Jersey Central Power & Light Company

MADISON AVENUE AT PUNCH BOWL ROAD • MORRISTOWN, N. J. 07960 • 201-539-6111

MEMBER OF THE General GPU ELECTRIC POWER COMPANIES SYSTEM Public Utilities Corporation

December 24, 1975
GD-75-020

Mr. Karl R. Goller
Assistant Director for Operating Reactors
Division of Reactor Licensing
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Goller:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Primary Containment Leakage Testing Program

This report is in response to your letter of August 7, 1975 which requested that a study be made to determine if the containment leakage testing program at the Oyster Creek Nuclear Generating Station is being conducted in full compliance with 10 CFR Part 50, Appendix J, and also, if not in full compliance, to identify planned actions and schedules to attain full conformance with the Regulation. The requested study has been completed. The results indicate that an extensive effort has been made to bring the procedures for primary containment overall integrated and local leakage rate tests into conformance with the criteria specified in Appendix J using the methods and provisions of ANSI N45.4-1972. The study further revealed that the Oyster Creek containment leakage test program, in so far as the design and construction features of the plant will permit, compares favorably with the requirements set forth in Appendix J for Type A and Type B tests, but differs considerably with the requirements for Type C tests. The specific deviations of the Oyster Creek containment leakage testing program in regard to Appendix J requirements are identified in Tables I through VI, attached to this report.

The Oyster Creek Nuclear Generating Station is an early vintage boiling water reactor plant (General Electric BWR-2), and, as such, has fluid systems and a primary containment system with physical and functional designs that predate 10 CFR Part 50, Appendixes A and J, by several years. An evaluation of the Oyster Creek primary containment design features against the Commission's containment design criteria, Group V of Appendix A - General Design Criteria for Nuclear Power Plants, is given in Amendment 68 to the Oyster Creek Facility Description and Safety Analysis Report.

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The program for primary containment leakage testing at Oyster Creek consists of periodic overall integrated leak rate tests plus local leakage rate tests of the closures with double gasketed seals, the testable penetrations, and the testable isolation valves. The procedures which are used in the conduct of the containment leakage testing program were reviewed for nonconformity with the requirements set forth in Appendix J. The disparities found are identified in the attached tables. In Tables I and II are listed the Oyster Creek testing program differences with regard to the requirements for Type A and Type B tests. The tables with numbers III, IV and V were compiled from a listing of all of the valves in piping which penetrates primary containment. The containment isolation valves shown in Table III are those which are tested by a local leakage rate test in addition to the overall integrated test. In Table IV are listed the containment isolation valves which are not tested in a local leakage rate, Type C, test. The penetration valves listed in Table V are in systems that will or may be called on to operate under accident conditions. In regard to testing requirements, the valves listed in Table V are placed in a category with system operating valves and are considered not to require a local leak rate test.

The most recent containment overall integrated leak rate test was conducted at Oyster Creek in June 1974. Local leakage rate tests were conducted as recently as May 1975. The program has been proven very effective in determining the primary containment system leak rate and providing leakage surveillance of testable penetrations and testable valves. The system modifications required to provide the design features necessary to attain full compliance with the test requirements of Appendix J entail high costs, both monetary and in personnel exposure, and could possibly result in a reduction in integrity of systems which have been proven structurally sound over the past several years of service. There are no plans at the present time for making system modifications designed specifically to increase leakage surveillance capability. Jersey Central Power & Light Company will, however, continue to give Appendix J criteria consideration in the design of future repairs and modifications that involve the integrity of the primary containment system.

It is our belief that the items of nonconformance that presently exist between the Oyster Creek containment leakage testing program and Appendix J criteria, because of the aforementioned design limitations, cause no undue risk to the health and safety of the public. We plan, therefore, pursuant to 10 CFR Part 50, Section 50.12a, to request of the Commission that Oyster Creek be exempted from full compliance with Appendix J. Specifically, the request will seek exemptions for all items shown in Table I and in Table II, all valves listed in Table IV, and those valves in Table III for which the test method is in variance with the requirements of a Type C test. The submittal of the exemption request is planned for June 1976.

A comparison of the Appendix J criteria with the Oyster Creek Technical Specifications which apply to the primary containment system leakage rate is given in Table VI of this report. There are no major deviations indicated; however, the Technical Specification is much less extensive than Appendix J. The current plant procedures for containment leakage testing and leakage surveillance were prepared in accordance with the requirements of Appendix J, insofar as system design features permit. Test results must

satisfy Appendix J acceptance criterion. It is recognized that the Technical Specification in regard to containment leakage testing is in need of a change that will incorporate the language and intent of Appendix J criteria. A revision to the Technical Specification has been drafted and is being processed through the required review stages. A change request for Commission review and approval will be submitted with the request for specific exemptions from full compliance with Appendix J which was discussed above.

Should you have any questions regarding the information that has been presented in this report, we would be pleased to meet with you and discuss the matter.

Very truly yours,

Ivan R. Finfrock, Jr.
Vice President

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Attachments

Table I

OYSTER CREEK CONTAINMENT LEAKAGE TESTING PROGRAM

CONTAINMENT OVERALL INTEGRATED LEAK RATE TEST

ITEMS OF NON-COMPLIANCE WITH 10 CFR PART 50 APPENDIX J TYPE A TEST REQUIREMENTS

Item	Type A Test Requirement	Oyster Creek Program
1	Those portions of the fluid systems that are part of the reactor coolant pressure boundary and are open directly to the containment atmosphere under post accident conditions and become an extension of the boundary of the containment shall be opened or vented to the containment atmosphere prior to and during the test. Portions of closed system inside containment that penetrate containment and rupture as a result of a loss-of-coolant accident shall be vented to the containment atmosphere. All vented systems shall be drained of water or other fluids to the extent necessary to assure exposure of the system containment isolation valves to containment air test pressure and to assure they will be subjected to the post accident differential pressure. Systems that are required to maintain the plant in a safe condition during the test shall be operable in their normal mode, and need not be vented. Systems that are normally filled with water and operating under post accident conditions, such as the containment heat removal system, need not be vented.	The Reactor Building Closed Cooling Water (RBCCW) System is not presently opened or vented to the containment for the Type A test. The instrument and service air systems are not presently opened or vented and drained for the Type A test. The entire Emergency Condenser System is opened but the condensate return leg cannot be drained. Since this system is closed outside the containment as an extension of the reactor coolant system, its isolation valves have no effect on the Type A test other than packing leaks which are detected and repaired during normal plant operation.

Table I (Continued)

Item	Type A Test Requirement	Oyster Creek Program
2	Test Methods	
	(a) All Type A tests shall be conducted in accordance with the provision of the American National Standard N45.4-1972, Leakage Rate Testing of Containment Structures for Nuclear Reactors, March 16, 1972. The method chosen for the initial test shall normally be used for the periodic tests.	(a) This requirement is not included in the Technical Specifications or procedures; however, the test is done in accordance with ANSI N45.4-1972 with the following exceptions: (1) "Cool Night Air" is not always used to pressurize the containment. (2) The reference volume is not currently being checked after the Type A test.
	(b) Test leakage rates shall be calculated using absolute values corrected for instrument error.	(b) The leakage rate values are not currently corrected for instrument error.

Table II

OYSTER CREEK CONTAINMENT LEAKAGE TESTING PROGRAM

CONTAINMENT PENETRATIONS, DOUBLE-GASKETED SEALS AND PERSONNEL AIRLOCK DOOR SEALS

ITEMS OF NON-COMPLIANCE WITH 10 CFR PART 50 APPENDIX J TYPE B TEST REQUIREMENTS

Item	Type B Test Requirement	Oyster Creek Program
1	Piping penetrations fitted with expansion bellows are subject to test each refueling outage.	Steam line penetrations (two lines) are not tested by local leak rate test.
2	All preoperational and periodic Type B tests shall be performed by local pneumatic pressurization of the containment, either individually or in groups, at a pressure not less than Pa.	The drywell air lock doors are tested at a pressure of 10 psig. Design does not permit testing at a higher pressure. (Note 1)

Note 1: The personnel air lock door seals are tested by pressurizing the air lock to 1⅔ psig and taking leak rate data. Since the inner door is being tested in the opposite direction to the intended isolation, a pressure of greater than 10 psig could damage the door. Because pressure in this direction tends to open the door while pressure in the same direction of the intended isolation would tend to close the door, the test results are at least equivalent to or more conservative than a test in the same direction of the intended isolation.

Table III

OYSTER CREEK CONTAINMENT LEAKAGE TESTING PROGRAM

CONTAINMENT ISOLATION VALVES THAT ARE INDIVIDUALLY TESTED

(Local Leakage Rate Test)

Piping System	Valve Identification Number	Location	Type	Size	Test Direction
Nitrogen Makeup to Drywell	V-23-17	Outside Drywell	Control	2"	Right (1)
Nitrogen Makeup to Drywell	V-23-18	Outside Drywell	Control	2"	Opposite (2),(4)
Drywell Nitrogen Purge	V-23-13	Outside Drywell	A. O. Butterfly	8"	Right
Drywell Nitrogen Purge	V-23-14	Outside Drywell	A. O. Butterfly	8"	Opposite (3)
Drywell Vent Bypass	V-23-21	Outside Drywell	Control	2"	Opposite
Drywell Vent Bypass	V-23-22	Outside Drywell	Control	2"	Right
Nitrogen Makeup to Torus	V-23-19	Outside Torus	Control	2"	Right
Nitrogen Makeup to Torus	V-23-20	Outside Torus	Control	2"	Opposite (4)
Torus Nitrogen Purge	V-23-15	Outside Torus	A. O. Butterfly	8"	Right
Torus Nitrogen Purge	V-23-16	Outside Torus	A. O. Butterfly	8"	Opposite
Drywell Vent Line	V-27-1	Outside Drywell	A. O. Butterfly	18"	Opposite (3)
Drywell Vent Line	V-27-2	Outside Drywell	A. O. Butterfly	18"	Right
Drywell Purge Inlet	V-27-3	Outside Drywell	A. O. Butterfly	18"	Right
Drywell Purge Inlet	V-27-4	Outside Drywell	A. O. Butterfly	18"	Opposite (3)
Torus Vent Line	V-28-17	Outside Torus	A. O. Butterfly	12"	Opposite (3)
Torus Vent Line	V-28-18	Outside Torus	A. O. Butterfly	12"	Right
Torus Vent Line	V-28-47	Outside Torus	Control	2"	Opposite (4)
Torus to Rx Bldg Vac Bkr Line	V-26-15	Outside Torus	A. O. Butterfly	20"	Right
Torus to Rx Bldg Vac Bkr Line	V-26-16	Outside Torus	A. O. Butterfly	20"	Opposite (3)

Table III (Continued)

Piping System	Valve Identification Number	Location	Type	Size	Test Direction
Torus to Rx Bldg Vac Bkr Line	V-26-17	Outside Torus	A. O. Butterfly	20"	Right
Torus to Rx Bldg Vac Bkr Line	V-26-18	Outside Torus	A. O. Butterfly	20"	Opposite (3)
Drywell Sump Discharge	V-22-28	Outside Drywell	Control	2"	Opposite (4)
Drywell Sump Discharge	V-22-29	Outside Drywell	Control	2"	Right
Drywell Equipment Drain Tank	V-22-1	Outside Drywell	Control	2"	Opposite (4)
Drywell Equipment Drain Tank	V-22-2	Outside Drywell	Control	2"	Right
Drywell O_2 Analyzer	--	Outside Drywell	S. O. Globe	1/4"	Right
Drywell O_2 Analyzer	--	Outside Drywell	S. O. Globe	1/4"	Right
Torus O_2 Analyzer	--	Outside Drywell	S. O. Globe	1/4"	Right
Torus O_2 Analyzer	--	Outside Drywell	S. O. Globe	1/4"	Right
Main Steam Line	NS03A	Inside Drywell	A. O. Globe	24"	Right
Main Steam Line	NS04A	Outside Drywell	A. O. Globe	24"	Right
Main Steam Line	NS03B	Inside Drywell	A. O. Globe	24"	Right
Main Steam Line	NS04B	Outside Drywell	A. O. Globe	24"	Right
MSIV Bypass Line	V-1-106	Inside Drywell	M. O. Gate	2"	Right
MSIV Bypass Line	V-1-107	Inside Drywell	M. O. Gate	2"	Right
MSIV Bypass Line	V-1-110	Outside Drywell	M. O. Gate	2"	Right
MSIV Bypass Line	V-1-111	Outside Drywell	M. O. Gate	2"	Right

Notes

(1) "Right" - Tested in same direction as valves intended isolation.
(2) "Opposite" - Test direction is opposite to direction of intended isolation.
(3) Tested in wrong direction for Type C test but considered satisfactory. (Butterfly valves can be tested in either direction.
(4) Tested in wrong direction for Type C test.

Table IV

CONTAINMENT ISOLATION VALVES THAT ARE NOT INDIVIDUALLY TESTED

(No Local Leakage Rate Test)

Piping System	Valve Identification Number	Location	Type	Size	Reasons for Not Testing
eanup System Line from Reactor	V-16-1	Inside Drywell	M. O. Gate	6"	2, 3, 4
Cleanup System Line from Reactor	V-16-2	Outside Drywell	M. O. Gate	6"	2, 3, 4
Cleanup System Line from Reactor	V-16-14	Outside Drywell	M. O. Gate	6"	2, 3, 4
Cleanup System Line to Reactor	V-16-62	Inside Drywell	Check	6"	3, 4
Cleanup System Line to Reactor	V-16-61	Outside Drywell	M. O. Gate	6"	3, 4
Shutdown Cooling from Reactor	V-17-19	Inside Drywell	M. O. Gate	14"	1, 2, 5
Shutdown Cooling from Reactor	V-17-1	Outside Drywell	M. O. Gate	10"	1, 2
Shutdown Cooling from Reactor	V-17-2	Outside Drywell	M. O. Gate	10"	1, 2
Shutdown Cooling from Reactor	V-17-3	Outside Drywell	M. O. Gate	10"	1, 2
Shutdown Cooling to Reactor	V-17-54	Inside Drywell	M. O. Gate	14"	1, 2, 5
Shutdown Cooling to Reactor	V-17-55	Outside Drywell	M. O. Globe	8"	1
Shutdown Cooling to Reactor	V-17-56	Outside Drywell	M. O. Globe	8"	1
Shutdown Cooling to Reactor	V-17-57	Outside Drywell	M. O. Globe	8"	1
Demineralized Water to Drywell	V-12-13	Inside Drywell	Check	2"	3
Demineralized Water to Drywell	V-12-60	Outside Drywell	Diaphragm (N. C.)	2"	3, 7
Instrument Air to Drywell	V-6-166	Outside Drywell	Globe	2"	6
Instrument Air to Drywell	V-6-167	Outside Drywell	Check	2"	6
Instrument Nitrogen to Drywell	--	Outside Drywell	Gate	2"	6
Sample Line from Reactor	V-24-29	Inside Drywell	Control	3/4"	3, 9
Sample Line from Reactor	V-24-30	Outside Drywell	Control	3/4"	3, 9
Emergency Condenser - Steam Line Vent	V-14-5	Outside Drywell	A. O. Control	3/4"	3, 8
Emergency Condenser - Steam Line Vent	V-14-20	Outside Drywell	A. O. Control	3/4"	3, 8

Table IV (Continued)

Piping System	Valve Identification Number	Location	Type	Size	Reasons for Not Testing
Emergency Condenser - Steam Line Vent	V-15-1	Outside Drywell	A. O. Control	3/4"	3, 8
Emergency Condenser - Steam Line Vent	V-14-19	Outside Drywell	A. O. Control	3/4"	3, 8
Traversing In-Core Probe System - ines	(Two Valves each Mechanism)	Outside Drywell	Ball Valve Shear Valve		3, 8

Reasons for not Testing

(1) This valve is needed to maintain the reactor coolant below 212°F.
(2) It would be necessary to drain the reactor vessel in order to test this valve.
(3) There are no testing provisions for this valve.
(4) This valve is in a seismic qualified line forming a closed loop outside containment.
(5) This valve is normally closed against reactor system operating pressure (constant leak test).
(6) This valve is not an automatic isolation valve (normally open).
(7) This valve is not an automatic isolation valve (normally closed).
(8) This valve is a containment isolation valve and is exposed to Type A test pressure and any leakage is included in the Type A test results.
(9) Tested for isolation function but not for leak rate.

Table V

OYSTER CREEK CONTAINMENT LEAKAGE TESTING PROGRAM

CONTAINMENT PENETRATION VALVES THAT ARE NOT INDIVIDUALLY TESTED

(No Local Leakage Rate Test)

Piping System	Valve Identification Number	Location	Type	Size	Notes
Feedwater Line	V-2-73	Inside Drywell	Check	18"	1
Feedwater Line	V-2-71	Outside Drywell	Check	18"	1
Feedwater Line	V-2-74	Inside Drywell	Check	18"	1
Feedwater Line	V-2-72	Outside Drywell	Check	18"	1
RBCCW System to Drywell	V-5-147	Outside Drywell	M. O. Gate	6"	2, 7, 9
RBCCW System to Drywell	V-5-165	Inside Drywell	Check	6"	2, 9
RBCCW System from Drywell	V-5-166	Inside Drywell	M. O. Gate	6"	2, 7, 9
RBCCW System from Drywell	V-5-167	Outside Drywell	M. O. Gate	6"	2, 7, 9
Emergency Condenser - Steam Line	V-14-30	Outside Drywell	M. O. Gate	10"	3, 4, 6, 9
Emergency Condenser - Steam Line	V-14-31	Outside Drywell	M. O. Gate	10"	3, 4, 6, 9
Emergency Condenser - Steam Line	V-14-32	Outside Drywell	M. O. Gate	10"	3, 4, 6, 9
Emergency Condenser - Steam Line	V-14-33	Outside Drywell	M. O. Gate	10"	3, 4, 6, 9
Emergency Condenser - Condensate Line	V-14-34	Outside Drywell	M. O. Gate (N. C.)	10"	3, 4, 5, 9
Emergency Condenser - Condensate Line	V-14-36	Inside Drywell	M. O. Gate (N. O.)	10"	3, 4, 9
Emergency Condenser - Condensate Line	V-14-35	Outside Drywell	M. O. Gate (N. C.)	10"	3, 4, 5, 9
Emergency Condenser - Condensate Line	V-14-37	Inside Drywell	M. O. Gate (N. O.)	10"	3, 4, 9
Core Spray to Reactor	NZ-02D	Inside Drywell	A. O. Check	8"	3, 4,
Core Spray to Reactor	NZ-02B	Inside Drywell	A. O. Check	8"	3, 4,
Core Spray to Reactor	V-20-21	Outside Drywell	M. O. Gate	8"	3, 4
Core Spray to Reactor	V-20-41	Outside Drywell	M. O. Gate	8"	3, 4

Table V (Continued)

Piping System	Valve Identification Number	Location	Type	Size	Notes
Core Spray to Reactor	NZ-02C	Inside Drywell	A. O. Check	8"	3, 4
Core Spray to Reactor	NZ-02A	Inside Drywell	A. O. Check	8"	3, 4
Core Spray to Reactor	V-20-15	Outside Drywell	M. O. Gate	8"	3, 4
Core Spray to Reactor	V-20-40	Outside Drywell	M. O. Gate	8"	3, 4
Core Spray from Torus	V-20-3	Outside Torus	M. O. Gate	12"	2, 3, 4, 7
Core Spray from Torus	V-20-4	Outside Torus	M. O. Gate	12"	2, 3, 4, 7
Core Spray from Torus	V-20-32	Outside Torus	M. O. Gate	12"	2, 3, 4, 7
Core Spray from Torus	V-20-33	Outside Torus	M. O. Gate	12"	2, 3, 4, 7
Containment Spray to Drywell	V-21-11	Outside Drywell	M. O. Gate	14"	3, 4, 7
Containment Spray to Torus	V-21-18	Outside Torus	M. O. Gate	4"	4, 8
Containment Spray to Torus	V-21-17	Outside Torus	M. O. Gate	6"	4, 8
Containment Spray from Torus	V-21-9	Outside Torus	M. O. Gate	12"	3, 4, 7
Containment Spray from Torus	V-21-7	Outside Torus	M. O. Gate	12"	3, 4, 7
Containment Spray to Drywell	V-21-5	Outside Drywell	M. O. Gate	14"	3, 4, 7
Containment Spray to Torus	V-21-15	Outside Torus	M. O. Gate	4"	4, 8
Containment Spray to Torus	V-21-13	Outside Torus	M. O. Gate	6"	4, 8
Containment Spray from Torus	V-21-3	Outside Torus	M. O. Gate	12"	3, 4, 7
Containment Spray from Torus	V-21-1	Outside Torus	M. O. Gate	12"	3, 4, 7
Liquid Poison to Reactor	V-19-20	Inside Drywell	Check	1-1/2"	5, 8
Liquid Poison to Reactor	V-19-16	Outside Drywell	Check	1-1/2"	5, 8
Liquid Poison to Reactor	NP05A	Outside Drywell	Explosive Diaphragm	1-1/2"	
Liquid Poison to Reactor	NP05B	Outside Drywell	Explosive Diaphragm	1-1/2"	
CRD Hydraulic System to Reactor	V-15-28	Inside Drywell	Check	3"	2, 3
CRD Hydraulic System to Reactor	V-15-27	Outside Drywell	Check	3"	2, 3

Table V (Continued)

Piping System	Valve Identification Number	Location	Type	Size	Notes
CRD Hydraulic System - 137 Lines to Drives (Insert)	(Several Valves each Unit)	Outside Drywell	--	1"	3
CRD Hydraulic System - 137 Lines to Drives (Withdrawal)	(Several Valves each Unit)	Outside Drywell	--	3/4"	3
Reactor Head Cooling	V-31-5	Inside Drywell	Check	2"	2, 3
Reactor Head Cooling	V-31-2	Outside Drywell	A. O. Gate	2"	2
Reactor Head Cooling	V-31-1	Outside Drywell	A. O. Control	2"	2
Reactor Coolant Instruments - 59 Lines	(One Valve each Line)	Outside Drywell	Excess Flow Check	1"	3, 8, 9

Notes

(1) It would be necessary to drain the reactor vessel in order to test this valve.
(2) There are no testing provisions for this valve.
(3) This valve is required to open and remain open for duration of accident.
(4) This valve is in a seismic qualified line forming a closed loop outside containment.
(5) This valve is normally closed against reactor system operating pressure (constant leak test).
(6) This valve is open for Type A Test and any downstream leakage is included in test results.
(7) This valve is not an automatic isolation valve (normally open).
(8) This valve is not an automatic isolation valve (normally closed).
(9) Tested for proper operation but not for leak rate.

Table VI

OYSTER CREEK CONTAINMENT LEAKAGE TESTING PROGRAM

PRESENT OYSTER CREEK TECHNICAL SPECIFICATIONS COMPARED WITH APPENDIX J CRITERIA

Item	Appendix J Reference	Appendix J Criteria	Tech Spec Reference	Present Oyster Creek Technical Specification
.	III.A.1	Containment inspection. A general inspection of the accessible interior and exterior surfaces of the containment structures and components shall be performed prior to any Type A test to uncover any evidence of structural deterioration which may affect either the containment structural integrity or leak-tightness. If there is evidence of structural deterioration, Type A tests shall not be performed until corrective action is taken in accordance with repair procedures, nondestructive examinations, and tests as specified in the applicable code specified in paragraph 50.55A at the commencement of repair work. Such structural deterioration and corrective actions taken shall be reported as part of the test report, submitted in accordance with V. B.	-	Not addressed in present Technical Specifications but is included in test procedure.
2	III.A.1.a	If during a Type A test including the supplemental test specified in III.A.3.(b), potentially excessive leakage paths are identified which will interfere with satisfactory completion of the test, or	4.5.C	If leak repairs are necessary to meet the allowable operational leak rate, the integrated leak rate test need not be repeated provided local leakage measurements are conducted, and the leak rate differences

Table VI (Continued)

Item	Appendix J Reference	Appendix J Criteria	Tech Spec Reference	Present Oyster Creek Technical Specification
		which result in the Type A test not meeting the acceptance criteria III.A.4.(b) or III.A.5.(b), The Type A test shall be terminated and the leakage through such paths shall be measured using local leakage testing methods. Repairs and/or adjustments to equipment, shall be made and a Type A test performed.		prior to and after repairs when corrected to Pt and deducted from the integrated leak rate measurement, yield a leakage rate value not in excess of the allowable operational leak rate Lto (20). (The provisions of Appendix J are incorporated in the test procedure.)
3	III.A.1.C	The containment test conditions shall stabilize for a period of about 4 hours prior to the start of a leakage rate test.	-	Not a Technical Specification requirement but test procedure calls for allowing the primary containment to reach an equilibrium temperature and also specifies a 4-hour stabilizing period.
4	III.A.1.D	Those portions of the fluid systems that are part of the reactor coolant pressure boundary and are open directly to the containment atmosphere under post accident conditions and become an extension of the boundary of the containment shall be opened or vented to the containment atmosphere prior to and during the test. Portions of closed system inside containment that penetrate containment and rupture as a result of a loss-of-coolant accident shall be vented to the containment atmosphere. All vented systems shall be drained of water or other fluids to the extent necessary to assure exposure of the system containment isolation valves to containment air test pressure and to assure they will be subjected to the post-accident differential pressure. Systems that are required to maintain the plant in a safe condition during the test shall be operable	-	Not addressed in Technical Specifications.

Table VI (Continued)

Item	Appendix J Reference	Appendix J Criteria	Tech Spec Reference	Present Oyster Creek Technical Specification
		in their noraml mode, and need not be vented. Systems that are normally filled with water and operating under post-accident conditions, such as the containment heat removal system, need not be vented.		
		However, the containment isolation valves in the systems defined in III.A.1.(d) shall be tested in accordance with III.C. The measured leakage rate from these tests shall be reported to the Commission.		Specific isolation valves to be tested are not identified in the Technical Specification.
5	III.A.3	Test Methods		
		(a) All Type A tests shall be conducted in accordance with the provision of the American National Standard N45.4-1972, Leakage Rate Testing of Containment Structures for Nuclear Reactors, March 16, 1972. The method chosen for the initial test shall normally be used for the periodic tests.		(a) This requirement is not included in the Technical Specifications but test is done in accordance with ANSI N.45.4-1972 with minor exceptions.
		(b) The accuracy of any Type A test shall be verified by a supplemental test. An acceptable method is described in Appendix C of ANSI N45.4-1972. The supplemental test method selected shall be conducted for sufficient duration to establish accurately the change in leakage rate between the Type A and supplemental test. Results		(b) Limitations on the supplementary test are not included in the Technical Specifications, but are a part of the test procedure.

Table VI (Continued)

Item	Appendix J Reference	Appendix J Criteria	Tech Spec Reference	Present Oyster Creek Technical Specification
		from this supplemental tests are acceptable provided the difference between the supplemental test data and the Type A test data is within 0.25 La (or 0.25 Lt). If results are not within 0.25 La (or 0.25 Lt), the reason shall be determined, corrective action taken, and a successful supplemental test performed.		
		(c) Test leakage rates shall be calculated using absolute values corrected for instrument error.		(c) Not included in the Technical Specifications.
6	III.A.4.A(iii)	The leakage characteristics yielded by measurements Ltm and Lam shall establish the maximum allowable test leakage rate Lt of not more than La (Ltm/Lam). In the event Ltm/Lam is greater than 0.7, Lt shall be specified as equal to La (Pt/Pa).	4.5.B.2	The allowable test leak rate Lt (20) shall not exceed the lesser value established as follows: Lt (20) = 1.0 Lm (20)/Lm (35) or $Lt\ (20) = 1.0 \left[\frac{Pt\ (20)}{Pt\ (35)}\right] 1/2$ This is interpreted to mean the ratio of absolute pressures and not gage pressures as indicated in Appendix J since absolute pressures are normally used in fluid mechanics calculations.

Table VI (Continued)

Item	Appendix J Reference	Appendix J Criteria	Tech Spec Reference	Present Oyster Creek Technical Specification
7	III.A.5.b.1	Acceptance criteria for reduced pressure tests. The leakage rate Ltm shall be less than 0.75 Lt. If local leakage measurements are taken to effect repairs in order to meet the acceptance criteria, these measurements shall be taken at a test pressure Pt.	4.5.B.3	The allowable operational leak rate Lto (20) which shall be met prior to resumption of power following a test (either as measured or following repairs and retest) shall not exceed 0.75 Lt (20). (Local leak rates are taken at 35 psig and corrected to 20 psig.)
8	III.D.1.a	Periodic retest schedule. Type A test. After the preoperational leakage rate tests, a set of three Type A tests shall be performed, at approximately equal intervals during each 10 year service period. The third test of each set shall be conducted when the plant is shut down for the 10-year plant in-service inspections.	4.5.D	Integrated leak rate tests shall be performed within plus or minus 8 months as follows: (1) During the first refueling outage after initial criticality or 12 months, whichever is sooner. (2) Within 24 months from the date of the test in (1) above. (3) Within every 48 months from the date of the test in (2) and every 48 months thereafter.
9	III.A.6.a	If any periodic Type A test fails to meet the applicable acceptance criteria in III.A.5(b), the test schedule applicable to subsequent Type A tests will be reviewed and approved by the Commission.	4.5.D	In the event the leak rate of any test exceeds the allowable test leak rate Lt (20), the condition shall be corrected, the testing frequency shall revert to the following schedule, within plus or minus 8 months, as follows:

Table VI (Continued)

Item	Appendix J Reference	Appendix J Criteria	Tech Spec Reference	Present Oyster Creek Technical Specification
				(1) Within 12 months following the retest made (local or integrated) to correct excess leak rate. (2) Within 24 months of Test 1. (3) Within 48 months of Test 2.
10	III.A.6.b	If two consecutive periodic Type A tests fail to meet the applicable acceptance criteria in III.A.5.(b), notwithstanding the periodic retest schedule of III.D, a Type A test shall be performed at each plant shutdown for refueling or approximately every 18 months, whichever occurs first, until two consecutive Type A tests meet the acceptance criteria in III.A.5.(b), after which time the retest schedule specified in III.D may be resumed.		
11	IV.B.3	For each periodic test, leakage test results from Type A, B, and C tests shall be reported. The report shall contain an analysis and interpretation of the Type A test results and a summary analysis of periodic Type B and Type C tests that were performed since the last Type A test. Leakage test results from Type A, B, and C tests that failed to meet the acceptance criteria of III.A.5.(b), III.B.3, and III.C.3, respectively, shall be reported in a separate accompanying summary report that includes an analysis and interpretation	4.5.H	Each integrated leakage rate test shall be the subject of a summary technical report, including results of the local leakage rate tests. The report shall include analysis and interpretation of the results which demonstrate compliance in meeting the specified leakage rate limits.

Table VI (Continued)

Item	Append. J Reference	Appendix J Criteria	Tech Spec Reference	Present Oyster Creek Technical Specification
		of the test data, the least-squares fit analysis of the test data, the instrumentation error analysis, and the structural conditions of the containment or components, if any, which contributed to the failure in meering the acceptance criteria. Results of analyses of the supplemental verification test employed to demonstrate the validity of the leakage rate test measurements shall also be included.		
12	III.D.2	Type B tests. Type B tests except tests for air locks, shall be performed during each reactor shutdown for refueling, or other convenient intervals, but in no case at intervals greater than 2 years. Air locks shall be tested at 6-month intervals. However, air locks which are opened during such intervals, shall be tested after each opening. For primary reactor containment penetrations employing a continuous leakage monitoring system, Type B tests, except for tests of air locks, may, notwithstanding the test schedule specified under III.D.1, be performed every other reactor shutdown for refueling but in no case at intervals greater than 3 years.	4.5.E.1	Primary containment testable penetrations and isolation valves shall be tested at a pressure of 35 psig each refueling outage except bolted double-gasketed seals shall be tested whenever the seal is closed after being opened, and at least at each refueling outage. (Test procedures require that air locks be tested following each opening.)
13	III.B.2	Test Pressure. All preoperational and periodic Type B tests shall be performed by local pneumatic pressurization of the containment penetrations, either individually or in groups, at a pressure not less than Pa.	4.5.E.2	Personnel air lock door seals shall be tested at a pressure of 10 psig each refueling outage. (Design does not permit testing at a higher pressure.)

Table VI (Continued)

Item	Appendix J Reference	Appendix J Criteria	Tech Spec Reference	Present Oyster Creek Technical Specification
14	III.B.3 and III.C.3	Acceptance criterion. The combined leakage rate for all penetrations and valves subject to Type B and C tests shall be less than 0.60 La. Leakage from containment isolation valves that are sealed with fluid from a seal system may be excluded when determining the combined leakage rate provided that: (a) Such valves have been demonstrated to have fluid leakage rates that do not exceed those specified in the Technical Specifications or associated bases and, (b) the installed isolation valve seal-water system fluid inventory is sufficient to assure the sealing function for at least 30 days at a pressure of 1.10 Pa.	4.5.F.1	If the total leakage rates listed below as adjusted to test pressure of 20 psig are exceeded, repairs and retests shall be performed to correct the condition. (a) Double gasketed seals 10% Lto (20) (b) Testable penetrations and isolation valves 30% Lto (20) (c) Primary containment air purge penetrations and reactor building to torus vacuum relief valves 50% Lto (20) (d) Any one penetration or isolation valve 5% Lto (20)
15	III.C.1	Type C tests shall be performed by local pressurization. The pressure shall be applied in the same direction as that when the valve would be required to perform its safety function, unless it can be determined that the results from the tests for a pressure applied in a different direction will provide equivalent or more conservative results. The test methods in III.B.1 may be substituted where appropriate. Each valve to be tested shall be closed by normal operation and without any preliminary exercising or adjustments (e.g., no tightening of valve after closure by valve motor).	-	Not addressed in present Technical Specifications.

Table VI (Continued)

Item	Appendix J Reference	Appendix J Criteria	Tech Spec Reference	Present Oyster Creek Technical Specification
16	III.C.2.a	Valves unless pressurized with fluid (e.g., water, nitrogen) from a seal system, shall be pressurized with air or nitrogen at a pressure of Pa.	4.5.E.1	Primary containment testable penetrations and isolation valves shall be tested at a pressure of 35 psig each refueling outage except bolted double-gasketed seals shall be tested whenever the seal is closed after being opened, and at least at each refueling outage.
			4.5.E.2	The main steam line isolation valves are to be tested at a pressure of 20 psig during each refueling outage. (MSIV's are presently tested at 20 psig and 35 psig.)
17	V.B.3	For each periodic test, leakage test results from Type A, B, and C tests shall be reported. The report shall contain an analysis and interpretation of the Type A test results and a summary analysis of periodic Type B and Type C tests that were performed since the last Type A test. Leakage test results from Type A, B, and C tests that failed to meet the acceptance criteria of III.A.5.(b), III.B.3 and III.C.3, respectively, shall be reported in a separate accompanying summary report that includes an analysis and interpretation of the test data, the least-squares fit analysis of the test data, the instrumentation error analysis, and the structural conditions of the containment or components, if any, which contributed to the failure in meeting the acceptance criteria. Results and analyses of the supplemental verification test employed to demonstrate the validity of the leakage rate test measurements shall also be included.	4.5.H	Each integrated leakage rate test shall be the subject of a summary technical report including results of the local leakage rate tests. The report shall include analysis and interpretation of the results which demonstrate compliance in meeting the specified leakage rate limits. (Although no specific reporting requirements are given for other than those local leakage rate tests performed at the time of a Type A test, the annual tests are a topic of the summary technical report.)