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INFORMAL REPORT

RECOMMENDATIONS TO THE STAFF ON THREE MILE ISLAND UNIT #1

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ENGINEERING AND ADVANCED REACTOR SAFETY DIVISION

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DEPARTMENT OF NUCLEAR ENERGY BROOKHAVEN NATIONAL LABORATORY
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THREE MILE ISLAND #1
METROPOLITAN EDISON COMPANY
INSERVICE INSPECTION & TESTING PROGRAM
FOR THE 1977-1980 PERIOD

(SUBMITTAL DATED AUGUST 17, 1977
and SEPTEMBER 30, 1977)

Executive Summary

At the request of the Nuclear Regulatory Commission's Division of Operating Reactors staff, the Reactor Engineering Analysis Group of Brookhaven National Laboratory (BNL) has conducted a review of the Inservice Inspection and Testing program (ISI/IST) of the Three Mile Island #1 Docket No. 50-289. This evaluation is based upon the ISI/IST program as described in Metropolitan Edison Company's submittals of August 17 and September 30, 1977. In addition to the above documents, a meeting was held with the management of Three Mile Island #1, the NRC staff and BNL, October 18 & 19, 1978 to review the requirements of ASME Section XI.

Mr. A. Coppola, T. Restivo, and R.E. Hall were the principals involved in this evaluation and have based their conclusions on numerous discussions with the NRC staff so as to achieve a program wide consistence of review.

The review covers five major areas and is summarized as follows:

1. Inservice Inspection of class 1 - In this area, the licensees submittal is a departure from the ASME Code. It is termed the "focused approach" and relies heavily on analysis to reduce the number of examinations planned. This was found to be unacceptable and it is recommended that the program for this area be disapproved and revised as soon as practical.

2. Inservice Inspection of class 2 - In this area, the submittal meets the code both as to the number and types of examinations, except in five instances which were reviewed as relief requests. Of these, four are recommended for approval and one is an open item pending additional information.

3. Inservice Inspection of class 3 - In this area, the submittal meets the code except for one relief request. This particular relief request is an example of the problems to be expected in older plants (pre 1974 code designs), since it involves examinations of underground concrete pipes (material not covered by ASME Code), and the inspections on tests required to ascertain their condition. In this case, while it is not possible to demand strict compliance with the code, it has been recommended that the licensee be requested to propose alternate surveillance methods, since the piping is essential for plant safety.

4. Inservice Testing of pumps - Again, in this area the problems with older plants are apparent. The program proposed follows the intent of the code requirements, (monthly performance tests), but because of a lack of complete instrumentation, six (6) relief requests were reviewed. Of these, five (5) are recommended for approval and one is not.

5. Inservice Testing of valves - This area far outweighs the others in number of relief requests. The review is divided into general and specific commentaries. The general subjects covered (6) were developed with the NRC staff and are applicable to all plants. They outline the accepted code interpretations. Of the remaining 21 relief requests, 16 are recommended for acceptance, 3 are recommended to be denied, and the remaining 2 are acceptable additions and deletions to the valve program.

In summary, it has been found that the program, as reviewed and modified by this analysis is in compliance to the extent possible with the requirements set forth in Section XI of the 1974 Edition and Addenda through the Summer 1975 of the ASME Boiler and Pressure Vessel Code as required by 10CFR50.55a(g), except in the area of class 1, Inservice Inspection.

BNL has evaluated requests and recommended relief from specific requirements which were determined to be impractical for this facility because of limited access, design, geometry, and materials of construction of some components. Several other requests for relief from the requirements should be denied.

This report includes the relief request specific evaluations that are recommended to be included in the NRC's Safety Evaluation Report on the subject of ISI/IST for the Three Mile Island Nuclear Station Unit 1. These recommendations are a result of the above described review and do not constitute a completeness evaluation of the program.

Three Mile Island #1

Recommendations for SER
based on meeting of October 18 and 19, 1978 and
a review of Licensee's Submittal dated
August 17, 1977 and September 30, 1977

1. INSERVICE INSPECTION PROGRAM

1.1 Class 1

Relief Request: The licensee has presented a unique program with significant deviations from the ASME code. By analysis, the licensee has chosen specific welds which he considers more likely to fail (because of higher stress and other considerations) and concentrates his inspection in these areas. He calls this the "Focused Approach" and requests the approval of the examinations called for his table A-1 in lieu of the examinations called for in ASME tables IWB 2500 and IWB 2600.

Code Requirements: The major areas of deviation from the code tables IWB 2500 and IWB 2600 in Section XI are exceptions to the following requirements:

a. ASME Items B1.2, B2.1 and B3.1 examination Category B-B, rquires 10 percent of the longitudinal and 5 percent of the circumferential welds to be inspected during or near the end of each inspection interval (volumetrically)

b. ASME Items B1.4 and B2.2, examination Category B-D, requires all nozzles welds to be examined 100 percent during the inspection interval (volumetrically).

c. ASME Items B1.6 and B4.1 examination Category B-F, requires volumetric and surface examinations of 100 percent of all safe end welds during the inspection interval.

d. ASME Item B4.5, B4.7 and B4.8 examination Category B-J (piping), requires 25 percent of circumferential joints including adjoining one foot sections of longitudinal joints (volumetric exam) and 25 percent of the pipe branch connection joints (volumetric exam over 6" and surface exam under 6").

Basis for Requesting Relief: The inspection program detailed in Table A-1 of the submittal follows the Code, except that inspections are focused on those areas which engineering analysis indicates are subject to relatively more critical conditions of stress, fatigue, radiation, and/or thermal cycle. Inspections are also required of those areas which had recordable indications during the preservice baseline examination. It is considered that inspection of areas subjected to relatively more critical conditions or which have pre-existing indications will provide good assurance of identification of any potential problems before significant flaws develop in the Class 1 component pressure boundaries.

Fundamentally, the approach taken by MetEd in regard to the inservice inspection program has always been that the inservice inspection effort should be directed at those areas of the plant which are most likely to develop problems, and that areas for inspection should not be selected in a random basis. MetEd's reasons for taking this focused approach have been as follows:

> By a more judicious selection of inspection locations, the effectiveness of the inspection is improved. For example, experience indicates that welds subjected to the highest fatigue and stress conditions are more likely to degrade than welds subjected to milder conditions in the same environment. Likewise, experience indicates that defect growth often initiates at existing flaws. Accordingly, the focused aproach concentrates the planned ISI inspections on the higher stressed and fatigued welds and on areas with known flaws.
>
> The use of the focused approach is considered to provide at least the same degree of protection against undetected defect growth as the code approach, while requiring a reduced number of inspections. MetEd expects this to result in significantly reduced radiation exposure to personnel, which is considered to be highly desirable.

The MetEd ISI program for Class 1 components has always been based on the focused approach. It was originally developed in 1968 and 1969, and has been in the TMI-1 & 2 technical specifications since their original issue. Over the years the program has been updated to include relatively minor changes to reflect new information. The type of information used to update the program has included final values of calculated stress and fatigue usage factors, locations of recorded but acceptable indications in welds based on preservice inspection, and results of inspections at other plants. MetEd anticipates that further updating will be required in the future as experience at TMI and other plants is obtained.

Evaluation: The licensees program significantly reduces the number of examinations required by the ASME code. The reductions in category B-D (nozzle to vessel welds) for instance, are equal to 75 percent of the required examinations. These reductions are not accompanied by any increased amount of examinations in any other category. The net result from this "Focused Approach" is less assurance that the Class 1 pressure boundary will not experience weld failures, than would be achieved if the ASME code required examinations were performed. It is therefore recommended that this request for relief be denied, and that the Licensee be directed to revise and resubmit the Class 1 ISI program as soon as practical.

1.2 Class 2

The program for ISI-Class 2, as outlined in the licensees submittal (table B-1, Revision 1) is in compliance with the ASME code both in the number and type of examinations planned, with exceptions noted in table B-2. These exceptions are all acceptable as outlined below.

1.2.1 Relief Request: Penetration Pressurization System as shown on ISI DWG 300-015 be excused from hydrostatic pressure test requirements of IWC 2412 and IWC 2500.

Code Requirements: ASME Section XI, paragraphs IWC 2412 and 2500 requires that both exempt and non exempt components be hydrostatically tested at 1.25 times their design pressure, at least once during the inspection interval.

Licensee Basis for Relief: This system is an air system used for pressurization. The introduction of water for pressure testing will be harmful to the piping and other components and will impair and degrade its subsequent operation. This system will be pneumatically pressure tested at normal operating pressure and leak checked by the soap bubble method.

Evaluation: The staff agrees with the licensee's basis for not introducing water into this system. The licensee was requested to give additional justification for not testing at 1.25 times the system design pressure. Until this information is received, this should be considered an open item.

1.2.2 Relief Request: The following systems be excused from the hydrostatic pressure test-requirements of IWC 2412 and IWC 2500 and an equivalent pneumatic test be performed instead:

.1 Waste Gas Disposal System
.2 Nitrogen Supply System
.3 Hydrogen Purge System
.4 Service Air System
.5 Containment Monitoring System

Note: The system limits are given on page 2 of table B-2 of Licensee's submittal.

Code Requirements: same as 1.2.1 above

Licensee Basis for Relief: These are systems which contain gas. The introduction of water for pressure testing will be harmful to them and their associated components, and will impair and degrade their subsequent operation. These systems will be pneumatically pressure tested to 1.25 times design pressure and leak checked using the soap bubble method.

Evaluation: The staff agrees with the licensee's basis and the test proposed is structurally equivalent to the ASME test (for gaseous systems). It is therefore recommended that this relief be granted.

1.2.3 Relief Request: Decay Heat piping (14") from DH-V6 A/B to Reactor building sump be excused from testing per table IWC 2600, Item 2.1 and table IWC 2520 Category C-F.

Code Requirement: The tables cited above call for volumetric examination of 100 percent of selected pipe welds in pressure retaining piping, pumps, and valves in systems which circulate reactor coolant.

The welds selected include the following:

a. circumferential butt welds at structural discontinuities
b. circumferential butt welds in piping with 3 pipe diameters of the centerline of rigid pipe anchors, or anchors at the penetration of the primary reactor containment, or at rigidly anchored components.
c. longitudinal weld joints in pipe fittings (i.e., in tees, elbows, reducers).
d. branch connection weld joints.
e. pump casing and valve body weld joints.

This includes the weld metal and base metal for one-wall thickness beyond the edge of weld.

Licensee Basis for Relief: This piping is encased in concrete under the Reactor Building floor and therefore cannot be inspected volumetrically. The butt welds on DH-V6A and B cannot be inspected since these valves are located in a welded valve container and are not accessible.

Evaluation: The piping section for which relief is requested can be considered exempt from the requirements cited above for the following reasons:

1. It does not normally contain or circulate reactor coolant. In long term accident situations, it will be used to circulate reactor coolant or any other fluid which has been deposited in the reactor building sump.

2. Under conditions of use, the highest pressure will be containment pressure, (below 200 psi), and below 275°F in temperature.

3. It is also exempt from the hydrostatic pressure test requirements of IWC 5000 because it is an open ended system, open to the reactor building sump.

The request is therefore considered within the intent of the code and no relief is required.

1.2.4 Relief Request: Decay heat piping elbow (10") immediately upstream of DH-V4 A/B (one butt weld and two longitudinal welds), be excused from the requirements of table IWC 2600, Item 2.1 and table IWC 2520, Category C-F.

Code Requirement: same as 1.2.3 above

Licensee Basis for Relief: This section of decay heat pipe is contained within a 14 inch guard pipe and is not accessible for inspection. It will be subjected to hydrostatic test per IWC 500.

Evaluation: The staff agrees with the licensee's basis of inaccessibility. Evidence of leakage during hydrostatic test is not restricted and will be regarded as sufficient cause for the removal of the guard pipe and closer inspection of the covered portion of the pipe and welds. The guard pipe and the weld attachments to the valve in this case should be considered under class 2 piping supports. Accordingly, it is recommended tnat this relief request be granted.

1.2.5 Relief Request: The following pumps be excused from the hydrostatic pressure test requirement of IWC 2412 and IWC 2500:

1. Decay Heat Removal Pumps A/B
2. Building Spray Pumps A/B
3. Make-up Pumps A/B/C

Code Requirement: same as 1.2.1 above

Licensee Basis for Relief: Pressure testing pumps at 1.25 times system design pressure will damage pump seals

Evaluation: These pumps have undergone proof pressure testing prior to operation or installation in the system. They are also under frequent visual surveillence during monthly inservice tests, and the elimination of this particular hydrostat (once in ten years) will not significantly increase the risk of failure of these pumps. Accordingly, it is recommended that this relief request be granted.

1.3 Class 3

The program for ISI Class 3, as outlined in the licensee's submittal (table C-1) is in compliance with the ASME Code both in number and type of examinations planned, with the exception of certain underground piping as noted on table C-2. These are discussed below.

1.3.1 Relief Request: Underground concrete piping in the nuclear service river water, decay heat river water, and reactor building emergency cooling systems be excused from the testing requirements of IWD 2410(b).

Code Requirement: The paragraph cited requires that all class 3 components be subjected to a hydrostatic test at 1.1 times the system design pressure at least once every inspection interval (10 years).

Licensee Basis for Relief: These sections of piping are underground and therefore cannot be visually inspected. They also cannot be isolated with tight closing valves as required by IWD 2600(b). Therefore, during a pressure test, leakage through installed valves would invalidate the results of the test.

Evaluation: The ASME Code Section XI testing covering Class 1, 2 & 3 ISI is applicable only to those components constructed to the requirements of these classes outlined in Section III of the Code. The 1974 ASME Code for Class 3 does not cover components of concrete

construction. The 1.1x design pressure hydrostatic test is therefore not applicable in this instance. The intent of the code, to uncover leaks and potential breaks in the pipe is applicable however, and some alternate means of surveillance should be proposed and implemented. It is therefore recommended that this specific relief be granted, but that an alternate surveillance method be adopted.

2. PUMPS - INSERVICE TEST PROGRAM

In general, plants constructed prior to the issuance of the 1974 ASME Codes do not have provisions for the pump tests required by that Code. In particular, the flow measurement capability is missing in most cases. The staff expressed its view that the fact that a pump circuit did not presently include instrumentation for measuring flow did not make flow measurement impracticable within the meaning of 10 CFR 50.55a(g)(4), unless the installation of such instrumentation was impractical, and that each case would be considered on its own merits. Accordingly, each relief request was disposed of as follows.

2.1 Relief Request: Bearing temperature (T_b) will not be measured, nor will lubrication level be observed on the following pumps:

a. Reactor Building Emergency Cooling (RR-P1A, RR,P1B),
b. Screen Wash (SW-P1A, SW-P1B),
c. Screen House Ventilation Equipment (SW-P2A, SW-P2B),
d. Decay Heat River Water (DR-P1A, DR-P1B),
e. Nuclear Service River Water (NR-P1A, NR-P1B, NR-P1C).

Code Requirement: The bearing temperature of all centrifugal pump bearings, and main shaft bearings of reciprocating pumps shall be measured at points selected to be responsive to changes in the temperature of the bearing.

Lubrication level or pressure is to be observed during testing.

Basis for Requesting Relief: These pumps are vertical deep well type pumps with the pump submerged under water at all times. Pump bearing are lubricated by the water being pumped. There are no installed means to measure bearing temperature, and the pump design/installation makes it impractical to measure bearing temperature by any other means.

Evaluation: These pumps are constantly submerged during operation, and lubricated by the working fluid. The staff agrees with licensee that there is no practical means to measure bearing temperature. Also, the requirement to observe lubricant level or pressure is not applicable to these pumps. Therefore, it is recommended that relief be granted as requested.

2.2 Relief Request: Pump bearing temperature (T_b) cannot be measured.

a. Control Building Chilled Water (AH-P3A, AH-P3B),
b. Spent Fuel (SF-P1A, SF-P1B).

Code Requirement: The temperature of all centrifugal pump bearings and main shaft bearings of reciprocating pumps shall be measured at points selected to be responsive to changes in the temperature of the bearing. Oil temperature prior to the oil entering a cooler shall be considered the bearing temperature.

Basis for Requesting Relief: Pump bearing temperature cannot be measured on this pump since the bearings are located deep inside the pump casing and are surrounded by an oil reservoir. An exception is

requested per 10 CFR 50, 50.55 a (g)(4) in that measurement of parameter T_b is not practical within the limits of design of this pump.

Evaluation: Measurement of pump bearing temperature on these pumps is considered impractical based on their design. A monthly check on the lubrication level and signoff is presently practiced. Based on this, it is recommended, that relief from Code requirement of measuring T_b be granted.

2.3 Relief Request: Vibration measurements will be made on the pump motor and not on the pumps for the following pumps:

a. Reactor Building Emergency Cooling Pumps (RR-P1A, RR-P1B),
b. Screen Wash Pumps (SW-P1A, SW-P1B),
c. Screen House Ventilation Equipment (SW-P2A, SW-P2B),
d. Decay Heat River Water Pumps (DR-P1A, DR-P1B),
e. Nuclear Service River Water (NR-P1A, NR-P1B, NR-P1C).

Code Requirement: The location of vibration measurement shall generally be on a bearing housing or its structural support, provided it is not seperated from the pump by any resilient mounting.

Basis for Requesting Relief: These pumps are vertical deep well type pumps with the pump submerged under water at all times. It is not possible to measure vibration on pumps in this type installation. Past operating experience has shown that motor vibration is indicative of pump mechanical problems in this type installation. Therefore, motor vibration will be measured in lieu of pump vibration.

Evaluation: The staff agrees with the licensee's basis, and the proposed alternative testing is acceptable. It is therefore recommended that this relief request be granted.

2.4 Relief Request: Flowrate (Q) cannot be measured during inservice tests of individual pumps, for the following pump sets:

a. Screen Wash (SW-P1A, SW-P1B),
b. Screen House Ventilation Equipment (SW-P2A, SW-P2B),
c. Control Building Chilled Water, (AH-P3A, AH-P3B),
d. Makeup and Purification (MU-P1A, MU-P1B, MU-P1C),
e. Nuclear Service Closed Cooling (NS-P1A, NS-P1B, NS-P1C).

Code Requirement: Flowrate (Q) and ΔP, shall be measured in a variable resistance system. In a fixed resistance system, pump ΔP or flowrate is required but not both.

Basis for Requesting Relief: There are no flowmeters installed in the flow paths of these pumps, therefore, flowrate (Q) cannot be measured. An exception is requested per 10CFR 50.55a (g)(4) since measurement of flow would require a design change to this system, and therefore not be within the limits of the current design.

Evaluation:

2.4.1 Screen Wash Pumps (SW-P1A, SW-P1B):

These pumps are used to wash silt and small debris from the river water inlet screens. One of the two pumps is always in operation during normal plant operation with redundancy provided by the second pump. The pumps are typically automatically cycled at 15 minute intervals. Local alarms are sounded if the pump is not started when cycling is commanded.

The licensee has proposed to measure the required pressure parameters, and has stated that a visual check can be made (on a monthly basis) at the screens to determine if the pumps are performing as required to effectively wash down the screens.

During short and long term emergency conditions, the performance of the pump can also be visually monitored in this fashion at higher frequencies. Ultimate measures for washing down the screens could be hand held hoses.

For these pumps, since a qualitative visual check can be made of flowrate whenever these pumps are operated, it is recommended that the relief request be granted.

2.4.2 Screen House Ventilation Equipment (SW-P2A, SW-P2B), Control Building Chilled Water (AH-P3A, AH-P3B), Nuclear Service Closed Cooling (NS-P1A, NS-P1B, NS-P1C):

The licensee has indicated that these pumps are part of a variable resistance fluid system (control valves in operation). As such, the Code requires that ΔP and flowrate be measured and compared to reference values to evaluate the pump's performance. The licensee, in requesting relief from measuring flowrate as required by the Code, and has not proposed any acceptable alternative to evaluating the pump's performance.

The licensee should propose an alternative method with the rationale to support the method proposed. Until an acceptable alternative is available, it is recommended that the request for relief be denied.

2.4.3 Make-up and Purification Pumps (MU-P1A, MU-P1B, MU-P1C):

Discussions with the licensee pointed out that one pump is run continuously for normal make-up and purification during plant operation. The other 2 pumps are turned over and recirculated thru mini-flow loops every 30 days. The mini-flow loop did not provide for flow measurement and was estimated to flow at about 10 percent of pump capacity.

The licensee was asked if any of the subject pumps were tested flowing to the RCS during refueling outages. Personnel present at

the meeting believed some testing was accomplished at refueling, but were not sure of the specifics. The licensee was requested to, and agreed to provide the details of these tests. Until the specifics of these tests are available for evaluation, it is recommended that the request for relief be denied.

2.5 Relief Request: Individual pump tests cannot be accomplished monthly in the manner required by the code, because the flowrate (Q) thru individual pumps cannot be measured, for the Nuclear Service River Water Pumps (NR-P1A, NR-P1B, NR-P1C).

Code Requirement: Measure flowrate (Q) as one of the parameters to be measured during individual pump tests conducted every 30 days.

Basis for Requesting Relief: Flow metering for this system is located in the common discharge lines from all three pumps. Plant operating requirements dictate the operation of at least two Nuclear Service River Water pumps during plant operations, thereby making it impossible to measure flow for a single pump. Pump flow will be measured for each pump during plant shutdown when operation of only one pump is required.

Evaluation: The licensee has indicated that operation of each pump could be checked to Code at plant shutdown, when operation of only one pump is required. The frequency of these individual pump tests was stated as being approximately one year.

In order to bring the test frequency more in line with the Code requirement of 30 days, the licensee was asked if performance criteria and supporting rationale could be established for the 2 pump system operation using existing instrumentation. The licensee agreed to look into this type test approach or other alternatives for 30 day testing/evaluation cycle.

Until this is accomplished, it is recommended that the request for relief be denied.

2.6 Relief Request: Pi (inlet pressure) cannot be directly measured, but can be determined by calculation for the Spent Fuel Pumps (SF-P1A, SF-P1B).

Code Requirement: Measure Pi and ΔP (Reference ASME Code, Section XI, Sum. 75, Table IWP-3100-1).

Basis for Requesting Relief: Since there is no pump inlet pressure gauge installed, test quantities Pi and ΔP cannot be directly measured. An exception is requested per 10 CFR 50, 50.55 a (g)(4) since measurement of pump inlet pressure would require a design change to this system and therefore not be within the limits of the current design. However, pump inlet static pressure will be calculated based upon the difference in elevation between pump suction and the source of pump suction fluid.

Evaluation: Measuring the static head of a fluid on the inlet side of a pump by recording the height of fluid over the pump inlet is an acceptable alternative to a pressure measurement, where the reservoir is large in area compared to pump flow area. It is therefore recommended that this relief request be granted.

3. VALVES, INSERVICE TESTING PROGRAM

3.1 General: The scope of this review is limited to those valves which perform a safety related function. Safety related valves, for the purpose of IST, have been defined as those valves that are necessary to function to safely shutdown the plant and/or mitigate the consequences of an accident. As a minimum, all valves that receive a containment isolation signal or a safety injection signal shall be included in the IST program.

The following guidelines were developed after review of some initial IST programs.

3.1.1 Leak Testing of Valves which Perform a Pressure Isolation Function

There are several safety systems connected to the reactor coolant pressure boundary that have design pressures that are below the reactor coolant system operating pressure. It is required that there be redundant isolation valves forming the interface between these high and low pressure system to prevent the low pressure systems from being subjected to pressures which exceeds their design limits. In this role the valves are performing a pressure isolation function.

The staff considers it necessary to provide assurance that the condition of each of these valves is adequate to maintain this redundant isolation and system integrity. For this reason it is believed that some method, such as a leak testing, should be used to assure their condition is sufficient to maintain this pressure isolation function.

In the event that leak testing is selected as the appropriate procedure for reaching this objective the staff believes that the following valves should be categorized as A or AC and leak tested in accordance with IWV-3420 of Section XI of the applicable edition of the ASME Code. These valves are:

a. DH-V22 A/B, Decay Heat Removal
b. CF-V4 A/B, Core Flooding
c. CF-V5 A/B, Core Flooding
d. RC-V4 or equivalent, Decay Heat Spray
e. RC-V23 or equivalent, Decay Heat Spray

We have discussed this matter and identified the valves listed above to the licensee. The licensee has agreed to consider leak testing these valves in accordance with IWV-3420 of the applicable edition of the ASME Code and to categorized these valves with the appropriate designation. In addition valves DH-V1 and DH-V2 on the Decay Heat suction line should also be considered in this category. If after considering these valves for leak testing, the licensee finds that no leak testing is necessary, a detailed basis for the decision shall be provided to the NRC for evaluation.

In addition to valves at the junction of high and low pressure systems, there are valves which perform the same function between systems of equal operating pressure, but different ASME class construction. These should also be considered as performing a pressure isolation function since they prevent flow to a system or piping that is constructed and tested to a less stringent part of the ASME Code. Valves in this group should also be reviewed for possible inclusion in Category A. For Three Mile Island Unit #1, the valves in the make-up system which interface with the reactor coolant system fit this description. Two out of 3 valves in each leg of the make-up system used for high pressure injection should be considered as performing a pressure isolation function and dealt with accordingly.

3.1.2 Containment Isolation Valves

In our review, we have found deviations from the containment isolation criteria set forth in General Design Criteria (G.D.C.) and the requirements of Appendix J, particularly, the type C test. We have determined that it is not in the scope of the IST program to evaluate the licensee's Appendix J program or the containment isolation criteria set forth in G.D.C. The Appendix J review is a completely separate review, however, the determinations made by that review are directly applicable to the IST program. The present IST submittal is acceptable, until the Appendix J review is completed, at that time, we will require the licensee to amend his IST program to reflect the conclusions of the Appendix J review for his plant.

In particular, the following valves are recommended for review and possible classification as containment isolation valves:

a. PP-V101, Penetration Pressurization System
b. PP-V102, Penetration Pressurization System
c. PP-V133, Penetration Pressurization System
d. PP-V134, Penetration Pressurization System
e. NI-V27, N_2 Supply
f. SA-V2, Service Air
g. IA-V6, Inst. Air
h. WDL-V304, L.W. Disposal
i. DH-V69, Decay Heat Removal*
j. DH-V64, Decay Heat Removal*

3.1.3 Category A Valve Leak Check Requirements

The staff's present position is that all Category "A" valves shall be leak tested to Section XI requirements. The leak test requirements and exceptions for Category A valves are explicitly stated in ASME Section XI. In principle 10 CFR 50.55 a(g) Setion XI is separate and different from the requirements of other valve

*These valves are additional to those on the list presented at SER meeting.

testing requirements in the CFR such as Appendix J. The test requirements of 10 CFR 50.55 a(g) are to establish operational readiness at system function differential pressure. In general:

a. For Category A valves which communicate only with the containment atmosphere, i.e. containment purge, hydrogen purge, Appendix J leak testing results are sufficient for Section XI requirements.

b. For Category A valves which communicate with the primary coolant system, the licensee must perform the leak test at system function differential pressure. Relief to test at system function differential pressure are specified in Section XI and in those cases tests at lower pressure, such as those established for Appendix J requirements, are acceptable provided the licensee can satisfy sub-paragraph IWV-3420 C5 of Section XI.

c. Those valves that perform both a pressure isolation and containment isolation function shall be leak tested to meet Section XI of the applicable edition of the ASME Code in addition to Appendix J of 10 CFR 50 requirements.

3.1.4 Valve Exercising Requirements

The ASME Code requirements for valve exercise tests for category A, B, and C valves allow certain deviations from the prescribed 3 month period if it is "impractical" to exercise the valves during plant operation. It is the licensees opinion that these deviations do not constitute relief from the Code requirements. It is the staff position that these deviations must be reviewed in order to insure that proper and consistant criteria are used to determine impracticality (i.e.. where the failure of a valve in the test position would decrease the availability of a safety system). Accordingly, while there is no relief requested in these cases, a basis for the deviation and an evaluation will be included in this review, to document the criteria used to determine impracticality. When a valve is not exercised at 3 month intervals, it must be exercised at cold shutdowns unless relief is granted. A guideline used by the staff to define the duration of a cold shutdown during which valve testing is required is as follows:

Valve testing should commence not later than 48 hours after shutdown (reactivity 0 or negative), and continue until complete or plant is ready to return to power. Completion of all valve testing is not a prerequisite to return to power. Any testing not completed at one cold shutdown should be performed during subsequent cold shutdowns to meet the Code specified testing frequency.

In the case of valves exercised less frequently than cold shutdown (i.e., refueling), relief from the Code requirement must be requested. These cases are treated as such in this review.

3.1.5 Category E Valves

The licensee submittal is deficient in that there are no category E valves listed in the IST program. A list of "locked" and "sealed" in position valves was submittled at the SER working meeting of October 18 and 19, 1978. This list is a general list for valves throughout the plant, and does not include those valves which are administratively locked in position. In the next submittal the licensee should include all the safety related valves which are locked in position either physically or by written procedure and are required to keep that position during an emergency. These valves should be listed as Category E on the IST valve list by system as are the category A, B & C valves.

Although IWV-1300 of the 1974 Edition of Section XI of the ASME Boiler and Pressure Vessel Code excludes valves used for operating convenience and maintenance only from testing requirements, it is the staff's opinion and recommendation that any such valve which is in the normal or alternate flow path of cooling water of engineered safety systems, from the source to the reactor coolant pressure boundary or containment atmosphere, should be included in the valve testing program. If the valve is normally locked open or closed, it should be reflected in the program and designated "Category E". This recommendation also applies to engineered safety systems which are designed to remove decay heat from the reactor core following a loss of coolant accident.

3.1.6 Corrective Action for Inoperative Valves

Relief Request: Inoperable valves will be evaluated using TMI No. 1 technical specifications to determine when an inoperable valve will limit plant start-up from a cold shutdown condition.

Code Requirement: ASME Section XI Paragraph IWV 3410 (g) and IWV 3520 (c) concerning corrective action required when a valve fails an exercise test, both state the following: "If the condition is not or can not be corrected within 24 hours, the valve shall be declared inoperative. When corrective action is required as a result of tests made during cold shutdown, the condition shall be corrected before start-up. A retest showing acceptable operation shall be run following any required corrective action before the valve is returned to service."

Basis for Relief: Constraints and limitations on plant start-up with an inoperable valve depend on many specific plant design features and conditions. The limiting conditions for start-up and operation have been analyzed and are described in TMI No. 1 technical specification, subsection 3, pages 3-1 to 3-60 (FSAR volume 5).

Evaluation: The staff agrees that the conditions and constraints set forth in the licensees technical specifications, in particular subsections 3.3 Emergency Core Cooling, Reactor Building and 3.2 Makeup and Purification and Chemical Addition Systems, give a more

detailed basis for preventing plant start-up than the ASME Ccode. These bases have been previously reviewed and approved by the NRC and therefore it is recommended that this relief request be granted.

3.2 Particular Valve Relief Requests:

3.2.1 Reactor Building Spray System:

3.2.1.1 Category C valves:

Relief Request: Valves BS-V21 A/B, BS V30 A/B and BS V 52 A/B be excused from the exercising requirements of the ASME Code.

Code Requirement: ASME Sec. XI paragraph IWV 3520 states,

"(a) Test Frequency - Check valves shall be exercised at least once every 3 months, with the exceptions as defined in paragraph IWV-3520(b).

(b) Exercising Procedure - Check valves shall be exercised to the position required to fulfill their function unless such operation is not practical during plant operation. If only limited operation is practical during plant operation the check valve shall be part-stroke exercised during plant operation and full-stroke during each cold shutdown."

Licensee Basis for Relief: There is no practical way to test these normally closed check valves during reactor operation or shutdown. In addition, the following objectives apply to particular valves:

BS-V30 A/B - Testing this valve in the manner suggested imposes undue risk on the plant in that water may be discharged from the Building Spray system spray nozzles.

BS-V21 A/B - Testing this valve in the manner suggested may tend to introduce Sodium Thiosulfate into the Reactor Coolant System which contributes to corrosion and/or metallurgical problems.

BSOV52 A/B - The same situation exists with BS-V52 A/B which may tend to introduce Sodium Hydroxide into the system.

The maximum flow that can be obtained through a vent or drain connection is only sufficient to verify that the disc just leaves the seat. It is felt that the possibility of introducing dirty water or sodium compounds does not warrant the performance of a test with insignificant results.

Evaluation: For all the valves listed above, there exists an upstream test connection which should enable limited testing of these valves, (i.e., lifting off the seat or partial stroking). Immediately upstream of these test connections, there exists a normally closed motorized valve which should allow testing without

the contamination problems implied above. It is also noted that a test showing that these check valves are operable and not "frozen" in their seated position is very desireable as compared to no testing at all over the life of the plant. The licensee should re iew these valves and propose such tests. After revaiew of these proposals, it may be necessary to grant relief from the exercising frequency or full stroke requirement, however until such proposals are submitted, it is recommended that this relief request be denied.

3.2.2 Decay Heat Removal System:

3.2.2.1 Category B valves:

Relief Request: Valves DH-V6 A/B be excused from the quarterly and cold shutdown exercising requirements and tested per Code at refueling.

Code Requirement: ASME Sec. XI papagraph IWC 3410 states,

"(a) Test Frequency - Category A and B valves shall be exercised at least once every 3 months, with the exception as defined in IWV-3410(b)(1),(e), and (f).

(b) Exercising Procedure - (1) Valves shall be exercised to the position required to fulfill their function unless such operation is not practical during plant operation. If only limited operation is practical during plant operation the valve shall be part-stroke exercised during plant operation and full-storked during each cold shutdown: in case of frequent cold shutdowns these valves need not be exercised more often than once every 3 months. Normally closed valves that cannot be operated during normal plant operation shall be specifically identified by the Owner and shall be full-stroke exercised during each cold shutdown: in case of frequent cold shutdowns these valves need not be exercised more often than once every 3 months.

Licensee Basis for Relief: These valves are normally closed and allow the recirculation of Reactor Building Sump water when required under emergency or accident conditions. The Reactor Building Sump contains water that does not meet the cleanliness requirements of the decay heat system, and exercising DH-V6 will allow the entry of that water, thereby contaminating the Decay Heat System suction line, if tested during operation or at cold shutdown. It also requires the isolation of the Borated Water Storage Tank which is not allowable during operation or cold shutdown.

Evaluation: The staff agrees that the potential contamination of the Decay Heat System is undesireable. These valves are not subjected to high temperatures or pressures during normal operation and therefore it is recommended that this relief request be granted.

3.2.2.2 Category C valves

Cold Shutdown Testing of Valves DH-V22 A/B

Code Requirement: ASME Sec. XI paragraph IWV 352 states,

"(a) Test Frequency - Check valves shall be exercised at least once every 3 months, with the exceptions as defined in paragraph IWV-3520(b).

(b) Exercising Procedure - Check valves shall be exercised to the position required to fulfill their function unless such operation is not practical during plant operation. If only limited operation is practical during plant operation the check valve shall be part-stroke exercised during plant operation and full-stroked during each cold shutdown. In case of frequent cold shutdowns these check valves need not be exercised more often than once every 3 months. Normally closed check valves that cannot be operated during normal plant operation shall be specificaly identified by the Owner and shall be full-stroke exercised during each cold shutdown. In case of frequent cold shutdowns these check valves need not be exercised more often than once every 3 months."

Licensee Basis: It is not possible to exercise low pressure injection valves DH-V22 A/B while the reactor is in normal operation.

Evaluation: The staff agrees with the licensee's basis, (low pressure pumps cannot provide pressure differential required for opening these valves except during certain accident conditions), and therefore the indicated testing meets the Code frequency requirements.

3.2.3 Core Flooding Systems

3.2.3.1 Category B valves

Relief Request: Valves CF-19 A/B and CF 20 A/B be excused from the stroke time requirement of IWV 3410(c) 2.

Code Requirement: ASME Sec. XI paragraph IWV 3410(c) 2 states,

"The stroke time of all power-operated valves shall be measured to the nearest second or 10% of the maximum allowable stroke time, whichever is less whenever such a valve is full-stroke tested."

Licensee Basis for Relief: Air operated valves 2" and less have full-stroke times usually less than one second. Thus, the valve stroke time cannot effectively be measured using normal test equipment such as a stopwatch. Air operated valves 2" and less will be tested to ensure their operational readiness as required by Section XI; however, the valve full-stroke time will not be recorded for these valves.

Evaluation: The staff agrees with the licensee's basis, and the alternate test is acceptable. It is recommended that this relief request be granted.

3.2.3.2 Category C valves

Cold Shutdown Testing of Valves CF-V4 A/B & CF-V5 A/B

Code Requirement: same as 3.2.1.1 above

Licensee Basis: It is not possible to exercise core flooding valves CF-V4 A/B & CF-V5 A/B while the reactor is in normal operation.

Evaluation: The staff agrees with the licensee basis, (these valves opened only during accident or emergency when Reactor pressure has dropped below core flood pressure), and therefore the indicated testing meets the Code frequency requirements.

3.2.4 Spent Fuel Cooling System:

3.2.4.1 Category A valves

Relief Request: Valve SF-V23 be excused from the exercise requirements of category A valves.

Code Requirement: The exercise requirements for category A valves are as given above in paragraph 3.2.2.1. Category E valves need not be exercised. This valve actually is a dual category AE valve. For these the Code is not explicit but footnote 1 of paragraph IWV 2110 states,

"Combination of categories, such as categories AC are to be used when more than one distinguishing category characteristic is applicable. In such cases, all requirements of each of the individual categories are applicable although duplication or repetition of common testing requirements is not necessary."

Licensee Basis for Relief: This valve is a passive (closed) containment isolation valve. The valve will be leak tested, but since it does not change position during an accident or emergency, it will not be exercised for test.

Evaluation: The staff agrees with the licensee's basis. This valve should be reclassified AE, and excused from the exercise requirements of category A valves. Accordingly, it is recommended that this relief request be granted.

3.2.5 Make-up System

3.2.5.1 Category A valves

Cold Shutdown Testing of Valves MU-V18, MU-V20, MU-V25, MU-V26

Code Requirement: Same as 3.2.2.1 above.

Licensee Basis: All of the above listed make-up valves are in constant operation providing makeup and letdown to the reactor primary system. The valves are not designed with a part-stroke capability and any error in the frequent part-stroke testing of the valve could jeopardize the continued safe operation of the reactor coolant system. These valves will be tested per Code at cold shutdowns exceeding 48 hours in duration.

Evaluation: The staff agrees with the licensee basis. Failure of these valves during a test while the plant is in operation would reduce safety and in some cases cause unneccessary shutdown. It is therefore agreed that the indicated testing meets the Code frequency requirements.

3.2.5.2 Category B valves

Relief Request: Valve MU-V51 be excused from the stroke time requirement of IWV 3410(c)2.

Code Requirement: Same as 3.2.2.1 above.

Licensee Basis for Relief: Same as 3.2.2.1 above.

Evaluation: The staff agrees with the licensee basis, and the alternate test is acceptable. It is recommended that this relief request be granted.

3.2.5.3 Category B valves

Cold Shutdown testing of MU-V36 and MU-V37

Code Requirement: same as 3.2.2.1 above

Licensee Basis: same as 3.2.5.1 above

Evaluation: The staff agrees with the licensee basis. It is therefore agreed that the indicated testing meets the Code frequency requirements.

3.2.5.4 Category C valves

Cold Shutdown testing of valves MU-V37 A/C, MU-V86 A/B, MU-V94, MU-V95 MU107 A/D and MU-V116.

Code Requirement: Same as paragraph 3.2.2.2 above.

Licensee basis: Same as paragraph 3.2.5.1 above.

Evaluation: The staff agrees with the licensee basis. It is therefore agreed that the indicated testing meets the Code frequency requirements.

3.2.6 Intermediate Cooling System

3.2.6.1 Category A valves

Cold Shutdown testing of valves IC-V2, IC-V3, IC-V4 and IC-V6.

Code Requirement: Same as 3.2.2.1 above.

Licensee Basis: All of the valves listed are in constant operation providing properly conditioned water to the let-down and reactor coolant pump coolers. The valves are not designed with part stroke capability (all normally full open), and any error in the frequent part stroke testing of the valve could jeopardize the continued safe operation of the reactor coolant system. Each of these valves will be full stroke tested during plant cold-shutdown exceeding 48 hours in duration.

Evaluation: The staff agrees with the Licensee basis. It is therefore agreed that the indicated testing meets the Code frequency requirements.

3.2.7 Fluid Block

3.2.7.1 Category C valves

Cold Shut-down testing of valves:

FB-V13	FB-V23	FB-V31
FB-V16	FB-V25	FB-V34
FB-V17	FB-V26	FB-V40
FB-V21	FB-V27	FB-V41
FB-V22	FB-V28	FB-V42

Code Requirement: same as paragraph 3.2.2.2 above.

Licensee Basis: These valves are tested for operational readiness only during cold shutdowns as their failure could result in loss of containment integrity. See NRC letter to MetEd dated November 17, 1976, Enclosure 2, paragraph 2.

Evaluation: The staff agrees with the licensees basis. It is therefore agreed that the indicated testing meets the Code frequency requirements.

3.2.8 Reactor Coolant System

3.2.8.1 Category B valves

Cold shutdown testing of valves RC-V1 and RC-V4

Code Requirement: same as 3.2.2.1 above

Licensee Basis: These valves are motorized, normally closed valves which are opened only to permit decay heat spray into the

reactor coolant loop under accident, emergency or other non operating conditions when the reactor coolant pressure is below operating pressure.

Evaluation: The staff agrees with the licensee basis. It is therefore agreed that the indicated testing meets the Code frequency requirements.

3.2.8.2 Category C valves

Cold shutdown testing of valves RC-V3

Code Requirement: same as 3.2.2.2 above

Licensee Basis: same as 3.2.8.1 above

Evaluation: The staff agrees with the licensee basis. It is therefore agreed that the indicated testing meets the Code frequency requirements.

3.2.9 Chemical Sampling System

3.2.9.1 Category A valves

Relief Requested: Valves CA-V2, CA-V189 and CA-V5 A/B be excused from the timing requirements of paragraph IWV 3410(c) 2.

Code Requirement: Same as paragraph 3.2.3.1 above

Licensee Basis for Relief: same as paragraph 3.2.3.1 above

Evaluation: The staff agrees with the licensee basis, and the alternate test is acceptable. It is recommended that this relief request be granted.

3.2.9.4 Category C valves

Cold shut-down testing of valve CA-V177

Code Requirement: same as 3.2.2.2 above

Licensee Basis: Stroking this valve during normal operation will allow concentrated boric acid into the reactor coolant, creating negative reactivity and inadvertant shutdown.

Evaluation: The staff agrees with the licensee basis. It is therefore agreed that the indicated testing meets the Code frequency requirement.

3.2.10 Main Steam System

3.2.10.1 Category B valves

Relief Requested: Excuse valves MS-V13 A/B from the timing

requirements of paragraph IWV-3410(c) 2.

Code Requirement: same as paragraph 3.2.3.1 above

Licensee Basis for Relief: same as paragraph 3.2.3.1 above

Evaluation: The staff agrees with the Licensee basis, ad the alternate test is acceptable. It is recommended that this relief be granted.

3.2.10.2 Category B valves

Relief Requested: Excuse valve MS-V6 from the timing requirement of paragraph IWV 3410(c)2

Code Requirement: same as paragraph 3.2.3.1 above.

Licensee Basis for Relief: This is a regulating valve whose function is to control the Emergency Feed Pump Turbine speed. Its ability to do so is verified during the monthly pump functional test. These valves are temperature and pressure controlled valves whose operators depend on changes in temperature or flow/pressure to initiate valve operation or change in position. There is no practical way to determine exactly when a normally open control valve starts to close and during normal operation the valve may be only partially open which would not be a full-stroke test. Thus, the time test results for these valves will not be repeatable even though the valve operates as required. Each of the control valves will be functionally tested on a quarterly basis to ensure they operate as required; however, the valve full-stroke time will not be recorded.

Evaluation: The staff agrees with the licensee basis and the alternative testing is acceptable. It is recommended that this relief request be granted.

3.2.10.3 Category B valves

Cold shutdown testing of valves MS-V4 A/B

Code Requirement: same as paragraph 3.2.2.1 above

Licensee Basis: These valves are power operated relief valves for reducing pressure in the emergency feedwater pump steam supply. Failure in the open position during normal reactor operation would cause a reactor trip and plant shutdown, therefore they will be tested at cold shutdown.

Evaluation: The staff agrees with the licensee's basis. It is therefore agreed that the indicated testing meets the Code frequency requirements.

3.2.11 Emergency Feed Water System

3.2.11.1 Category B valves

Relief Requested: Excuse valves EF-V30 A/B from timing requirement of paragraph IWV 3410(c)2

Code Requirement: same as paragraph 3.2.3.1 above.

Licensee Basis for Relief: These valves are pressure controlled valves whose operators depend on changes in flow/pressures to initiate valve operation or change in position. There is no practical way to determine exactly when a normally open control valve starts to close, and during normal operation the valve may be only partially open which would not be a full stroke test. Thus, the time results for these valves will not be repeatable even though the valve oprates as required. Each of these control valves will be functionally tested on a quarterly basis to ensure that they operate as required, however, the valve full stroke time will not be recorded.

Evaluation: The staff agrees with the licensee's basis and the alternative testing is acceptable. It is recommended that this relief request be granted.

3.2.11.2 Category C valves

Relief Request: Excuse valve EF-V3 from all test requirements of ASME Sec. XI.

Code Requirements: same as 3.2.1.1 above

Licensee Basis for Relief: This check valve allows flow to the emergency feedwater pumps from the Nuclear Services closed cycle cooling water system only in cases when the normal supply (condensate system) is not available. It is a back-up path within an emergency system. Since the piping surrounding this valve is never used (i.e., no flow), the introduction of water through this valve would stir up sediment and corrosion products that may have accumulated and introduce them into condensate system which would result in contamination of the main steam generators.

Evaluation: The staff can agree that testing this valve with full flow though it might prove harmful at the present time, but this condition, and the non-testing of a valve in a safety related path cannot be allowed to continue. If the FSAR shows the need for this back-up source of feedwater, then some method for periodic tests to show the operability of this valve must be proposed and implemented. Accordingly it is recommended that this relief request be denied.

3.2.11.3 Category C valves

Cold Shutdown Testing of Valves: EF-V11 A/B, EF-V12 A/B, and EF-V13

Code Requirements: same as 3.2.1.1 above.

Licensee Basis: These valves are tested by flowing feedwater from the emergency feed water system through them to the steam generators. During normal operation, this would create unneccessary cycles of thermal shock in the steam generator feedwater system, since this back-up water supply is not heated. It is therefore planned to exercise these valves at cold shutdown when thermal shock will not occur.

Evaluation: The staff agrees with the Licensee's basis and therefore the indicated testing meets the Code frequency requirements.

3.2.12 Feed Water System

3.2.12.1 Category C valves

Relief Request: Excuse valves FW-V12 A/B from all test requirements of ASME Sec. XI.

Code Requirements: Same as 3.2.1.1 above

Licensee Basis for Relief: These valves are normally open to allow feedwater into the steam generators. They will close under conditions which make the normal feedwater flow unavailable, and the emergency feed water system is in use. To test them (exercise them to the closed position) would require "pressurization" of the steam generators through the emergency feed water system. This would cause water chemistry problems since the emergency feedwater is not conditioned in the same manner, chemically, as the normal feedwater.

Evaluation: The staff can agree that frequent periodic testing of these valves would be harmful to the steam generators, however, the non-testing of these valves cannot be allowed to continue since failure to close at the proper time might invalidate (or make useless) the emergency feedwater system. It is recommended that some method for testing these valves at longer intervals such as at the hydrostatic test, be developed and implemented. Accordingly, it is recommended that this relief request be denied.

3.2.12 Nuclear Services Closed Cooling

3.2.13.1 Category A valves

Cold shutdown testing of valves: NS-V4, NS-V15, and NS-V35.

Code Requirement: same as 3.2.1 above.

Licensee Basis: These valves are normally open, allowing cooling water flow to the reactor coolant pump motors. Closing them during normal operation would interrupt cooling flow to these motors and might cause undue shutdowns if they failed closed.

Evaluation: The staff agrees with the licensee's basis and therefore the indicated testing meets the Code frequency requirements.

3.2.14 Waste Disposal Liquid System

3.2.14.1 Category B Valves

Relief Request: Valves WDL-V49, WDL-V50, WDL-V89, WDL-V90, WDL-V91, WDL-V92, be excused from the stroke time requirement of IWV 3410(c)2.

Code Requirement: same as 3.2.3.1 above.

Licensee Basis for Relief: Air operated valves 2" and less have full-stroke times usually less than one second. Thus, the valve stroke time cannot effectively be measured using normal test equipment such as a stopwatch. Air operated valves 2" and less will be tested to ensure their operational readiness as required by Section XI; however, the valve full-stroke time will not be recorded for these valves.

Evaluation: The staff agrees with the licensee's basis, and the alternate test is acceptable. It is recommended that this relief request be granted.

3.2.14.2 Category C Valves

Cold shutdown testing of valve: WDL-V361

Code Requirements: Same as III(B)4 above.

Licensee Basis: This valve admits boric acid in solution to the make-up and purification system. Exercising this valve during normal operation would upset the boron concentration and thereby affect reactivity in an unplanned manner.

Evaluation: The staff agrees with the licensee basis and therefore the indicated testing meets the Code frequency requirement.

3.2.15 Reactor Building Normal Cooling System

3.2.15.1 Category A valves

Relief Request: Excuse valves RB-V2 (Category AC) and RB-V7 (Category A) from the exercise frequency requirements of ASME Section XI.

Code Requirements: Same as 3.2.1.1 for RB-V2 (check valve, category AC) same as 3.2.2.1 for RB-V7.

Licensee Basis for Relief: These are normally open containment isolation valves used for reactor building cooling and cannot be closed during normal operations or cold shutdowns due to heat buildup in the reactor building during these modes of operation. They are used for long term containment isolation and will be leak

checked and exercised during refueling shutdowns.

Evaluation: The staff agrees with the Licensee basis. It is therefore recommended that this relief request be granted.

3.3 Valves to be added to ISI list.

During the course of the SER meeting valve review, the following valves to be added to the IST valve list were identified:

System	Valve	Category
Decay Heat Removal	DH-V64	AE (not exercised)
	DH-V69	AE (not exercised)
Reactor Building Emergency Cooling	RR-V9 A/B/C	C
Make-up	MU-V14 A/B	C
Nuclear Services Closed Cooling	NS-V32	B
Waste Disposal Gas	HP-V1	A
	HP-V5	A
Decay Heat River Water	DR-V6 A/B	C

3.4 Valves to be deleted from IST list

During the course of the SER meeting valve review, the following valves were identified as having no safety related function and may therefore be deleted from the IST valve list.

System	Valves	Category
Air Handling	AH-V11 A/B	B
Waste Disposal Liquid	WDL-V362	C

Conclusion

It has been found that the program, as reviewed and modified by this analysis is in compliance to the extent possible with the requirements set forth in Section XI of the 1974 Edition and Addenda through the Summer 1975 of the ASME Boiler and Pressure Vessel Code as required by 10CFR50.55a(g). This conclusion is not applicable to the class 1 Inservice Inspection since the focused approach as established by the licensee does not meet the ASME Code and is, therefore, recommended to be rejected.

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