Pool to E51-F031	4
M39	922-721	M39 Unit for E51 - RCIC	1
P11	304-315	Suction and Return Lines to Condensate Transfer	1
P42 "A"	304-628	Emergency Closed Cooling (Water) System "A"	1

*1. Redundant system or component.
2. Not required for safe shutdown or other important safety functions.
3. Not required for this event.
4. See Tables 7 and 8.

TABLE 4 (Cont'd)

RESULTS OF REVIEW OF INSTRUMENT TUBING

Area 5: Aux. Bldg. - RCIC Pmp. Room

814/816 Dwg.	Process Conn No.	Instrument Panel	Inst. Impulse Lines Serve	Redundant Sys./Item or Resolution*
703	A3	H22-P021	E51-N055B (H) E51-N055F (H)	3
706 Sh. 1	A1	H22-P017	E51-N055A (H) E51-N055E (H)	3
	A2	H22-P017	E51-N056A (H)	3
	A3	H22-P017	E51-N056E (H)	3
	A4	H22-P017	E51-N053 E51-R002 E51-N052	3
	A5	H22-P017	E51-R003 E51-N007 (H)	3
	A6	H22-P017	E51-R001 E51-N050 (H)	3
	A7	H22-P017	E51-N051 (H) E51-N003 (H)	3
	A8	H22-P017	E51-N051 (L) E51-N003 (L)	3
	B2	H22-P017	E31-N083A (H)	4
	B3	H22-P017	E31-N083A (L)	4
	B5	H22-P017	E51-R004	3

*1. Redundant system or component.
2. Not required for safe shutdown or other important safety functions.
3. Not required for this event.
4. See Tables 7 and 8.

TABLE 4 (Cont'd)

RESULTS OF REVIEW OF INSTRUMENT TUBING

Area 5: Aux. Bldg. - RCIC Pmp. Room

814/816 Dwg.	Process Conn No.	Instrument Panel	Inst. Impulse Lines Serve	Redundant Sys./Item or Resolution*
	A14	H22-P018	E12-N028 (H)	3
745	Low Press. Conn.	H51-P1346	C43-LT-N090A	1

TABLE 5

RESULTS OF SAFETY RELATED COMPONENTS REVIEW BY AREA

Key to column entitled "Redundant System, Item, or Resolution":

1. Redundant system or component.
2. Not required for safe shutdown or other important safety functions.
3. Not required for this event.
4. See Tables 7 and 8.

Revision 1
April 1984

TABLE 5

TITLE : S-R EQPT ZONE AB-3

C EQUIPMENT D NUMBER S	DESCRIPTIONS SERVICE EQUIPMENT	Redundant System, Item, or Resolution
*1E31 N 0004A	LEAK DETECTION SYSTEM RCIC EQUIP AREA AMBIENT TEMPERATURE ELEMENT	4
*1E31 N 0004B	LEAK DETECTION SYSTEM RCIC EQUIP AREA AMBIENT TEMPERATURE ELEMENT	4
*1E31 N 0005A	LEAK DETECTION SYSTEM EQUIP RCIC VENT INLET TEMPERATURE ELEMENT	4
*1E31 N 0005B	LEAK DETECTION SYSTEM EQUIP RCIC VENT INLET TEMPERATURE ELEMENT	4
*1E31 N 0006A	LEAK DETECTION SYSTEM EQUIP RCIC VENT OUTLET TEMPERATURE ELEMENT	4
*1E31 N 0006B	LEAK DETECTION SYSTEM EQUIP RCIC VENT OUTLET TEMPERATURE ELEMENT	4

TABLE 5

TITLE : S-R EQPT ZONE AB-3

C EQUIPMENT D NUMBER S	DESCRIPTIONS SERVICE EQUIPMENT	Redundant System, Item, or Resolution
*1E51 C 0001	REACTOR CORE ISOLATION COOLING RCIC PUMP PUMP	3
*1E51 C 0002	REACTOR CORE ISOLATION COOLING PROCESS INSTRUMENT EQUIPMENT RCIC TURBINE	3
*1E51 F 0510	REACTOR CORE ISOLATION COOLING RCIC TURB TRIP THROTTLE VALVE	3
*1E51 F 0510 1	REACTOR CORE ISOLATION COOLING RCIC TURB TRIP THROTTLE VALVE OPERATOR-DC	2
*1E51 F 0510 2	REACTOR CORE ISOLATION COOLING RCIC TURB TRIP THROTTLE VALVE SOLENOID	2
*1E51 F 0510 3	REACTOR CORE ISOLATION COOLING RCIC TURB TRIP THROTTLE VALVE LIMIT SWITCHES	2

TABLE 5

TITLE : S-R EQPT ZONE AB-3

C EQUIPMENT D NUMBER S	DESCRIPTIONS SERVICE EQUIPMENT	Redundant System, Item, or Resolution
*1E51 N 0010	REACTOR CORE ISOLATION COOLING STM SUPPLY LINE DRAIN POT LEVEL LEVEL SWITCH	3
*1E51 N 0037	REACTOR CORE ISOLATION COOLING STM EXHAUST LINE DRAIN POT LEVEL LEVEL SWITCH	3
*1E51 F 0011	REACTOR CORE ISOLATION COOLING CST TO RCIC PMP. 6 INCH CHECK VALVE	3
*1E51 F 0030	REACTOR CORE ISOLATION COOLING SUPP POOL SUCT FOR RCIC PMP 6 INCH CHECK VALVE	3
*1E51 F 0010	REACTOR CORE ISOLATION COOLING CST TO RCIC PMP ISO MOTOR OPERATOR	3
*1E51 F 0010 1	REACTOR CORE ISOLATION COOL. SYSTEM CST TO RCIC PMP ISO 6 INCH GATE VALVES	3

TABLE 5

TITLE : S-R EQPT ZONE AB-3

C EQUIPMENT D NUMBER S	DESCRIPTIONS SERVICE EQUIPMENT	Redundant System, Item, or Resolution
*1E51 F 0022	REACTOR CORE ISOLATION COOLING RCIC TO CST ISO MOTOR OPERATOR	3
*1E51 F 0022 1	REACTOR CORE ISOLATION COOL. SYSTEM RCIC TO CST ISO DC MOTOR OPER 4 INCH GLOBE VALVES	3
*1E51 F 0031	REACTOR CORE ISOLATION COOLING SUPP POOL SUCT ISO FOR RCIC PM MOTOR OPERATOR	4
*1E51 F 0031 1	REACTOR CORE ISOLATION COOL. SYSTEM SUPP POOL SUCT ISO FOR RCIC PM 6 INCH GATE VALVES	4
*1E51 F 0045	REACTOR CORE ISOLATION COOLING MS TO RCIC TURB. MAX P#1145PSI MOTOR OPERATOR	3
*1E51 F 0045 1	REACTOR CORE ISOLATION COOL. SYSTEM MS TO RCIC TURB. MAX P#1145PSI 4 INCH GLOBE VALVES	3

TABLE 5

TITLE : 5-R EQPT ZONE AB-3

C EQUIPMENT D NUMBER S	DESCRIPTIONS SERVICE EQUIPMENT	Redundant System, Item, or Resolution
*1E12 F 0036	RESIDUAL HEAT REMOVAL SYSTEM RHR TO RCIC PMP SUCT RELIEF 3 INCH X 4 INCH RELIEF VALVES	3
*1E51 F 0017	REACTOR CORE ISOLATION COOLING RCIC PMP SUCT RLF TO CRW 1 INCH X 2 INCH RELIEF VALVE	3
*1E51 F 0018	REACTOR CORE ISOLATION COOLING RCIC TO LUBE OIL CLR. REL. 1 INCH X 2 INCH RELIEF VALVE	3
*1P42 F 0570	EMERGENCY CLOSED COOLING SYSTEM THERMAL EXP. RELIEF 3/4 INCH X 1 INCH RELIEF VALVE	3
*1E51 F 0047	REACTOR CORE ISOLATION COOLING TURB DRN POT TO CRW 1 INCH CHECK VALVE	3
*1E51 F 0061	REACTOR CORE ISOLATION COOLING WTR LEG PMP DISCH TO RCIC PMP 1-1/2 INCH CHECK VALVE	3

TABLE 5

TITLE : S-R EQPT ZONE AB-3

C EQUIPMENT D NUMBER S	DESCRIPTIONS SERVICE EQUIPMENT	Redundant System, Item, or Resolution
*1E51 F 0062	REACTOR CORE ISOLATION COOLING WTR LEG PMP DISCH TO RCIC PMP 1-1/2 INCH CHECK VALVE	3
*1E51 F 0090 Y	REACTOR CORE ISOLATION COOLING THERMAL EXPANSION CHK. 1 INCH CHECK VALVE	1
*1N27 F 0783	FEEDWATER SYSTEM TEST LINE TO RHR 1 INCH CHECK VALVE	3
*1E51 F 0046	REACTOR CORE ISOLATION COOL. SYSTEM RCIC PMP DISCH TO TURB LB OIL CLR. MOTOR OPERATOR	3
*1E51 F 0046 1	REACTOR CORE ISOLATION COOL. SYSTEM RCIC PMP DISCH TO TURB LB OIL CLR. 2 INCH GLOBE VALVES	3

TABLE 5

TITLE : S-R EQPT ZONE AB-3

C EQUIPMENT D NUMBER S	DESCRIPTIONS SERVICE EQUIPMENT	Redundant System, Item, or Resolution
*1E51 F 0004	REACTOR CORE ISOLATION COOLING TURB DRN POT TO CRW ISO CONTROL VALVE ON-OFF SERVICE	3
*1E51 F 0005	REACTOR CORE ISOLATION COOLING TURB DRN POT TO CRW ISO CONTROL VALVE ON-OFF SERVICE	3
*1E51 F 0025	REACTOR CORE ISOLATION COOLING MS DRN POT TO COND ISO CONTROL VALVE ON-OFF SERVICE	3
*1E51 F 0026	REACTOR CORE ISOLATION COOLING MS DRN POT TO COND ISO CONTROL VALVE ON-OFF SERVICE	3
*1E51 F 0054	REACTOR CORE ISOLATION COOLING MS DRN POT LEVEL CONT. CONTROL VALVE ON-OFF SERVICE	3
*1E51 F 0404	REACTOR CORE ISOLATION COOLING CONTROLS OPERATING AIR TO F004 SOLENOID VALVE	3

TABLE 5

TITLE : S-R EQPT ZONE AB-3

C EQUIPMENT D NUMBER S	DESCRIPTIONS SERVICE EQUIPMENT	Redundant System, Item, or Resolution
*1E51 F 0405	REACTOR CORE ISOLATION COOLING CONTROLS OPERATING AIR TO F005 SOLENOID VALVE	3
*1E51 F 0425	REACTOR CORE ISOLATION COOLING CONTROLS OPERATING AIR TO F025 SOLENOID VALVE	3
*1E51 F 0426	REACTOR CORE ISOLATION COOLING CONTROLS OPERATING AIR TO F026 SOLENOID VALVE	3
*1E51 F 0454	REACTOR CORE ISOLATION COOLING CONTROLS OPERATING AIR TO F054 SOLENOID VALVE	3
*1E51 F 0015	REACTOR CORE ISOLATION COOLING SYS OUTLET PRESS REG TO TURB LUBE COOLER 2 INCH PRESSURE REGULATOR	3
*1M39 B 0004	ECCS PUMP ROOM COOLING SYSTEM RCIC PUMP ROOM AIR HANDLING UNIT FAN	3

TABLE 5

TITLE : S-R EQPT ZONE AB-3

C EQUIPMENT D NUMBER S	DESCRIPTIONS SERVICE EQUIPMENT	Redundant System, Item, or Resolution
*1M39 B 0004 1	ECCS PUMP ROOM COOLING SYSTEM RCIC PUMP RM AIR HANDLING UNIT MOTOR MOTOR	3
*1E51 N 0404	REACTOR CORE ISOLATION COOLING LIMIT SWITCH FOR VALVE F004 LIMIT SWITCH	3
*1E51 N 0405	REACTOR CORE ISOLATION COOLING LIMIT SWITCH FOR VALVE F005 LIMIT SWITCH	3
*1E51 N 0425	REACTOR CORE ISOLATION COOLING LIMIT SWITCH FOR VALVE F025 LIMIT SWITCH	3
*1E51 N 0426	REACTOR CORE ISOLATION COOLING LIMIT SWITCH FOR VALVE F026 LIMIT SWITCH	3
*1E51 N 0454	REACTOR CORE ISOLATION COOLING LIMIT SWITCH FOR VALVE F054 LIMIT SWITCH	3

NOTES TO TABLE 6

Notes to explain numerical designations found in "Redundant System Item or Resolution" column:

1. Redundant system or component.

2. Not required for safe shutdown or other important safety functions.

3. Not required for this event.

4. See Tables 7 and 8.

- Some circuit designations end in a terminal box. A dash is shown in the resolution column for these items, to indicate that the circuit so designated is reviewed by considering its parts. Terminal boxes are passive electrical boxes containing only wire and terminals. The circuits are physically continued with subsequent number designations, and are reviewed in detail under the numbers designating the circuits finally connected to the equipment served.

TABLE 6 (Cont'd)

RCIC PUMP RM., AUX. BLDG. 574'-04"
D-215-211

CIRCUIT	SERVES	LOCATION OF ITEM SERVED	DESIGNATION	REDUNDANT SYSTEM ITEM OR RESOLUTION
1C61C1A	1E51-C002	RCIC Rm.	RCIC Turb.	2
1C95R119A	1E51-F045	RCIC Rm.	RCIC Valve	2
1E31T68A	1E31-N005A	RCIC Pmp. Rm.	Leak Det.	4
1E31T69A	1E31-N006A	RCIC Pmp. Rm.	Leak Det.	4
1E31T70A	1E32-N004A	RCIC Pmp. Rm.	Leak Det.	4
1E31T85B	1E31-N002B	RHR A	Leak Det.	2
1E31T86B	1E31-N003B	RHR A	Leak Det.	2
1E31T87B	1E31-N001B	RHR A	Leak Det.	2
1E31T88B	1E31-N005B	RCIC Pmp. Rm.	Leak Det.	4
1E31T89B	1E31-N006B	RCIC Pmp. Rm.	Leak Det.	4
1E31T90B	1E31-N004B	RCIC Pmp. Rm.	Leak Det.	4
1E31T115XA	1E31-N005A	RCIC Pmp. Rm.	Leak Det.	4
1E31T116XA	1E31-N006A	RCIC Pmp. Rm.	Leak Det.	4
1E31T117XA	1E31-N004A	RCIC Pmp. Rm.	Leak Det.	4
1E51C28A	1E51-F010	RCIC Rm.	RCIC Valve	2
1E51C40A	1E51-F045	RCIC Rm.	RCIC Valve	2
1E51C48A	1E51-F046	RCIC Rm.	RCIC Valve	2
1E51C51A	1E51-F022	RCIC Rm.	RCIC Valve	2
1E51C59A	1E51-C002	RCIC Rm.	RCIC Turb.	2
1E51C62A	1E51-F031	RCIC Rm.	RCIC Valve	2
1E51C65A	1E51-F022	RCIC Rm.	RCIC Valve	2

TABLE 6 (Cont'd)

RCIC PUMP RM., AUX. BLDG. 574'-04"
D-215-211 (Cont'd)

CIRCUIT	SERVES	LOCATION OF ITEM SERVED	DESIGNATION	REDUNDANT SYSTEM ITEM OR RESOLUTION
1E51C66A	1E51-F059	RCIC Rm.	RCIC Valve	1
1E51C71A	1E51-F059	RCIC Rm.	RCIC Valve	1
1E51C90A	TB-1-431	RCIC Rm.	Terminal Box	-
1E51C92A	1E51-F045	RCIC Rm.	RCIC Valve	2
1E51C95A	1E51-F031	RCIC Rm.	RCIC Valve	2
1E51C96A	1E51-N037	RCIC Rm.	RCIC Drain Pot. Lev. Sw.	2
1E51C97A	1E51-N010	RCIC Rm.	RCIC Drain Pot. Lev. Sw.	2
1E51C98A	1E51-F045	RCIC Rm.	RCIC Valve	2
1E51C100A	1E51-F064	RCIC Rm.	RCIC Valve	2
1E51C112A	TB-1-431	RCIC Rm.	Terminal Box	-
1E51C136A	1E51-C002	RCIC Rm.	RCIC Turb.	2
1E51C138A	1E51-C002	RCIC Rm.	RCIC Turb.	2
1E51C139A	TB-1-436	RCIC Rm.	Terminal Box	-
1E51C140A	TB-1-436	RCIC Rm.	Terminal Box	-
1E51C141A	1E51-F426	RCIC Rm.	RCIC Valve	2
1E51C142A	1E51-N426	RCIC Rm.	RCIC Inst.	2
1E51C143A	1E51-N426	RCIC Rm.	RCIC Inst.	2
1E51C144A	1E51-F405	RCIC Rm.	RCIC Valve	2
1E51C145A	1E51-N405	RCIC Rm.	RCIC Inst.	2
1E51C146A	1E51-N405	RCIC Rm.	RCIC Inst.	2
1E51C147A	1E51-F454	RCIC Rm.	RCIC Valve	2

TABLE 6 (Cont'd)

RCIC PUMP RM., AUX. BLDG. 574'-04"
D-215-211 (Cont'd)

CIRCUIT	SERVES	LOCATION OF ITEM SERVED	DESIGNATION	REDUNDANT SYSTEM ITEM OR RESOLUTION
1E51C148A	1E51-N454	RCIC Rm.	RCIC Inst.	2
1E51C149A	1E51-N454	RCIC Rm.	RCIC Inst.	2
1E51C151B	TB-1-437	RCIC Rm.	Terminal Box	-
1E51C152B	1E51-F425	RCIC Rm.	RCIC Valve	2
1E51C153B	1E51-N425	RCIC Rm.	RCIC Inst.	2
1E51C154B	1E51-N425	RCIC Rm.	RCIC Inst.	2
1E51C155B	1E51-F404	RCIC Rm.	RCIC Valve	2
1E51C156B	1E51-N404	RCIC Rm.	RCIC Inst.	2
1E51C157B	1E51-N404	RCIC Rm.	RCIC Inst.	2
1E51C150A	1E51-C002	RCIC Rm.	RCIC Turb.	2
1E51D4A	1E51-F010	RCIC Rm.	RCIC Valve	2
1E51D6A	1E51-F045	RCIC Rm.	RCIC Valve	2
1E51D7A	1E51-F046	RCIC Rm.	RCIC Valve	2
1E51D8A	1E51-F022	RCIC Rm.	RCIC Valve	2
1E51D9A	1E51-F510	RCIC Rm.	RCIC Valve	2
1E51D10A	1E51-F031	RCIC Rm.	RCIC Valve	2
1E51D13A	1E51-F059	RCIC Rm.	RCIC Valve	2
1E51F3A	1E51-C003	RCIC Rm.	RCIC Pump	2
1E51R2A	1E51-F510	RCIC Rm.	RCIC Valve	2
1E51R5A	1E51-C002	RCIC Rm.	RCIC Turb.	2
1E51R6A	1E51-C002	RCIC Rm.	RCIC Turb.	2

TABLE 6 (Cont'd)

RCIC PUMP RM., AUX. BLDG. 574'-04"
D-215-211 (Cont'd)

CIRCUIT	SERVES	LOCATION OF ITEM SERVED	DESIGNATION	REDUNDANT SYSTEM ITEM OR RESOLUTION
1E51R38A	1E51-F510	RCIC Rm.	RCIC Valve	2
1M39F1A	1M39-B004	RCIC Rm.	ECCS Cooling	2
1R61A966A	1E51-N092	RCIC Rm.	RCIC Inst.	2
1R61A967A	1E51-N094	RCIC Rm.	RCIC Inst.	2
1R61A977A	1E51-C002	RCIC Rm.	RCIC Turb.	2
1R61A978A	1E51-C002	RCIC Rm.	RCIC Turb.	2
1R61A979A	1E51-N093	RCIC Rm.	RCIC Inst.	2
1R61A980A	1E51-N095	RCIC Rm.	RCIC Inst.	2

TABLE 7 (Cont'd)

ITEM*	MPL	CONCERN	RESOLUTION**
5. RCIC Room			
3.5.1	E21-	Pump Suction to E21-F031 - Containment Boundary	Flood Protection Design
4.5.1	H22-P017 E31-	(H) and (L) Lines for E31-N083A - Leak Detection	Upstream E31-N083B is redundant.

6-10: Control, Condensate Demineralizer, Turbine, Heater Bay, Auxiliary Boiler, and Radwaste Buildings:

No mechanical, building service, or instrument lines within these areas require further resolution.

TABLE 8 (Cont'd)

SERIAL NUMBER	ITEM (MPL #) (CIRCUIT(S) #)	LOCATION	CONCERN (FUNCTION)	RESOLUTION**
5. RCIC Pump Room				
5.5.1 6.5.3 6.5.9	1E31-N004A 1E31T70A 1E31T117XA	RCIC Pump Room RCIC Pump Room RCIC Pump Room	Leak Detection	RCIC flow leak detection available. Sufficient separation between temperature elements and circuits to detect small breaks.
5.5.2 6.5.6	1E31-N004B 1E31T90B	RCIC Pump Room RCIC Pump Room	Leak Detection	RCIC flow leak detection available. Sufficient separation between temperature elements and circuits to detect small breaks.

TABLE 8 (Cont'd)

SERIAL NUMBER	ITEM (MPL #) (CIRCUIT(S) #)	LOCATION	CONCERN (FUNCTION)	RESOLUTION**
5.5.3	1E31-N005A	RCIC Pump Room	Leak Detection	RCIC flow leak detection available. Sufficient separation between temperature elements and circuits to detect small breaks.
6.5.1	1E31T68A	RCIC Pump Room		
6.5.7	1E31T115XA	RCIC Pump Room		
5.5.4	1E31-N005B	RCIC Pump Room	Leak Detection	RCIC flow leak detection available. Sufficient separation between temperature elements and circuits to detect small breaks.
6.5.4	1E31T88B	RCIC Pump Room		
5.5.5	1E31-N006A	RCIC Pump Room	Leak Detection	RCIC flow leak detection available. Sufficient separation between temperature elements and circuits to detect small breaks.
6.5.2	1E31T69A	RCIC Pump Room		
6.5.8	1E31T116XA	RCIC Pump Room		
5.5.6	1E31-N006B	RCIC Pump Room	Leak Detection	RCIC flow leak detection available. Sufficient separation between temperature elements and circuits to detect small breaks.
6.5.5	1E31T89B	RCIC Pump Room		
5.5.7	1E51-F031	RCIC Pump Room	CIV	Flood Protection Design

EXHIBIT A

DONALD H. STEVENS
Mechanical Engineer (Nuclear)

Extensive experience in engineering design, specification and analysis for the nuclear power generation industry.

EXPERIENCE: GILBERT/COMMONWEALTH since 1979

1984 to Present	Project Mechanical Engineer - Currently performing Continuing Services for General Public Utilities Nuclear Corporation's Three Mile Island Nuclear Station, Unit 1.
1982-84	Task Manager, Nuclear Power Systems - Deep Basing Support Systems and Facilities Integration Program in support of the U.S. Air Force, Ballistic Missile Office. Directed the technical and planning efforts associated with the analysis of alternative nuclear power generating technologies. These efforts included: conceptual design of an integrated nuclear power system; performance analysis; and life-cycle cost estimating and assessment of technical and schedule risk. Additional responsibilities included technical interfacing with all other engineering groups of the deep base system.
1983	Supervised Steam Erosion Hazards Analysis for Cleveland Electric Illuminating Company's Perry Nuclear Power Station.
1982	Project Mechanical Engineer, Continuing Services, for Metropolitan Edison Company's Three Mile Island Unit 1, including piping systems modifications and resolution of equipment and system design questions.
1980-84	Supervision of dynamic incidents analysis, design and design review for Perry Nuclear Power Station, Units 1 and 2, including pipe rupture, jet impingement, pipe whip, missiles, flooding, local environmental hazards, and structurally and hydraulically-transmitted loads due to dynamic incidents. Work included: evaluation of plant design against regulatory

criteria; development of licensing documents and responses to NRC and intervenor questions; and management of interdisciplinary efforts to implement protective measures.

1980 — Systems for post-accident sampling and analysis of reactor coolant, reactor containment sump, and reactor containment atmosphere, to NUREG 0578 criteria, for Three Mile Island Unit 1; Perry Nuclear Power Plant, Units 1 and 2; South Carolina Electric & Gas Company's V. C. Summer; and Rochester Gas & Electric Company's R. E. Ginna Stations.

1979-80 — Radwaste evaporation/solidification facility for Three Mile Island Unit 2 cleanup and recovery operation, including: chemistry and radiology of feedstreams and feedstream pretreatment; evaporator/crystalizer system; solidification system; high and intermediate activity process sampling and sample solidification for process control data verification and shipping reporting; filtration systems; demineralization; air and steam supply systems; radioactive resin transfer and sampling; pumps; and materials handling equipment.

1971-79 — Not engaged in the practice of engineering.

1968-70 — <u>Douglas United Nuclear, Richland, Washington</u>

Engineer - Reactor and Fuels Technology subsection at N-Reactor. (Summer Engineer, 1966-1967.) Performed analysis of fuel thermal hydraulics for a pressure tube PWR (N-Reactor) including: two-phase flow; thermal balances; heat transfer to single and 2-phase forced convective flow; fuel burnout margins; vibration; materials considerations; full-size loop testing; primary system flow analysis for steady-state; transient and accident cases; and LOCA studies.

Also constructed a multi-volume mass and heat transfer model of the N-Reactor confinement system by finite difference

methods, including thermal capacitance dependent heat transfer and aerosol mechanics for time dependent heat and mass transfer to the confinement spray system.

EDUCATION: B.S., Mechanical Engineering, University of Washington, 1966
M.S., Nuclear Engineering, Massachusetts Institute of Technology, 1968

REGISTRATION: Professional Engineer - Pennsylvania (1981)

PUBLICATIONS: Masters thesis: "A Very Intense Pulsed Continuum X-Ray Source," MIT, 1968

D.H. Stevens; D. T. Klinksiek: "Design and Development of a Post-Accident Sampling System," presented at the American Power Conference, Chicago, Illinois, April 1981.

February 5, 1985

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of	)	
	)	
THE CLEVELAND ELECTRIC ILLUMINATING COMPANY, ET AL.	)	Docket Nos. 50-440 50-441
	)	
(Perry Nuclear Power Plant, Units 1 and 2)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of "Applicants' Motion for Summary Disposition of Issue No. 15," "Applicants' Statement of Material Facts As To Which There Is No Genuine Issue To Be Heard on Issue No. 15," "Affidavit of Richard A. Pender," and "Affidavit of Donald H. Stevens," were served this 5th day of February, 1985, by deposit in the U.S. mail, first class, postage prepaid, upon the parties listed on the attached Service List, except for those parties identified by asterisk, who were served by hand delivery.

Michael A. Swiger

Michael A. Swiger

DATED: February 5, 1985

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