

November 12, 1982

Docket No. 50-29
LS05-82-11-046

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Mr. James A. Kay
Senior Engineer - Licensing
Yankee Atomic Electric Company
1671 Worcester Road
Framingham, Massachusetts 01701

Dear Mr. Kay:

SUBJECT: COMPLETION OF REVIEW OF NUREG-0737, ITEM II.E.4.2.6 AND II.E.4.2.7
YANKEE NUCLEAR POWER STATION

We have reviewed your submittals dated November 1, 1979, March 31, 1981, and May 14, 1982 relating to TMI Action Plan, Item II.E.4.2.6, "Operable Valves, or if Closed Must be Sealed Closed," and Item II.E.4.2.7, "Primary Containment High Radiation to Close Vent and Purge Valves."

For Item II.E.4.2.6 the containment vent or purge valves at Yankee are closed and sealed-closed. We therefore conclude that the requirements of NUREG-0737, Item II.E.4.2.6 for Yankee have been met.

For Item II.E.4.2.7 containment vent or purge isolation valves which are normally open must close on a "primary containment" high radiation signal. Because the purge valves at Yankee are sealed closed during operation, we conclude that the requirements of NUREG-0737, Item II.E.4.2.7 for Yankee have been met.

Our Safety Evaluation is enclosed.

Sincerely,

Original signed by/

Dennis M. Crutchfield, Chief
Operating Reactors Branch #5
Division of Licensing

SEB/
DSM USE(11)

Enclosure:
As stated

cc w/enclosure:
See next page

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P PDR

OFFICE	DL:ORB#5	DL:ORB#2	DL:ORB#5			
SURNAME	RCaruso:ajs	EReeves	DCrutchfield			
DATE	11/4/82	11/10/82	11/12/82			

Mr. James A. Kay

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November 12, 1982

cc

Mr. James E. Tribble, President
Yankee Atomic Electric Company
1671 Worcester Road
Framingham, Massachusetts 01701

Chairman
Board of Selectmen
Town of Rowe
Rowe, Massachusetts 01367

Energy Facilities Siting Council
14th Floor
One Ashburton Place
Boston, Massachusetts 02108

U. S. Environmental Protection
Agency
Region I Office
ATTN: Regional Radiation Representative
JFK Federal Building
Boston, Massachusetts 02203

Resident Inspector
Yankee Rowe Nuclear Power Station
c/o U.S. NRC
Post Office Box 28
Monroe Bridge, Massachusetts 01350

Ronald C. Haynes, Regional Administrator
Nuclear Regulatory Commission, Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

SAFETY EVALUATION REPORT
PURGE/VENT VALVE ISOLATION DEPENDABILITY CRITERIA
(ITEM II.E.4.2(6&7) OF NUREG-0737)

1.0 INTRODUCTION

As a consequence of the accident at TMI-2, implementation of a number of new requirements has been recommended for operating reactors. These new requirements are described in NUREG-0737, "Clarification of TMI Action Plan Requirements," November 1980. The staff has requested licensees to verify that these TMI action plant requirements have been met. This report provides an evaluation of the response to Action Plan Item II.E.4.2, positions 6 & 7 by the licensees of the 44 plants identified below in the Evaluation and Conclusion Sections.

2.0 REVIEW CRITERIA

Position 6 requires that containment purge/vent isolation valves that do not satisfy the operability criteria set forth in Branch Technical Position CSB 6-4 or the Staff Interim Position of October 23, 1979, must be sealed closed during operating conditions 1, 2, 3, and 4, as defined in SRP 6.2.4, item II.6.f (NUREG 0800). These valves must be verified closed at least every 31 days.

Sealed-closed isolation valves may be closed manual valves, closed remote-manual valves, and closed automatic valves which remain closed after a loss-of-coolant accident. Sealed-closed purge isolation valves should be under administrative control to assure that they cannot be inadvertently opened. Administrative control includes mechanical devices to seal or lock the valve closed or to prevent power from being supplied to the valve operator.

Key-locked switches in the control room are also acceptable administrative control devices to assure that the purge/vent valves are not inadvertently opened. Checking the valve position light in the control room every 31 days is an acceptable method for verifying that the purge valves are closed.

Position 7 requires that containment purge/vent isolation valves must close on a high radiation signal. The radiation monitor(s) that provide the high radiation signal to purge/vent isolation valves must sense primary containment atmosphere. However, the location of the monitor does not have to be inside primary containment, but can be downstream of the purge exhaust valves or in a separate system that directs primary containment atmosphere to radiation monitors located outside containment and then exhausts the containment air back into containment.

The staff has determined that any purge/vent isolation valves sealed closed during plant operating modes 1 through 4, in accordance with SRP 6.2.4, Item II.6.f (NUREG 0800) satisfy the requirements of Position 7 without a radiation closure signal, since these valves are not expected to be open during an accident. Purge/vent lines that are very small and that are used very infrequently also satisfy the requirements of Position 7 without a radiation closure signal, since the amount of containment atmosphere that can be released to the environment is small and since these valves are highly reliable and also unlikely to be open if an accident releasing radiation should occur.

Those plants that elect to seal close the purge/vent valves to meet the provisions of II.E.4.2(6&7) will be required to identify this operational restriction in the plant Technical Specifications.

The evaluation of licensee compliance with Position 7 does not include a review of radiation monitor quality, setpoint, redundancy, or isolation/separation from safety systems.

3.0 EVALUATION AND CONCLUSIONS

Based on our review of the documentation listed in the reference section of this report, the operating plants reviewed can be categorized as those that meet Positions 6 & 7; those that do not meet Position 6 only, and those that do not meet Position 7 only. No plant is in non-compliance with both Positions 6 and 7.

The operating plants reviewed that are in compliance with both Positions 6 & 7 of Item II.E.4.2(6&7) are listed below:

<u>PLANT</u>	<u>TAC#</u>	<u>COMMENTS</u>
1. Big Rock Point	44831	Cont. Rad. Signal to purge/vent valves
2. Browns Ferry 1	44832	Rad. Detector in ducting downstream of purge exhaust valves
3. Browns Ferry 2	44833	Same as Unit #1
4. Browns Ferry 3	44834	Same as Unit #1
5. Brunswick 1	44835	Same as Browns Ferry
6. Brunswick 2	44836	Same as Browns Ferry
7. Crystal River 3	44840	Cont. Rad. Signal to purge/vent valves
8. Dresden 2	44845	Cont. Rad. Signal to purge/vent valves
9. Dresden 3	44846	Cont. Rad. Signal to purge/vent valves
10. Fitzpatrick	44850	Cont. Rad. Signal to purge/vent valves

	<u>PLANT</u>	<u>TAC#</u>	<u>COMMENTS</u>
11.	GINNA	44853	Cont. Rad. Signal to purge/vent valves
12.	Haddam Neck	44854	Purge valves sealed closed. Infrequently used 3/4" vent line acceptable without cont. rad. signal.
13.	Hatch 1	44855	Same as Browns Ferry
14.	Hatch 2	44856	Same as Browns Ferry
15.	Kewaunee	44859	Cont. Rad. Signal to purge/vent valves
16.	Maine Yankee	44861	Cont. Rad. Signal to purge/vent valves
17.	Prairie Island 1	44879	Blind flanges installed on purge lines
18.	Prairie Island 2	44880	Blind flanges installed on purge lines
19.	Quad Cities 1	44881	Drywell Rad. Signal to purge/vent valves
20.	Quad Cities 2	44882	Drywell Rad. Signal to purge/vent valves
21.	Rancho Seco	44883	66" Purge valves sealed closed Cont. rad. signal to 12" purge valves
22.	Robinson 2	44884	Cont. Rad. Signal to purge/vent valves
23.	St. Lucie	44885	Cont. Rad. Signal to purge/vent valves
24.	San Onofre 1	44888	24" purge valves sealed closed. Cont. rad signal to remaining purge/vent valves
25.	Trojan	44892	54" purge valves sealed closed. Cont. rad. signal to remaining purge/vent valves.
26.	Turkey Point 3	44893	Cont. rad. signal to purge/vent valves

<u>PLANT</u>	<u>TAC#</u>	<u>COMMENTS</u>
27. Turkey Point 4	44894	Cont. rad. signal to purge/vent valves
28. Vermont Yankee	44895	Same as Browns Ferry
29. Yankee Rowe	44896	Purge valves sealed closed
30. Zion 1	44897	Cont. rad. signal to purge/vent valves
31. Zion 2	44898	Cont. rad. signal to purge/vent valves

The following operating plants are in non-compliance with Position 6 of Item II.E.4.2:

<u>PLANT</u>	<u>TAC#</u>	<u>COMMENTS</u>
1. Arkansas 2	44829	54" purge valves not sealed closed
2. Davis Besse 1	44841	48" purge valves not sealed closed. Licensee is planning to install blocks so valves can be partially opened.
3. Fort Calhoun	44851	42" purge valves not sealed closed
4. Oconee 1	44869	48" purge valves not sealed closed. PM is sending licensee letter requesting valves to be sealed closed.
5. Oconee 2	44870	Same as Unit #1
6. Oconee 3	44871	Same as Unit #1

The following operating plants are in non-compliance with Position 7 of Item II.E.4.2:

<u>PLANT</u>	<u>TAC#</u>	<u>COMMENTS</u>
1. Millstone 1	44863	Ref. BWR Owners Group Position (1)

<u>PLANT</u>	<u>TAC#</u>	<u>COMMENTS</u>
2. Millstone 2	44864	No cont. rad signal on 6" purge valves
3. Nine Mile Point	44866	Ref. BWR Owners Group Position (1)
4. Oyster Creek	44872	Ref. BWR Owners Group Position (1)
5. Peach Bottom 2	44874	Ref. BWR Owners Group Position (1)
6. Peach Bottom 3	44875	Ref. BWR Owners Group Position (1)
7. Pilgrim 1	44876 -	Ref. BWR Owners Group Position (1)

(1) The staff's evaluation of the BWR Owners Group Position on II.E.4.2(7) is contained in a memorandum from L. Rubenstein to G. Lainas on this subject dated September 9, 1981.

4.0 REFERENCES

REACTOR AND LICENSEE

REVIEW DOCUMENTS

REMARKS

1) Arkansas Nuclear One-Unit 2 Arkansas Power & Light Co. (AP&L)	AP&L letter to R. Clark, NRC dated 6/7/82 (NRC#8206160124)	Pos. 6
2) Big Rock Point Consumers Power Co. (CPL)	Letter from D. Crutchfield, NRC, to D. Hoffman, CPL, dated Nov: 24, 1981	Pos. 7
3) Browns Ferry 1, 2, 3 Tennessee Valley Authority (TVA)	EG&G Electrical Override TER for Browns Ferry 1, 2, 3 dated Sept: 1980 (1183-4163)	Pos. 7
4) Brunswick 1 & 2 Carolina Power & Light Co.	EG&G Electrical Override TER for Brunswick 1, 2 dated July, 1980 (1179F)	Pos. 7
5) Crystal River 3 Florida Power Corp.	EG&G Electrical Override TER for Crystal River 3 dated Jan. 1981 (1183-4180)	Pos. 7
6) Davis Besse 1 Toledo Edison Co. (TECo)	1) TECo letter to J. Keppler, Region III, NRC, dated Sept. 16, 1982 (NRC#8209240391)	Pos. 6
	2) Franklin Institute Electrical Override TER for Davis Besse dated April 30, 1982	Pos. 7
7) Dresden 2 & 3 Commonwealth Edison Co. (CECo)	CECo letter to D. Eisenhut dated April 14, 1982 (NRC#8204230821) and June 11, 1982 (NRC#8206170320)	Pos. 7
8) Fitzpatrick Power Authority of the State of New York	Power Authority letter to D. Vassallo, NRC, dated March 19, 1982 (NRC#8203250341)	Pos. 7
9) Fort Calhoun Omaha Public Power District (Omaha)	Omaha letter to R. Clark, NRC dated April 29, 1982 (NRC#8205040305)	Pos. 6

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| 10. Ginna
Rochester Gas & Electric Corp.
(RG&E) | Letter from D. Crutchfield, NRC to
J. Maier, RG&E, dated March 19, 1982 | Pos. 7 |
| 11. Haddam Neck
Connecticut Yankee Atomic Power Co.
(CYAPCo) | CYAPCo letter to D. Eisenhut, NRC
dated May 20, 1981 (NRC#8105290215) | Pos. 6 & 7 |
| 12. Hatch 1 & 2
Georgia Power Co. | EG&G Electrical Override TER for
Hatch 1, 2 dated February, 1980 (1141F) | Pos. 7 |
| 13. Kewaunee
Wisconsin Public Service Corp. | EG&G Electrical Override TER for
Kewaunee, dated September 1980 (1183-4168) | Pos. 7 |
| 14. Maine Yankee
Maine Yankee Atomic Power Co.
(MY) | MY letters to NRC dated December 10, 1979
May 16, 1980, and May 1, 1981 | Pos. 7 |
| 15. Millstone 1 & 2
Northeast Utilities (NU) | NU letter to D. Eisenhut, NRC
dated May 20, 1981 (NRC#8105290215) | Pos. 7 |
| 16. Nine Mile Point
Niagara Mohawk | EG&G Electrical Override TER for
Nine Mile Point, dated July 1981
(SRO-268) | Pos. 6 |
| 17. Oconee 1, 2, 3
Duke Power Co. (DUKE) | DUKE letter to H. Denton, NRC, dated
September 13, 1982 (NRC#8209200115) | Pos. 6 |
| 18. Oyster Creek
Jersey Central Power & Light
(JCP&L) | JCP&L letter to D. Crutchfield, NRC
dated February 25, 1982 (NRC#8203030465) | Pos. 7 |
| 19. Peach Bottom 2 & 3
Philadelphia Electric Co. (PEC) | Memorandum for G. Lainas, Safety Assessment
from T. Novak, Operating Reactors, dated
June 15, 1981, Subject: Peach Bottom 2/3
Electrical Override SER | Pos. 7 |

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|---|---|------------|
| 20. Pilgrim 1
Boston Edison Co. (BEC) | BEC letter to NRC dated January 5, 1981
(NRC#8101090045) | Pos. 7 |
| 21. Prairie Island 1 & 2
Northern States Power (NSP) | NRC letter to D. Muself, NSP dated
September 9, 1982 Subject: Purge/Vent
SER | |
| 22. Quad Cities 1 & 2
Commonwealth Edison (Com Ed) | Com Ed letter to D. Eisenhut NRC, dated
April 15, 1982, Subject: Response to
Generic Letter 82-05 | Pos. 7 |
| 23. Rancho Seco
Sacramento Municipal Utility
Dist. (SMUD) | SMUD letter to J. Stolz, NRC
dated September 19, 1980
SMUD letter to J. Stolz, NRC dated
July 1, 1981 (NRC#8107070369) | Pos. 6 |
| 24. Robinson 2
Carolina Power & Light (CP&L) | Franklin Institute Electrical Override
TER for Robinson 2 dated March 31, 1982 | Pos. 7 |
| 25. St. Lucie 1
Florida Power & Light | EG&G Electrical Override TER for
St. Lucie 1, dated August 1980 | Pos. 7 |
| 26. San Onofre 1
Southern California Edison (SCE) | EG&G Electrical Override TER for
San Onofre, dated October 2, 1980
SEC letter to D. Ziemann, NRC dated
January 15, 1980 (NRC#8001220388) | Pos. 7 |
| 27. Trojan
Portland General Electric Co.
(PGE) | PGE letter to Director, NRR, NRC
dated May 6, 1982 (NRC#8205110425) | Pos. 6 & 7 |
| 28. Turkey Point 3 & 4
Florida Power and Light | EG&G Electrical Override TER for
Turkey Point 3 & 4, dated January 1981
(1183-4160) | Pos. 7 |
| 29. Vermont Yankee
Vermont Yankee Nuclear Power
(VYNP) | NRC letter to R. Smith, VYNP,
dated December 8, 1981, Subject: B-24
Review Status | Pos. 7 |
| 30. Yankee Rowe
Yankee Atomic Electric (YAEC) | YAEC letter to D. Ziemann, NRC, dated
November 1, 1979 (NRC#7911210448) | Pos. 6 |

31. Zion 1 & 2
Commonwealth Edison (Com Ed)

Com Ed letters to NRC, dated
December 15, 1980 and April 15, 1982

Pos. 7