TECHNICAL REVIEW REPORT

REVIEW OF MILLSTONE UNIT 3 TECHNICAL SPECIFICATIONS
NORTHEAST NUCLEAR ENERGY COMPANY
NRC DOCKET NO. 50-423

NRC CONTRACT NO. NRC-05-85-157-01

TASK ORDER NO. 002

ONSITE ACTIVITIES CONDUCTED
July 8 - 19, 1985

Prepared for:

U.S.N.R.C. Region I
631 Park Avenue
King of Prussia, PA 19406

Prepared by:

Parameter, Inc.
13380 Watertown Plank Rd.
Elm Grove, WI 53122

NRC Liaison Personnel:

E.C. McCabe
P.W. Esselgroth
H.F. Van Kessel

Authors:

D.A. Beckman
P.R. Farron
R.J. Cooney

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EXECUTIVE SUMMARY

Parameter, Inc., under the direction of the Nuclear Regulatory Commission, conducted an inspection at the Millstone Nuclear Power Station, Unit 3:

> to determine whether the draft Technical Specifications (TS) and the Final Safety Analysis Report (FSAR) are compatible with the as-built plant configuration and operating characteristics; and,
>
> to determine whether the draft Technical Specification Requirements are definitively measurable.

The inspection was concentrated on plant systems, structures and components identified by the licensee's Probabilistic Safety Study as having particular significance with respect to minimizing the severity of potential accidents and accident consequences. The systems evaluated included: containment and related support systems, containment spray systems, emergency core cooling systems (ECCS), soluble poison reactivity control systems, electrical power systems, and selected secondary plant system and components.

The facility descriptions and operating characteristics for the systems, structures and components found in the FSAR, the NRC Safety Evaluation Report (SER) and the proposed TS were compared to licensee drawings, procedures and actual plant hardware to establish whether the as-built configuration of the systems, structures and components is compatible with the safety analyses and proposed TS.

Licensee documents reviewed included: Piping and Instrumentation Drawings, Logic Diagrams, Electrical Schematics and One Line Diagrams, Operating and Emergency Procedures, Surveillance and Inservice Test Procedures, Calibration Procedures and data, Maintenance Procedures, Preoperational Test Procedures and data, Administrative Procedures, calculations, and correspondence. In situ plant equipment was visually inspected on a sampling basis to verify that actual installations agreed with the various documents.

Surveillance Procedures were also reviewed to verify that the surveillance methods planned by the licensee were consistent with the requirements of the draft TS and that the proposed TS requirements were definitively measurable or determinable.

At the time of the inspection the draft TS were still under development by the licensee in conjunction with the NRC Office of Nuclear Reactor Regulation (NRR). The inspection was conducted using draft TS promulgated by NRC on June 27, 1985, and using pending revisions to that draft provided by the licensee. These revisions had been partially submitted to NRR on July 5, 1985; the remaining revisions were awaiting submittal to NRR.

Additionally, the licensee's programs for preparation of surveillance and operating procedures had just recently reached draft production levels; nearly all the procedures reviewed during the inspection were in draft form.

The inspection determined that the draft Technical Specifications were compatible with the as-built systems, structures, and components in the areas inspected and that compliance with the Technical Specifications could be definitively measured or determined.

Because both the proposed TS and the licensee's implementing procedures were still under development, many plant configuration, operating characteristic, and parameter details remained to be firmly established. The licensee's programs for accomplishing this appeared to be functioning satisfactorily in most areas. Several inconsistencies and areas of concern were identified with respect to these activities and were presented to the licensee during the inspection. These observations included:

The finalization of TS will involve many changes in its setpoints, quantitative Limiting Conditions for Operation, Surveillance Requirement acceptance criteria, and other numerical limits and criteria. These changes will require a rigorous licensee program for revising and confirming the accuracy of the facility operating, surveillance, preoperational, and inservice test procedures for verification and implementation of the TS. The licensee's planning in this regard was in progress but incomplete at the close of the inspection.

At the time of the inspection, the licensee's preparation of surveillance and inservice test procedures and other operating documents had just recently entered full production. Development of a surveillance master index, a computerized production and implementation schedule, and inter-departmental coordination methods were also in progress but incomplete.

Although the licensee had prepared most surveillance procedures in at least draft form, the draft procedures reviewed during the inspection appeared to require substantial refinement to ensure their technical accuracy, to incorporate information still under development, and to meet various regulatory commitments.

Additionally, minor inconsistencies between the draft TS, related design documents and plant procedures were identified during the inspection. The inconsistencies generally involved the preliminary status of TS or FSAR information and the plant procedures and documents. These were generally resolved by the licensee during the inspection; in most cases, the resolution involved confirmation that the item was being actively pursued by the licensee and was included in the various open items listings and commitment control listings that the licensee is using to administer

document development.

CONCLUSION

The Technical Specification preparation process appears to be functioning properly. The Technical Specifications and implementing procedures reviewed appear to be compatible with the as-built plant configuration. That information which is still under development for incorporation into the Technical Specifications and implementing procedures appears to be subject to sufficient management control to assure adequate completion of the process.

1.0 - INTRODUCTION

1.1 - PURPOSE

The purpose of this inspection was to assist the Nuclear Regulatory Commission in determining that the Millstone Nuclear Power Station, Unit 3, Technical Specifications were compatible with the as-built configuration of plant systems, structures and components and that the Technical Specification requirements were definitively measurable or determinable.

1.2 - BACKGROUND AND GENERAL SCOPE

Startup testing and subsequent plant operation at commercial nuclear power plants has demonstrated that discrepancies sometimes exist between the plant's Technical Specifications (TS), Final Safety Analysis Report (FSAR), Safety Evaluation Report (SER), and as-built plant configuration. During low power physics testing at the Grand Gulf Nuclear Station, Unit 1, significant discrepancies of this nature were identified and subsequently corrected.

This inspection was conducted to gain additional assurance that the proposed Millstone Unit 3 TS are compatible with the assumptions and requirements of the safety evaluations performed and the as-built plant configuration. Parameter, Inc. was requested to assist NRC Region I in performing this inspection at the Millstone Unit 3 site.

The general scope of the inspection included:

Report Section	
2.1	CONTAINMENT ISOLATION AND SUPPORT SYSTEMS
2.2	SUPPLEMENTARY LEAK COLLECTION AND RELEASE SYSTEM
2.3	CONTAINMENT HYDROGEN MONITORING & REMOVAL SYSTEMS
2.4	QUENCH SPRAY SYSTEM
2.5	CONTAINMENT RECIRCULATION SYSTEM
2.6	AUXILIARY FEEDWATER SYSTEM
2.7	AC POWER SOURCES
2.8	DC POWER SOURCES
2.9	ONSITE POWER DISTRIBUTION
2.10	SAFETY INJECTION SYSTEMS
2.11	CHEMICAL AND VOLUME CONTROL SYSTEM
2.12	MAIN STEAM ISOLATION VALVES AND STEAM GENERATOR ATMOSPHERIC RELIEF VALVES
2.13	PRESSURIZER POWER OPERATED RELIEF AND BLOCK VALVES
2.14	SERVICE WATER SYSTEM
2.15	GENERAL INSTRUMENTATION & CONTROLS

The following general categories of documents were reviewed:

Technical Specifications
Final Safety Analysis Report
NRC Safety Evaluation Report (with Supplement 1)
Piping and Instrumentation Diagrams (P&IDs)
Instrumentation and Control Logic Diagrams (LSKs)
Electrical One Line Diagrams (EEs)
Electrical Schematic Diagrams (ESKs)
Instrument Loop Drawings
Plant General Arrangement & Layout Drawings
Preoperational Test Procedures and test data
Surveillance Test Procedures (SPs)
Maintenance Procedures (MPs)
Operating Procedures (OPs)
Emergency Operating Procedures (EOP)S
Inservice Test Procedures
Administrative Control Procedures (ACPs)
Setpoint Calculations
Loop Calibration Procedures and data

1.3 - GENERAL EVALUATION CRITERIA

The above systems and documentation were reviewed with respect to:

The compatibility of the draft TS with the as-built configuration of the systems, structures and components;

The consistency of the draft TS with the documents listed in 1.2 above;

The capability to definitively measure or determine compliance with the TS requirements considering both the software and hardware available; and,

The adequacy of the licensee's surveillance and inservice test programs to provide for the implementation of the TS Surveillance Requirements.

1.4 - GENERAL EVALUATION METHODS

Prior to the onsite inspection activities, the licensee's Probabilistic Safety Study (August, 1983) was reviewed to identify those systems, structures and components which were particularly significant with respect to preventing or mitigating the consequences of analyzed accidents. Those systems with postulated failures or malfunctions identified by the study as being significant contributors to dominant accident sequences were

given inspection priority, resulting in the listing of Section 1.2 above.

During the onsite inspection activities, the facility descriptions, operating characteristics and related information found in the proposed TS, the FSAR, and the SER were compared to the licensee documents listed in Section 1.2. Concurrently, the TS were evaluated to confirm that the performance criteria and requirement established therein were definitively measurable or determinable.

Particular emphasis was given to the efficacy of surveillance tests and inservice tests established by the licensee to demonstrate conformance with TS and the requirements of 10CFR50.55a

The detailed inspection plan used to conduct the onsite activities is provided as Appendix 1 to this report. Key evaluation items included:

Plant drawings were reviewed to establish that the plant design and construction documents were compatible with the FSAR, TS, and SER.

Preoperational and functional tests were reviewed to verify that the "as tested" system configurations were consistent with the FSAR, TS, and SER. The Millstone Unit 3 Startup Manual also provides for pre-core verification of Operating Procedures, Surveillance Procedures, valve lineups, etc.; accomplishment of these actions was verified where practical.

Surveillance Tests were reviewed where available to verify their conformance with the TS and to establish that the TS requirements could be definitively measured.

Operating, Emergency, Maintenance, and Inservice Test procedures were reviewed where available to establish their conformance with the TS and accuracy with respect to the design and construction documents and with the as built plant.

2.0 EVALUATION

GENERAL

In addition to the specific inspection and review items below, the following documents were reviewed and used, in part, for the evaluation of the licensee's various programs for TS implementation:

ACP-QA-1.01 Millstone Administration, Revision 4
ACP-QA-1.02 Organization and Responsibilities, Revision 16
ACP-QA-2.02B Retests, Revision 10
ACP-QA-2.02C Work Orders, Revision 2
ACP-QA-2.12 System Valve Alignment Control, Revision 6
ACP-QA-9.03 Inservice Plant Testing, Revision 5
ACP-QA-9.02 Station Surveillance Program, Revision 12
Millstone Unit 3 Startup Manual, Revision 3
Stone & Webster Master Setpoint Listing, June 4, 1985
Precautions, Setpoints, and Limitations
IC 3408A02, Non Tech Spec Instruments With Licensing Requirements, Revision 0
Preservice Unit Instruction PUI-QA-5.02, Performance of Phase II & III Tests
NEU Listing of Licensee/NRR Action Item for Resolution of TS Open Items, Undated

2.1 - CONTAINMENT ISOLATION AND SUPPORT SYSTEMS

2.1.1 - Evaluation Criteria and Scope

The containment normal and emergency operating environmental conditions were reviewed including containment isolation valves and selected initiating signals and the containment normal purge and exhaust systems. These systems and specifications were reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. Appendix 2.1 contains a listing of the documents reviewed.

Proposed TS 3/4.6.1.4, 3/4.6.1.5, 3/4.6.3, 3/4.6.1.7, 3/4.6.1.8, 3/4.6.5.1, 3/4.6.5.2 and 3/4.9.9 were compared to the documents listed in Appendix 2.1 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics were in agreement with the information in the FSAR and SER.

2.1.2 - Discussion

The Containment Isolation System isolates piping lines which penetrate the containment boundary to minimize the release of radioactive materials to environment for postulated accidents within the containment. The containment pressure and temperature are maintained within a specified band to ensure the containment pressure following the design basis accident (DBA) remains below the containment design pressure. The Containment Ventilation System provides for air filtration, recirculation cooling, and containment atmosphere purge capability.

An as-built configuration review of the systems included a sampling of system piping configuration, instrumentation, operating logic, setpoints, and system operating parameters and limits. In addition, selected draft surveillance tests, normal operating procedures and Phase II preoperational tests were reviewed to determine that the design features were accurately reflected by the test and that operating methods were consistent with the proposed TS.

The system review also included the system normal and emergency lineups and system valve response to isolation signals. Specifically the system features and operations involving the following were reviewed:

Isolation valves and initiating logic
Containment temperature and pressure limitations
Containment air filtration
Containment air recirculation
Containment purge air subsystem

A visual inspection of portions of the systems and selected equipment established that the design features were accurately translated into the as-built plant. The visual inspection was also conducted to compare systems and equipment with the proposed TS.

2.1.3 - Observations and Conclusions

During the review process several inconsistencies were identified. Most of the inconsistencies were licensing issues that were previously identified and in the process of resolution by the licensee with NRR:

1. FSAR Table 6.2-65 contains a listing of the identified containment isolation valves for containment penetrations. Proposed TS Table 3.6-1 contains a listing of containment isolation valves required to be operable. Both tables also contain valve isolation times.

   Review of these tables found differences between the respective FSAR and TS listings of the valves and the valve stroke times. Containment

Atmosphere Monitor discharge valve CMS-MOV24 had a proposed TS isolation time of less than or equal to 15 seconds while FSAR Table 6.2-65 listed the stroke time as less than 10 seconds. Containment Atmosphere Monitor valves CMS-CTV23, 20, 21 had TS isolation times of less than or equal to 4 seconds while FSAR Table 6.2-65 listed the stroke times as less than 10 seconds. Reactor Plant Component Cooling Water (RPCCW) containment return valves CCP-MOV48A,B were listed on proposed TS Table 3.6-1 and not on FSAR Table 6.2-65. FSAR Table 6.2-65 listed Residual Heat Removal (RHR) suction valves and seal water return valves which were not listed in the TS.

The licensee stated the proposed TS and the FSAR valve isolation tables were not finalized and some valves (steam line isolation valves and feedwater isolation valves, etc.) were a recognized licensing issue that was in the process of resolution with NRR. The licensee's efforts in this regard were reviewed, found consistent with the above, and considered acceptable.

2. FSAR Section 6.2 states that the normal containment operating pressure is between 9.0 - 12.5 psia. Proposed TS 3.6.1.4 and Figure 3.6.1 indicate that the normal operating pressure band is between 8.9 psia and approximately 10.65 psia. During the review it was also identified that the Containment Isolation A and B setpoints differed between FSAR Section 6.2 and proposed TS Section 3.6.1 with the proposed TS setting for both isolations at 17.7 psia.

   The licensee indicated that the normal containment operating pressure and the isolation setpoints for Containment Isolation Phases A and B signals were also under review by the facility architect engineer (AE) and Nuclear Steam System Supplier (NSSS). The licensee stated that, once the parameters were finalized they would be reflected by a later revision to the FSAR and draft TS.

Except as noted, the as-built configuration matched the documents reviewed. Apparently, a considerable amount of work remained before the valves, isolation times, and setpoints could be finalized.

The licensee demonstrated, however, that administrative controls for completion of the above activities were functioning effectively and would, if applied consistently, ensure acceptable resolution of the above matters.

2.2 - SUPPLEMENTARY LEAK COLLECTION AND RELEASE SYSTEM

2.2.1 - Evaluation Criteria and Scope

The Containment Enclosure Building and all contiguous buildings are maintained under negative pressure of at least 0.25 in. wg. following a DBA by the Supplementary Leak Collection and Release System (SLCRS). The system exhausts air from these buildings, filters particulates, removes gaseous iodine from the air, and discharges to the atmosphere via the Millstone stack. A radiation monitor samples the common discharge header of the filters (2 x 100% capacity units) prior to discharge. The system is not normally in operation but starts upon receipt of a Safety Injection Signal (SIS).

The systems and equipment were reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. See Appendix 2.2 for a listing of documents reviewed.

Proposed TS 3/4.6.6.1 was compared to the documents listed in Appendix 2.2 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics and was in agreement with the information in the FSAR and SER.

2.2.2 - Discussion

The review of SLCRS emphasized comparison of the various system surveillance procedures with the TS Surveillance Requirements and review of the system preoperational tests. Specifically, the system operability testing, negative pressure verification, and radiation monitoring calibration procedures were reviewed with no discrepancies noted. Additionally, detailed review of the SLCRS bypass logic found it consistent with the FSAR and SER.

A visual inspection the system included observation of several contiguous building spaces serviced by SLCRS to verify the ductwork and damper configuration. The filter/heater assemblies were also found to agree with the documentation. Local differential pressure instruments were observed as were system control switches, indicators, and alarms in the control room.

All TS Surveillance Procedures reviewed were in draft form; see additional discussion of surveillance and inservice test program status in Section 3 of this report.

2.2.3 - Observations and Conclusions

No inconsistencies were noted in the documentation reviewed nor during the visual inspection. The as-built system appears to be in agreement with the documentation and TS requirements appear to be definitively measurable.

2.3 - CONTAINMENT COMBUSTIBLE GAS CONTROL

2.3.1 - Evaluation Criteria and Scope

Combustible gas control is provided by the Hydrogen Recombiner System and Hydrogen Monitoring System which monitor and maintain the hydrogen concentration within containment to ensure acceptable (noncombustive, nonexplosive) concentration during a DBA.

The Hydrogen Recombiner System has two, 100% capacity trains, each including a recombiner blower, an electric preheater, a thermal recombiner, and an air cooler. The fixed displacement recombiner blower provides a controlled gas flow from the containment to the thermal recombiner. The gas is heated to about 1200 F. before entering the recombiner where it is combined with oxygen to scavenge the hydrogen.

Two complete Hydrogen Monitoring System trains are also provided, each with a control and an analyzer cabinet.

The systems were reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. See Appendix 2.3 for a listing of documents reviewed. Proposed TS 3/4.6.4.1 and .2 were compared to these documents to verify that the TS accurately reflected the as-built plant configuration and were in agreement with the FSAR and SER.

2.3.2 - Discussion

The system piping and instrumentation diagram (P&ID) was reviewed and found in agreement with the FSAR and SER. Surveillance and preoperational test procedure drafts were reviewed and found consistent with the TS, FSAR, SER, and design drawings, including the P&ID, logic and elementary diagrams.

A walkdown of the system found that the recombiners and analyzers appeared to be installed in accordance with the FSAR. It was noted that the Delphi hydrogen monitor furnished with the recombiner was an in-place spare in addition to the separate Hydrogen Monitoring System.

2.3.3 - Observations and Conclusions

No inconsistencies were noted in the documentation reviewed nor during the visual inspection of the system.

2.4 - QUENCH SPRAY SYSTEM

2.4.1 - Evaluation Criteria and Scope

The Quench Spray System, in conjunction with the Containment Recirculation Spray System, make up the Containment Depressurization Systems. The Quench Spray System was reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. Appendix 2.4 provides a listing of the documents reviewed.

Proposed TS 3/4.6.2.1 and 3/4.3.2 were compared to the documents listed in Appendix 2.4 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics were in agreement with the information in the FSAR and SER.

2.4.2 - Discussion

The Quench Spray System provides containment cooling and depressurization after receipt of a Containment Depressurization Actuation (CDA) signal. Each redundant Quench Spray subsystem draws water independently from the RWST. Sodium hydroxide solution is added to the quench spray by gravity feed from the Chemical Addition Tank. The Quench Spray System then discharges through two 360 degree spray headers in the containment dome.

An as-built configuration review of the system included a review of the system piping configuration, instrumentation, operating logic, setpoints, and system operating parameters and limits. In addition, selected draft surveillance tests, normal operating procedures, and the system Phase II preoperational test were reviewed to determine that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the proposed TS. The system review also included the system normal and emergency lineups and system valve and pump response to a CDA signal.

A visual inspection of portions of the system and selected equipment established that the design features were accurately translated into the as-built plant. The visual inspection included a walk-through of selected system operations to verify the accuracy of the draft surveillance tests, approved operating procedures and compliance with the proposed TS surveillance requirements.

2.4.3 - Observations and Conclusions

During the review, potential deficiencies and inconsistencies were identified. In each case, the licensee either provided a resolution or demonstrated that the matter would be properly resolved. The following is a description of those items and the current status.

1. FSAR Section 6.2 states that the Quench Spray maximum overall system response time is approximately 64 seconds assuming loss of offsite power and only one operating pump. The minimum response time without a loss of offsite power and with both pumps operating is approximately 33 seconds. Proposed TS Table 3.3-5 lists the overall system response times as 3 seconds with offsite power available and 18 seconds with a loss of offsite power.

   The licensee indicated that the response time limits had only recently been received from the AE and NSSS and that supporting documentation was not yet available (See Section 2.6.3). Once the supporting documentation is received, the licensee will then definitively determine the TS response time bases and make the appropriate changes as necessary.

2. FSAR Section 6.2 states that the CDA signal setpoint is either 24.7 psia or 24.7 psig depending on which Table is being reviewed. Proposed TS Table 3.3-4 lists the setpoint as 22.7 psia.

   The licensee again indicated that the Engineered Safety Feature Actuation System (ESFAS) trip setpoints had only recently been received and were still under review. The FSAR listed setpoints would be updated when the ESFAS trip setpoints had been finalized.

3. Review of the Phase II preoperational test (T3309-P001) for the Quench Spray System noted that the stroke time acceptance criteria for the Quench Spray discharge valves (QSS-MOV34A,B) was less than or equal to 60 seconds. These valves are normally closed and open on a CDA signal. A review of FSAR Table 6-2.65, Containment Penetrations, listed the valve maximum stroke time as 30 seconds and the maximum system response time of 64 seconds.

   Through discussions with the licensee, it was determined that the acceptance criteria in the preoperational test was based on a maximum acceptable closure (containment isolation) time (vice system actuation (valve opening) time) and a change to the FSAR had been initiated to change the maximum stroke to time less than or equal to 60 seconds.

   When the acceptable stroke time for QSS-MOV34A,B was being changed, the licensee reviewers apparently did not consider how the change would affect the overall system actuation response time. To resolve the problem the licensee initiated a Deficiency Report (#ONS4807) to

evaluate the effect on the overall system response time and to review all the FSAR Table 6.2-65 stroke times for consistency with required system response times. The actual tested stroke times of the valves was approximately 31 seconds.

4. Proposed Draft TS 4.6.2.1, Surveillance Requirement - Quench Spray System Operability, states: "Each containment quench spray subsystem shall be demonstrated OPERABLE:

   a. At least once per 31 days by:
      1. Verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed or otherwise secured in position, is in its correct position.

      2. Verifying the temperature of the borated water in the refueling water storage tank is within the limits shown on Figure 3.6-1."

   Figure 3.6-1 does not provide temperature limits on the refueling water storage tank but is a plot of service water temperature vs. maximum allowable primary containment air partial pressure. The licensee stated that the figure for borated water temperature had not been generated but would be correctly reflected in the TS.

Except as noted above, the as-built configuration of the system structures, and components compared satisfactory with the documents reviewed. The Technical Specification requirements except as noted above were measurable.

2.5 - CONTAINMENT RECIRCULATION SYSTEM

2.5.1 - Evaluation Criteria and Scope

The Containment Recirculation Spray System, in conjunction with the Quench Spray System, make up the Containment Depressurization Systems. The Containment Recirculation Spray System was reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. Appendix 2.5 provides a listing of the documents reviewed.

Proposed TS 3/4.6.2.2 were compared to the documents listed in Appendix 2.5 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics were in agreement with the information in the FSAR and SER.

2.5.2 - Discussion

The Containment Recirculation System provides long term containment cooling and depressurization after receipt of a Containment Depressurization Actuation (CDA) signal. Each of two containment recirculation subsystems consist of two containment recirculation coolers and pumps which share two 360 degree spray headers. The containment recirculation subsystems are normally inoperative and actuate on a CDA signal during a DBA.

An as-built configuration review of the system included review of the system piping configuration, instrumentation, operating logic, setpoints, and system operating parameters and limits. In addition, selected draft surveillance tests, normal operating procedures, and the system Phase II preoperational test were reviewed to determine that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the proposed TS.

An overall system review was performed which included the features and methods for system valve lineups, pump operation and recirculation cooler operation.

A visual inspection of portions of the system and selected equipment established that the design features were accurately translated into the as-built plant. The visual inspection includes a walk-through of selected system operations to verify the accuracy of the draft surveillance tests, approved operating procedures and compliance with the proposed TS surveillance requirements.

2.5.3 - Observations and Conclusions

This portion of the inspection activities found that the proposed TS for the Containment Recirculation Spray System were compatible with the as-built plant and operating characteristics in the areas reviewed. Some inconsistencies, as discussed below, were identified during the review. In each case the licensee provided a resolution or demonstrated that the matter had been previously identified and was being resolved.

1. During the review of the approved operating procedures, draft surveillance tests, the system P&ID (EM-112C) and the FSAR, discrepancies were identified involving the normal system valve lineup. The Containment Recirculation Spray System Operating Procedure (OP3306) and several draft surveillance tests indicated that system motor operated suction and discharge valves were left in the closed position for a normal lineup while the system P&ID and FSAR Section 7.3 showed the valves normally open.

   The system startup engineer stated that the normal system lineup had been under review and, currently, it was intended to leave the valves

normally open, which is consistent with the system P&ID. The draft procedures would be corrected during the review process.

2. As previously mentioned, the Containment Recirculation Spray System starts on a CDA signal. Throughout the FSAR, the CDA signal is listed as either 24.7 psia or 24.7 psig while the most recent licensee TS submittal indicates the CDA signal setpoint as 22.7 psia.

   The licensee resolved this discrepancy as described in Section 2.4 of this report.

Except as noted above, the as-built configuration of the system structures, and components compared satisfactory with the documents reviewed. As noted in other sections of this report, operating surveillance tests were written as first drafts or not drafted at all and no reliable comparison could be performed with these documents and the TS surveillance requirements. The Phase II preoperational test was reviewed and, with the exception of minor transcription errors, satisfied the intended test objectives.

2.6 - AUXILIARY FEEDWATER SYSTEM

2.6.1 - Evaluation Criteria and Scope

The Auxiliary Feedwater (AFW) System provides a supply of high pressure feedwater to the secondary side of the steam generators for Reactor Coolant System heat removal following a loss of normal feedwater and during normal plant startup and shutdown. The system consists of two half capacity motor driven pumps and one full capacity steam turbine driven pump. The Auxiliary Feedwater System and equipment were reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. Appendix 2.6 contains a listing of the documents reviewed.

Proposed TS 3/4.7.1.2 and 3/4.3.2 were compared to the documents listed in Appendix 2.6 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics were in agreement with the information in the FSAR and SER.

2.6.2 - Discussion

An as-built configuration review of the system included a review of the system piping configuration, instrumentation, operating logic, setpoints, and system operating parameters and limits. In addition, selected draft surveillance tests, normal and emergency operating procedures, and the system Phase I and II preoperational tests were reviewed to determine that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the proposed TS.

A system overall review was performed with emphasis placed on the turbine-driven pump and associated components and features.

A visual inspection of portions of the system and selected equipment established that the design features were accurately translated into the as-built plant. The visual inspection included a walk-through of selected system operations to verify the accuracy of draft procedures and compliance with the proposed TS surveillance requirements and system configuration.

2.6.3 - Observations and Conclusions

During the review, several potential deficiencies and inconsistencies were identified. The licensee resolved most of these items during the course of the inspection or demonstrated that the items had previously been identified and would be resolved. The following is a description of those items and the status at the end of the inspection.

1. FSAR Section 15.2 states that following a feedwater line break the auxiliary feedwater pumps will supply feedwater to the intact steam generators following receipt of a low-low steam generator water level signal and a 60 second time delay. Proposed TS Section 3/4.3.5, Table 3.3-5, states that the time response for the Auxiliary Feedwater System is either 43.5 seconds or 60 seconds depending on the initiating signal.

   The licensee indicated that the response time limit for TS Table 3.3-5 had only recently been obtained and supporting documentation was not yet available. Once the supporting documentation is received, the licensee plans to ensure the FSAR and TS time response values are consistent.

2. During the review of the system P&ID (EM-123A) and the system visual inspection, it was noted that a long section of the steam supply piping to the steam driven auxiliary feedwater pump turbine was isolated and free of steam during normal operation. This section of piping consisted of numerous sharp bends and elevation changes, would be relatively cold (free of steam), and had no normally open drains or traps. This section of piping may accumulate condensate with no means of drainage and the piping and turbine may be adversely affected upon system actuation under these conditions.

   The plant operating staff had previously identified similar concerns. The matter had been reviewed by the licensee's engineering staff and dispositioned as acceptable, although the plant staff's concerns remained. The licensee stated that their engineering staff will reevaluate the system design.

   IE Information Notice No. 85-50, Complete Loss of Main and Auxiliary

Feedwater at a PWR Designed by Babcock and Wilcox, was issued but unavailable during this inspection. Review subsequent to the inspection noted that one possible contributor to the Notice's referenced event was misoperation of the AFW pump turbine due to steam line moisture resulting from circuitous and undrained piping.

3. While reviewing the steam driven auxiliary feedwater system response time and the system valve lineups, steam supply isolation valves MSS-AOV31A,B,D operating characteristics were compared with FSAR Section 6.2.4 and Table 6.2-65, Containment Penetrations, for response time and initiating logic. Upon review it was found that these valves were not listed on Table 6.2-65, but four other nonexistent valves (MSS-MOV21A,B,C,D) were listed as steam supply isolation valves with corresponding stroke times.

   The licensee had also previously identified this discrepancy and had issued an internal memo on November 15, 1984 to initiate resolution of the documentation problem. Apparently a system design change to the AFW system had been made approximately two and one-half years prior and all but this section of the FSAR had been revised to reflect the change. At the time of the design change the current method for ensuring that all documentation is updated was not in place.

   The actual manufacturer's specified stroke time for the valves per the licensees "Active Valve Listing" is approximately seven seconds, eight seconds faster than the MOVS they replaced. Actual stroke time verification will be performed during Phase III through IX preoperational testing.

4. FSAR Section 15.2 states that following a feedline rupture the Auxiliary Feedwater System is assumed to supply a total of 480 gpm to three unaffected steam generators. FSAR Section 10.4.9 states that the auxiliary feedwater system is designed to supply a minimum of 470 gpm total flow to at least two steam generators even with the occurrence of a single failure for a spectrum of transients, including a secondary system pipe rupture.

   The licensee is aware of a possible inconsistency between these two sections and the limiting flow requirements will be confirmed prior to finalizing the TS.

5. While reviewing the licensee draft surveillance tests and the proposed TS surveillance requirements it was observed that the system 31-day flow tests (TS 4.7.1.2.1 & 2) would be performed via the pumps minimum recirculation lines. The lines will be orificed for 45 gpm and 90 gpm respectively for the motor-driven pumps and the steam-driven pump. These lines may be further throttled per the draft surveillance test to achieve the desired discharge pressure.

   This technique results in checking pump operation near shutoff head

conditions and is considered questionable for demonstrating pump capability to provide rated head/flow conditions. AFW Pump flow is only checked per the proposed TS at (near) rated conditions (via flow to the SGs) following extended cold shutdowns.

The licensee indicated that these tests were performed in a similar manner at Millstone Unit 2. If the method or data was later deemed unacceptable an alternate method of testing the system would have to be established.

Except as noted above, the as-built configuration of the system structures, and components compared satisfactorily with the documents reviewed. The potential discrepancies identified appear to be isolated cases and no similar items could be identified.

2.7 - AC SOURCES

2.7.1 - Evaluation Criteria and Scope

The AC power sources that serve vital plant auxiliary loads consist of two connections to the 345 KV grid system and two redundant Emergency Diesel Generators (EDGs) complete with auxiliary systems such as fuel and lube oil, cooling systems and starting air systems.

These systems and equipment were reviewed with respect to the criteria and methods of Section 1.3 and 1.4 of this report. See Appendix 2.7 for a listing of documents reviewed.

Proposed TS 3/4.8.1.1 and 3/4.8.1.2 were compared to the documents listed in Appendix 2.7 to verify that the proposed TS accurately represent the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER.

2.7.2 - Discussion

The Main One Line/Phasing Diagram and the flow path of power from the 345 KV offsite system to each Class 1E 4.16 KV bus (34C & 34D) was traced to verify that the paths shown on the drawing are consistent with the description in the FSAR and SER. (This diagram indicates the normal position of the breakers in these flow paths. In the same manner, the flow path of power from each diesel generator was traced. SP3670.1 which applies to circuit breaker alignment was not ready for review during the audit, but the above review of power flow paths provides reasonable assurance that this procedure when prepared can satisfy Surveillance Requirement 4.8.1.1.a.

Surveillance Requirements relating to the EDGs and support systems were

available as Draft A versions only. SP-3646A (Operability Test) assures that the diesels will start, accelerate and synchronize per TS 4.8.1.1.2; it also verifies fuel level in the day tank, lubricant supply and checks for water in the fuel all of which are required by TS 4.8.1.1.2. SP-3646.B5 provides a procedure for verifying the presence of impurities in the fuel. SP-3646.AD. (Independence Test) provides a procedure for meeting TS 4.8.1.1.2.f.

Operating procedures 3346A and 3346B were reviewed an found to be consistent with the FSAR and SER.

A visual inspection of the diesel generator rooms indicated that installed equipment is consistent with the documentation. Equipment on the D.C. Electrical and Mechanical Panels were observed; local and main control room instrumentation and controls were also observed.

Inspection of the 4.16 KV switchgear indicated diesel generator relaying in accordance with the FSAR. Blocking circuits for EDG trips bypassed during accident conditions were confirmed via the elementary diagram as well as the 2/3 logic for lube oil trips.

The power flow path and breaker control switch alignments from the 345 KV system to the Emergency Bus was confirmed via the mimic display on the Main Control Board.

2.7.3 - Observations and Conclusions

No inconsistencies were noted in the documentation reviewed or during the visual inspection. The as-built systems are in agreement with the documentation. The technical specification requirements were definitively measurable.

2.8 - CLASS 1E DC POWER SOURCES

2.8.1 - Evaluation Criteria and Scope

Class 1E DC power sources consist of station batteries 301A-1, 301A-2, 301B-1, and 301B-2 and their associated battery chargers and backup chargers. In addition to providing power for DC control circuits, the batteries and chargers provide backup sources to the 120 VAC vital bus via inverters.

These sources were reviewed with respect to the criteria and methods of sections 1.3 and 1.4 of this report. See Appendix 2.8 for a listing of the documents reviewed.

Proposed TS 3/4.8.2.1 and 3/4.8.2.2. were compared to the documents listed

in Appendix 2.8 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER.

2.8.2 - Discussion

Draft A of Station Battery Surveillance Testing (SP-3712N) was reviewed to assure that it adequately reflects the Surveillance Requirements of TS 4.8.2.1 and 4.8.2.2 for weekly, quarterly, eighteen month and five year testing. The procedure also addresses TS Parameter Table A for electrolyte level, specific gravity and cell voltage as well as Parameter Table B relating to these same characteristics. The procedure also identifies the need for visual inspection of battery terminals and the measurement of internal resistance. In addition, visual inspections of battery racks, cells and plates and a test to assure that battery charger capacity is maintained are required by SP3712N.

The One Line Diagram (12179-EE-1BA-10) was reviewed for battery and charger ratings and connections and found to be in agreement with the FSAR and SER.

A visual inspection confirmed battery and charger ratings as well as electrolyte level indications on each cell. Specific gravity testing devices were available in each battery room. (Batteries 301-A1 & 301-B1 are rated at 1650 ampere hours (8 hour rate), 301-A2 & 30L-B2 are rated at 750 ampere hours (8 hour rate). Chargers for batteries 301-A1 & 301-B1 are rated at 200 amperes and chargers for batteries 301-A2 and 301-B2 are rated at 50 amperes; backup chargers are rated at 200 amperes.

2.8.3 - Observations and Conclusions

No inconsistencies were noted in the documentation reviewed or during the visual inspection. The as-built system is in agreement with the documentation. The Technical Specification requirements were definitely measurable.

2.9 - ONSITE POWER DISTRIBUTION (AC & DC)

2.9.1 - Evaluation Criteria and Scope

The onsite power distribution system includes 4.16 KV busses 34C and D, 480 VAC busses, and 120 VAC vital busses energized via associated 125 VDC inverters, busses and the station batteries.

The review also included the degraded grid undervoltage protection scheme which senses prolonged voltage degradation which could be detrimental to

continued operation of energized equipment.

Additionally, electrical equipment protective devices including containment electrical penetration protective circuitry, motor operated valve overload bypasses, and series connected interrupting devices for non-1E loads inside containment served from Class 1E busses. (Note: Series connected interrupting devices were not reviewed in detail during this inspection.)

The systems and equipment were reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. See Appendix 2.9 for a listing of documents reviewed.

2.9.2 - Discussion

Operating procedures were reviewed for the AC and DC systems and were found to be in agreement with the design documents and FSAR/SER. The integrated preoperational test procedure for the electrical distribution system was reviewed as were all the applicable one line wiring diagrams. A visual inspection of the 4.16 KV switchgear, several 480 VAC load centers and motor control centers, and all four 120 VAC and 125 VDC systems indicated that the installed systems agree with the design and licensing documentation.

The one line diagram for 4.16 KV Class 1E Bus 34C was reviewed to verify the incorporation of degraded grid undervoltage protection devices. Associated logic diagrams were reviewed to assure that the logic schemes were appropriate and implemented by the hardware. A visual inspection of the switchgear arrangement confirmed the installation of the degraded grid undervoltage relaying. Review of TS Tables 3.3-4 and 4.3-2 found that setpoints had not yet been established for these circuits and will be provided later. This item was being tracked by the licensee.

Surveillance tests and elementary diagrams for containment equipment and penetrations were reviewed with regard to the methods used for penetration protection and for bypassing thermal overload heaters on accident signals. No visual inspection was made in this area.

2.9.3 - Observations and Conclusions

No inconsistencies were noted in the documentation reviewed nor during the visual inspections. The as-built systems appear to be in agreement with the design and licensing documentation. TS requirements are definitively measurable.

2.10 - SAFETY INJECTION SYSTEMS

2.10.1 - Evaluation Criteria and Scope

The High Pressure Safety Injection (SIH) System, the Low Pressure Safety Injection (SIL) function of the Residual Heat Removal (RHR) System, and the Safety Injection Accumulators provide the means to inject water to the core during a Loss of Coolant Accident (LOCA), and to provide long term, post accident core recirculation cooling. The Coolant Charging Pumps of the Chemical and Volume Control System (CVCS) also provide a high pressure safety injection function (See Section 2.11).

These systems and equipment were reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. See Appendix 2.11 for a listing of documents reviewed.

Proposed TS 3/4.5.1., 3/4.5.2, 3/4.5.3, 3/4.5.4, 3/4.4.1.4.1, 3/4.4.1.4.2, 3/4.4.1.4.2, and 3/4.4.1.3 were compared to the documents listed in Appendix 2.10 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER.

2.10.2 - Discussion

The features of these systems reviewed included normal, abnormal, and emergency operations described by the FSAR, Section 15, Safety Analysis, and the licensee's draft and approved procedures.

The as-built configuration portion of the review included a sampling based review of system piping configuration, instrumentation and control setpoints and operating logic, system operating parameters and limits, and electrical controls design. Operating Procedures, Surveillance and Inservice Tests, Preoperational Tests were reviewed on a sampling basis to determine that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the requirements of the proposed TS.

Specifically, the system features and operations involving the following were reviewed:

- Normal system alignments and operations
- Emergency system alignments and operations
  - ECCS Injection Phase Operations
  - ECCS Recirculation Phase Operations
- System testing alignments and methods
  - Flow Balance Testing
  - Flow Path Operability Testing

System Operational Readiness Testing
Pump and Valve Inservice and Operability Testing

A visual inspection of portions of the systems and selected equipment established that the design features were accurately translated into the as-built systems. The visual inspection included verification of system piping and fluid system flowpath and component configuration, main and auxiliary control station instrumentation and controls, simulated partial performance of system alignments and tests, and general comparison of the systems and equipment with the proposed TS.

2.10.3 - Observations and Conclusions

A number of minor inconsistencies were identified. In each case, the licensee either provided a resolution or demonstrated that the matter had been previously identified and was in the process of resolution.

1. SIH Pump Discharge Valves, 3CHS*MOV8821A and B are motor operated valves which do not receive any Safety Injection actuation signals and must be open for its respective SIH Pump train to fulfill its accident function. The valves are equipped with power-lockouts which permit deenergization of the motor operator while maintaining remote position indication.

   An early draft of TS 4.5.2.a had required these valves to be deenergized via the power lockout and verified in position every 12 hours. The licensee had deleted this feature from the current draft TS for operational flexibility. The TSs have not been fully approved by NRR.

2. Review of draft Surveillance Procedures (SPs) listed in Appendix 2.10 identified a number of inconsistencies and concerns regarding procedure content. All SPs reviewed were in draft form.

   Report Section 3.1.4 discusses the licensee's commitments to implement the guidance of NUREG 0737, Clarification of TMI Action Plan Requirements, Item I.C.6, for restoration and independent verification of system alignments following maintenance or testing. Examples of draft reports which do not conform to these commitments were identified during the above review: SP 3601A.4, SP 3601A.5, SP 3601A.6. Each SP provided no specific restoration alignments; restoration was to be " per the Shift Supervisor", etc.

   Discussions with the unit Operations Supervisor indicated that the planning for implementation of the above commitment was incomplete but included performance of the systems' monthly TS alignment verification immediately following each SP which affects the alignment, i.e. coordinating surveillance performance to ensure that the monthly TS alignment check serves as the verification per NUREG

0737. One example of such was found in SP 3608.5, SIH Pump Flow Balance, Draft A.

3. As indicated above, all SPs reviewed were in draft form. Discussion of the overall SP preparation status is also provided in Section 3 of this report.

Except as noted above no discrepancies were identified. The as-built configuration of the system, structures, and components compared satisfactorily with the documents reviewed. The Technical Specification requirements reviewed were definitively measurable.

2.11 - CHEMICAL AND VOLUME CONTROL SYSTEM

2.11.1 - Evaluation Criteria and Scope

Redundant reactivity control is provided by the boron soluble poison addition function of the Chemical and Volume Control System (CVCS), its Primary Makeup (PMU) subsystem, and the Refueling Water Storage Tank (RWST) portion of the Quench Spray System (QSS). The Coolant Charging Pumps of CVCS also provide a high pressure safety injection function.

These systems and equipment were reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. See Appendix 2.11 for a listing of documents reviewed.

Proposed TS 3/4.1.1.1, 3/4.1.1.2, 3/4.1.1.3, 3/4.1.2.1, 3/4.1.2.2, 3/4.1.2.3, 3/4.1.2.4, 3/4.1.2.5, 3/4.1.2.6, and 3/4.1.3.6 were compared to the documents listed in Appendix 2.11 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER.

2.11.2 - Discussion

The systems and subsystems listed above provide the capability to reduce nuclear core reactivity under normal, abnormal and emergency conditions. The features of these systems reviewed included normal, emergency and gravity boration flow paths from the Boric Acid Storage Tanks to the Reactor Coolant System via the CVCS System and the abnormal/emergency flowpaths from the RWST.

The as-built configuration portion of the review included a sampling based review of system piping configuration, instrumentation and control setpoints and operating logic, system operating parameters and limits, and electrical controls design. Operating Procedures, Surveillance and Inservice Tests, and Preoperational Tests were reviewed on a sampling basis to determine that the design features were accurately reflected by

the test and operating methods and that these methods were consistent with the requirements of the proposed TS.

Specifically, the system features and operations involving the following were reviewed:

Normal CVCS and PMU operations
Emergency and Gravity Boration operations
System testing alignments and methods
  Flow Balance Testing
  System Operational Readiness Testing
  Pump and Valve Inservice and Operability Testing
Emergency (Accident) Operations
  Engineered Safety Features (ESF) Operating Modes
  Interrelations with other ESF Systems

A visual inspection of portions of the systems and selected equipment established that the design features were accurately translated into the as-built systems. The visual inspection included verification of system piping and fluid system flowpath and component configuration, main and auxiliary control station instrumentation and controls, simulated partial performance of partial system alignments and tests, and general comparison of the systems and equipment with the proposed TS.

2.11.3 - Observations and Conclusions

A number of minor inconsistencies were identified. In each case, the licensee either provided a resolution or demonstrated that the matter had been previously identified and was in the process of resolution.

1. FSAR Section 9.3.4.5 states that the Boric Acid Tank Low Level Alarms (LT-102, -104) are set to indicate the minimum tank level to ensure sufficient borated water is available for a cold shutdown with one stuck control rod. The minimum borated water volume to be specified in TS 3.1.2.5.a.1 has not yet been finalized.

   During review of the system test and calibration data, an apparently erroneous setpoint calculation (Calculation No. SP-3CHS-7, 3CHS*LT104) was identified. This calculation appeared to base the above setpoint on its relationship to the High (Tank Overflow) Alarm vice the FSAR criteria.

   Additional information provided by the licensee showed that: the setpoint was consistent with the proper tank level value; a minor calculational error had previously been found and was in the process of correction; the apparent incorrect setpoint basis was a result of an incorrect reference document listing in the calculation package; and, the setpoint would be reviewed with respect to the value for TS 3.2.1.5 when finalized.

OP 3304C, CVCS System, Revision 0, was checked for correlation of level setpoint values with the Logic Diagrams and Setpoint Calculation; the OP was annotated for "later" provision of the setpoint.

See Section 3.2 for additional discussion of the administrative control of setpoints and other parametric limits.

3. TS 3/4.1.2.6.a.3, Borated Water Sources - Operating requires a minimum temperature of 65 degrees F. for the Boric Acid Tank borated water contents and the tank rooms. The tank temperature is to be verified once per seven (7) days per the TS. The tank temperature is measured and an alarm generated by Temperature Element Loop TE-103.

   Review of logic diagram LSK 26-2.5A found that the TE-103 temperature alarm setpoint was 60 degrees F., five degrees below the TS minimum limit. (Note that the alarm is not a requirement of TS but is an operator aid alarm). Operating Procedure, OP 3304C, CVCS System, Sections 8.1 and 8.5, Alarms and Malfunctions, lists this setpoint as <60 degrees F.

   The Operations Supervisor and the Instrument and Controls Supervisor were queried regarding the licensee's alarm setpoint practices (e.g. alarm actuation prior to reaching a limit, etc.) and the need to revise operating and maintenance documents when TS or other upper tier documents' parameters change.

   The licensee representatives advised that the need for extensive review of all setpoints potentially affected by TS issuance had already been recognized and will be accomplished prior to licensed operation. Plans for this review are in process; see Section 3.2 for additional discussion.

4. The Surveillance Procedures (SPs) listed in Appendix 2.11 were reviewed for general content and conformance with the TS requirements. General Conclusions, Sections 3.3 and 3.4 discuss general observations involving the inconsistencies and quality of draft SPs. Specific examples involving the CVCS system are noted below:

   SP 3604A.1, "A" Charging Pump Operational Readiness Test, Draft Rev. 0

   Initial Conditions and Prerequisites are silent regarding applicable Operating Modes or prerequisite plant conditions except for reference to the system OP.

   The Shift Supervisor or Supervising Control Operator are designated to determine the above without specific procedural guidance.

SP 33604C.2, Borated Water Source Flow Path Verification - Monthly, Draft A

Same as above for SP 3604A.1.

No precautions are provided, including those already available via the System OPs and general radiological or industrial safety precautions for activities involving contaminated systems and spaces, etc.

SP 3604C.3, Borated Water Source Flow Path Operability - Refueling, Draft A

Same as above for SP 3604A.1 and SP 3604C.2.

The above SPs and the others listed in the Appendices to this report were quite inconsistent with regard to the content of procedure steps. Some procedures required "step-by-step" signoffs, others had no signoff provisions, even at procedure completion. Some procedures required pretest personnel briefings, many did not. The procedures often varied considerably in the level of detailed instruction provided.

Except as noted above no discrepancies were identified. The as-built configuration of the system, structures, and components compared satisfactorily with the documents reviewed. The Technical Specification requirements reviewed were definitively measurable.

2.12 - MAIN STEAM ISOLATION VALVES AND STEAM GENERATOR PRESSURE RELIEVING VALVES

2.12.1 - Evaluation Criteria and Scope

The Main Steam Isolation or Trip Valves provide the capability to isolate the non-safety related portions of the Main Steam (MSS) System from the four Steam Generators (SGs) and/or containment under accident conditions. The two principal accident functions are isolation of a failed SG (steam generator tube rupture, etc.) and termination of uncontrolled blowdown of more than one SG in the event of a steam line break.

The SG Pressure Relieving Valves (or atmospheric steam dump valves), one in each of the four main steam lines, provide an alternate means of removing heat from the Reactor Coolant System following a load rejection or turbine generator trip by automatically relieving steam to atmosphere if the condenser turbine bypass system is unavailable. The air operated SG Pressure Relieving Valves are equipped with non-automatic motor operated bypass and isolation valves. The automatic and non-automatic

valve sets each have a capacity of 15% rated steam flow.

These systems and equipment were reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. See Appendix 2.12 for a listing of documents reviewed.

Proposed TS 3/4.7.1.5 and TS 3/4.3.2 including Engineered Safety Feature (ESF) Actuation and Instrumentation of TS Tables 3.3-3 and 4.3-2 for Steam Line Isolation were reviewed with respect to the documents listed in Appendix 2.12 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER.

2.12.2 - Discussion

The as-built configuration portion of the review included a sampling based review of system piping configuration, instrumentation and control setpoints and operating logic, system operating parameters and limits, and electrical controls design. Operating procedures, surveillance and inservice tests, preoperational tests were reviewed on a sampling basis to determine that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the requirements of the proposed TS.

Specifically, the system features and operations involving the following were reviewed:

- Steam Line Isolation Actuation
  - Manual
  - High Containment Pressure
  - Low Steam Line Pressure
  - Steam Line Pressure Negative Rate
- Valve Operability Testing
- Emergency (Accident) Operations and
  - ESF Operating Modes
  - Interrelations with other ESF Systems

A visual inspection of portions of the systems and selected equipment established that the design features were accurately translated into the as-built systems. The visual inspection included verification of fluid system flowpath and component configuration, main and auxiliary control station instrumentation and controls, simulated partial performance of system alignments and tests, and general comparison of the systems and equipment with the proposed TS.

2.12.3 - Observations and Conclusions

A number of minor inconsistencies were identified. In each case, the

licensee either provided a resolution or demonstrated that the matter had been previously identified and was in the process of resolution.

The Surveillance Procedure SP 3616A.1, Main Steam Valve Operability Tests, Draft A, was reviewed for general content and conformance with the TS requirements. General Conclusions, Sections 3.3 and 3.4 discuss general observations involving the inconsistencies and quality of draft SPs. No specific comments on SP 3616A.1 remained unresolved at the completion of this review.

Except as noted above no discrepancies were identified. The as-built configuration of the system, structures, and components compared satisfactorily with the documents reviewed. The Technical Specification requirements reviewed were definitively measurable.

2.13 - PRESSURIZER POWER OPERATED RELIEF AND BLOCK VALVES

2.13.1 - Evaluation Criteria and Scope

The Pressurizer Power Operated Relief Valves (PORVs) provide overpressure control capability for the RCS Pressurizer to limit the severity of pressure transients and prevent reaching the Pressurizer code safety valve set pressures. The valves are controlled by the Pressurizer Pressure Control loops and are equipped with motor operated block valves.

The PORVs and block valves were reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. See Appendix 2.13 for a listing of documents reviewed.

Proposed TS 3/4.4.4 for the PORVs and block valves were reviewed with respect to the documents listed in Appendix 2.13 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER.

2.13.2 - Discussion

The as-built configuration portion of the review included a sampling based review of system piping configuration, instrumentation and control setpoints and operating logic, system operating parameters and limits, and electrical controls design. Surveillance and Inservice Tests, and Preoperational Tests were reviewed on a sampling basis to determine that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the requirements of the proposed TS.

A visual inspection of portions of the systems and selected equipment

established that the design features were accurately translated into the as-built systems. The visual inspection included verification of fluid system flowpath and component configuration, main and auxiliary control station instrumentation and controls, simulated partial performance of system alignments and tests, and general comparison of the systems and equipment with the proposed TS.

2.12.3 - Observations and Conclusions

A number of minor inconsistencies were identified. In each case, the licensee either provided a resolution or demonstrated that the matter had been previously identified and was in the process of resolution.

The Surveillance Procedure SP 3601G.1, PORV Isolation Valve Operability Test, Draft A, was reviewed for general content and conformance with the TS requirements. General Conclusions, Sections 3.3 and 3.4 discuss general observations involving the inconsistencies and quality of draft SPs. No specific comments on SP 3616A.1 remained unresolved at the completion of this review.

Except as noted above no discrepancies were identified. The as-built configuration of the system, structures, and components compared satisfactorily with the documents reviewed. The Technical Specification requirements reviewed were definitively measurable.

2.14 - SERVICE WATER SYSTEM

2.14.1 - Evaluation Criteria and Scope

The Station Service Water System (SWS) and Ultimate Heat Sink (UHS) provide cooling to both safety related and non-safety related plant heat loads. The system was reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. Appendix 2.14 provides a listing of the documents reviewed.

Proposed TS 3/4.7.4 and 3/4.7.5 were compared to the documents listed in Appendix 2.14 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics were in agreement with the information in the FSAR and SER.

2.14.2 - Discussion

The Service Water System in conjunction with the UHS provide cooling to the Emergency Diesel Generators, ECCS components and room coolers, and various balance of plant systems. The Service Water System is also available to supply emergency makeup water to the Auxiliary Feedwater

System by the installation of spool pieces in the SWS supply lines.

An as-built configuration review of the system included a review of system piping configuration, instrumentation, operating logic, and system operating parameters and limits. In addition, selected draft surveillance tests, normal operating procedures, and the system Phase II preoperational tests were reviewed to determine that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the proposed TS.

The specific system features and operations of the normal and emergency line ups for the Emergency Diesel Generators, the Containment Recirculation Coolers, and the Auxiliary Feedwater system supply were reviewed.

A visual inspection of the principal system flow paths and the selected features described above was performed. The visual inspection included a simulated performance (walk-through) of system operations to verify the accuracy of the draft procedures and compliance with the proposed TS surveillance requirements.

2.14.3 - Observations and Conclusions

With the exception of a few minor discrepancies the as-built system matched the evaluation criteria delineation in Sections 1.3 and 1.4. All of the discrepancies had been previously identified and were in the process of being resolved.

1. The containment recirculation flow indicators FI 59 A,B,C,D continued to indicate system flow when the system is shut down. This deficiency was found by the licensee during the preoperational test program and a design change was initiated to resolve the problem.

2. The system P&ID (EM-133B) did not match the as-built plant in that a check valve was added to system that was not reflected on the P&ID. The check valve was installed to prevent the draining of a vertical pipe run to safety related equipment when the system is shut down. The licensee had initiated a change to the P&ID with the system design change but the P&ID revision was lagging behind and the licensee was aware of this discrepancy.

3. The licensee draft TS and the NRC draft TS differed in that the licensee proposed TS did not include a minimum water level for the UHS. FSAR Section 9.2.1 states that the minimum water level for operation of the service water is -8.0 feet MSL.

   The resolution of this difference is a licensing matter and the licensee is aware of the difference. The UHS minimum level for operability was not included in the licensee's draft TS because the

minimum historical water at New London Connecticut, is -4.8 feet MSL and the minimum estimated off-shore water level at the site should never be less than -5.9 feet MSL.

In general, the as-built configuration of the system, structures, and components compared satisfactorily with the documents reviewed and the TS requirements were definitively measurable.

2.15 - REMOTE SHUTDOWN AND ACCIDENT MONITORING INSTRUMENTAION

2.15.1 - Evaluation Criteria and Scope

The Remote Shutdown Monitoring Instrumentation is provided primarily at the Auxiliary Shutdown Panel (ASP) and includes Train A and B instrumentation separated by a "non-train" panel. Only one channel (RCS Wide Range Pressure) of accident monitoring instrumentation was reviewed in detail. Primary emphasis of this review centered on the remote shutdown features. The instrumentation was reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. See Appendix 2.15 for a listing of documents reviewed.

2.15.2 - Discussion

Proposed TS 3/4.3.3.5 was compared to the documents in the above appendix to verify that the proposed TS accurately represented the as-built plant configuration and was in agreement with the information in the FSAR and SER. Table 7.4.1 of the FSAR lists the instrument channels required for remote shutdown. All of this instrumentation was confirmed to be incorporated in the ASP except for Reactor Trip Breaker indication which is located at the Reactor Trip Switchgear.

A visual inspection of the ASP and Reactor Trip Switchgear established that the instrumentation channels were accurately translated into the as-built system.

2.15.2 - Observations and Conclusions

No inconsistencies were noted in the documentation reviews nor during the visual inspection.

3.0 GENERAL CONCLUSIONS

The inspection determined that the licensee's proposed (draft) Technical Specifications were compatible with the as-built plant configuration and operating characteristics in the areas inspected and that the Technical Specification Surveillance Requirements were definitively measurable.

In general, the licensee's design control process appears to be working effectively. The findings below indicate that the problem areas identified typically involve documentation programs rather than the functional aspects of the facility's engineering and construction. The licensee appears to provide aggressive control of its engineering and construction contractors.

The existing pre-approval procedure review processes appear to be rigorous (most document review comment sheets had extensive and meaningful comments). As the schedule for Operating License issuance proceeds, increasing pressure will be placed on procedure production for the operating phase and procedure implementation and verification schedules. The current level of attention to the procedure review process must be maintained or enhanced, particularly in light of the current draft condition of many operating phase procedures (see below).

The licensee is also displaying commendable initiative in certain areas. For example, the regulatory requirements are not completely definitive for the calibration and testing of instruments not having specific TS calibration or testing requirements but which are used to measure TS parameters or provide post accident monitoring capability.

The licensee has evaluated instruments such as the above as well as those involved in their fire protection (10CFR50, App. R) and environmental qualification programs, establishing a program for the control of calibration and testing in Procedure IC 3408A02, Non Tech Spec Instruments With Licensing Requirements, Revision 0.

The inspection did, however, identify several inconsistencies between he draft Technical Specifications, the Final Safety Analysis Report, and the licensee's implementing procedure programs as discussed in Sections 2.1 through 2.15 of this report. Where inconsistencies were identified, the licensee provided resolution or demonstrated that the matter had been previously identified, was documented for eventual disposition, and/or that actions were in progress to achieve disposition as part of the licensing process.

Review of the licensee's programs for implementation of TS also identified the following apparent or potential problems of a general nature.

3.1 Surveillance and Inservice Program Preparations

In May, 1985, NRC Inspection No. 50-423/85-21 found that the surveillance and inservice test programs' procedure preparation efforts were just beginning with a large backlog of implementing procedures to be written. During the current inspection, some progress was noted:

1. The Unit 3 Surveillance Master Index had been established and computerized with most procedure needs identified and assigned to responsible plant departments for preparation. Because the proposed TS were incomplete, corresponding gaps existed in the Index. The licensee was, however, able to resolve discrepancies during this inspection. Considering the preliminary status of the Index, the licensee appeared to have a workable approach and demonstrated their efforts for further refinement and grooming of the index.

2. The status of actual procedure production was note quantitatively determined by the inspection. Numerous procedures were reviewed during the inspection, nearly all of them in draft status. The unit Surveillance Coordinator, Maintenance Supervisor, Operations Supervisor, Instrument and Controls Supervisor, and various staff members were also interviewed to determine a general overall program status.

   At the time of this inspection, only a small percentage of surveillance and inservice test procedures had been through the complete review and approval process. Most (on the order of 80-90%) were in draft form, being reviewed for the first time on a multi-departmental basis. Within the previous two months, the licensee had assigned additional personnel to the effort, including a Coordinator, and had begun a major effort to produce all procedures in draft form with a similar mass review process to follow. A small fraction (on the order of 10-15%) of the identified procedure needs had no draft procedure available or in preparation.

   The licensee representatives interviewed (above) appeared to recognize the level of effort necessary to complete procedure production, approval and performance verification prior to fuel load and acknowledged the rather tight schedule for completion on the current fuel load schedule (November, 1985).

3. The draft procedures reviewed appeared to accurately reflect the as-built plant configuration and the proposed TS. The performance instructions ("procedure steps" section) generally appeared to achieve the procedures' purposes, although the level of detail and comprehensiveness varied greatly among the procedures. Similar variability was found in the "acceptance criteria", "references", "prerequisites", "initial conditions", and "restoration" procedure sections.

The licensee had not finalized a standardized minimum content for the above general procedure sections. For example, precaution sections were frequently minimal, do not even include applicable existing system precautions appearing in the available OPs and SPs. Similarly, initial conditions sections are frequently silent with regard to the TS Operating Mode, specific system or plant conditions required or applicable to the test. Few procedures involving systems which will be radiologically contaminated included any relevant precautions.

Although the licensee acknowledged these observations and stated that the review process was expected to correct each of the examples identified, several areas warrant additional licensee attention.

4. The inservice test (IST) procedures were at about the same stage of development as the other Operating Department surveillance procedures. Except where included in SPs, IST implementing procedures and overall program planning were in a very preliminary status.

   Additional detailed review of the program and procedures appears needed by the licensee's IST group to assure conformance with the TS and 10CFR50.55a requirements. Because of this need, similar compression in the procedure development, implementation, and baseline data acquisition schedule versus the fuel load schedule will likely occur. For example, the majority of the approved IST procedures were written in 1983 and will likely require review and revision prior to fuel load.

5. NUREG 07[illegible] , Clarification of TMI Action Plan Requirements, Item I.C.6, stipulated that measures be implemented to ensure that equipment important to safety is subject to independent verification of its restoration to service following testing (and maintenance). Additionally, return to service (restoration) equipment alignment should be conducted using appropriately detailed instructions.

   Licensee commitments in this regard are discussed in Section 15.9.2 of the SER. Station Administrative Procedure ACP-QA-2.12, System Valve Alignment Control, Revision 6, provides general guidance for implementation of these considerations at all three Millstone units.

   Only two of the SPs reviewed (as listed in Appendices 2.1-2.15) had specific provisions for independent verification of specific system restoration alignments. Again, the remaining procedures' treatment of this matter was highly variable. For example,, the Recirculation Spray System normal valve lineup (OP3306) was not restored by the applicable steps of SP3306G; the system P&ID reflected yet another "normal" lineup configuration.

   The Operations Supervisor orally presented his plans for detailed implementation of these procedure features, indicating that those plans were still under discussion by station management and not yet

promulgated to the staff for implementation. In general, when a procedure disturbs the "normal" system alignment, it will include specific and detailed steps to restore the alignment.

Then, the respective system's SP for TS required valve lineup verification will be immediately performed, constituting the independent verification per NUREG 0737. It was also noted that policies need to be established for situations not suitable to the above verification methods and for documentation of accomplishment.

The Operations Supervisor further stated that the provisions, when finalized, would be incorporated in the procedures during the review and approval phase for each procedure.

3.2 Control of Setpoints and Parametric Limits

Because the proposed TS were still under development at the time of this review, a number of Limiting Safety System Settings, Limiting Conditions for Operation, and Surveillance Requirements were either missing numerical criteria or had just recently had the parameters incorporated. Consequently, many of the SPs and OPs reviewed either lacked the corresponding parameters or had out of date parameters incorporated. For example, newly issued setpoints for the RHR Suction Valve/RCS Pressure Interlocks were found to affect as many as six different procedures.

The licensee's plans for incorporation and verification of final TS parameters and verification of procedure accuracy were discussed with the Operations, Maintenance, Startup Engineering, and I&C Department heads. At the time of this inspection, no formalized plans were identified for accomplishment of this activity.

In some cases, the Plant Operations Review Committee commitment control system and/or the AE's Engineering and Design Change Request (E&DCR) system would appear to "trigger" identification of needed procedure parameter backfits. For example, the NSSS Assistant Startup Manager demonstrated that potential impacts upon the preoperational and startup test programs would be identified by the E&DCR system. Similar examples of formal and informal feedback loops were discussed with each department.

However, these discussions also indicated that a rather massive procedure effort would be necessary to ensure that correct parametric information was backfit and/or verified in both issued and draft procedures prior to their implementation. Although administrative controls already exist in several areas to identify parameter changes, the existing programs do not appear to provide overall assurance that TS implementing procedure parameters will totally accurate. This

conclusion was acknowledged by the licensee representatives during the discussions.

Additionally, some inconsistency was found in the documents which the respective departments viewed as "baseline" setpoint or parametric information. In some cases, the NSSS vendor's "Precautions, Limitations, and Setpoints" Document and the AE's Master Setpoint List were identified as the baseline controlled documents while in other cases, the licensee's Loop Calibration Reports or similar documents were in use. In each case, a measurable revision lag time can affect the currency of the documents with respect to the license requirements and "actual" implemented data.

APPENDIX 1

MILLSTONE UNIT 3 - INSPECTION PLAN

VERIFICATION OF AS-BUILT CONDITIONS TO TECHNICAL SPECIFICATIONS AND FSAR/SER

OBJECTIVES:

Conduct, on a sampling basis, reviews and inspections of as-built safety related systems, structures, and components in order to:

determine whether the Technical Specifications and FSAR/SER are compatibile with the Millstone Unit 3 as-built plant, and

to determine whether Technical Specification requirements are definitively measurable.

General Scope

Selection of the inspection sample of systems, structures and components will be based, in part, on the safety sensitivities identified by the licensee's Probabilistic Safety Study (PSS).

The facility descriptions, operating characteristics, and related information found in the FSAR, SER and the proposed Technical Specifications (TS) will be compared to corresponding licensee drawings, procedures, and actual plant hardware to establish whether the as-built configuration of the systems, structures and components is compatible with the safety analyses and proposed (TS).

Concurrent with the above, the TS will be evaluated to confirm that the performance criteria and requirements established by the TS can be definitively measured or determined, i.e. that the means and methods to establish conformance with the TS requirements are responsive, sensitive, and sufficiently definitive to actually establish the required level of conformance.

Particular emphasis will be given to the efficacy of surveillance tests and inservice tests established by the licensee to demonstrate conformance with TS and the requirements of ASME B&PV Section XI and 10CFR50.55a.

In general, the systems, structures, and components to be reviewed will include a sample of the following:

P. Farron

Containment & Support Systems #
- Purge & Exhaust
- Hydrogen Removal
- Post Accident Sampling/Monitoring
- Containment Isolation

Containment Quench & Recirculation Spray #
- Recirculation Spray Raw (Service Water) *

Auxiliary Feedwater#
- AFW Pump/Turbine Accessories & Cooling Systems*

D. Beckman

High Pressure Safety Injection & CVCS #
Low Pressure Safety Injection
Residual Heat Removal #
Emergency Boration (Redundant Reactivity Control) #
Steam Generator Atmospheric Steam Dumps
Main Steam Isolation Valves

R. Cooney

Vital AC Power (4160/480/120 VAC) #
Emergency Diesel Generators #
Vital DC Power #
General I&C

Note: Items to be given priority
* Note: Items added by PRA Team Specialist Review

Inspection Items

Documents:

Technical Specifications
Final Safety Analysis Report
Safety Evaluation Report and Supplements
Surveillance/Test Procedures
Preoperational Test Procedures
Inservice Test Procedures
Normal, Abnormal and Emergency Operating Procedures
Process & Instrumentation Diagrams
Elementary, Logic, and Loop Drawings
Fabrication and Installation Drawings
Equipment Technical Manuals

Inspection Tasks:

1. Identify the TS applicable to the subject systems and select a sample of requirements (Limiting Conditions for Operation,

Surveillance Requirements, etc.) for inspection. Review the corresponding sections of the FSAR and SER.

2. Obtain applicable as built (or Approved for Construction) P&IDs, Elementary Diagrams, Loop and Logic Diagrams, etc. for the subject systems. Select areas of inspection by identifying (red lining) portions of each drawing. Develop a listing of specific equipment items within the system area which are subject to the TSs.

3. Verify for selected portions of each system that:

   1) the proposed TS adequately reflect the system configuration depicted by the drawings,

   2) the drawings match the information provided in the FSAR and SER, and

   3) the proposed TS are consistent with the FSAR commitments and SER conclusions.

   Confirm that the system configuration and equipment will support definitive measurement or determination of conformance with TS performance criteria and requirements

4. Develop a checklist of items for field verification during system and procedure walkdowns.

5. Identify and obtain the operating, surveillance and other pertinent licensee procedures applicable to the system areas and TS being reviewed. Working **from** the drawings and TSs **to** the procedures, confirm that:

   1) the procedure(s) adequately address the selected equipment and TS requirements identified in the FSAR and SERs,

   2) procedures accurately reflect the installed (as-built) hardware configuration and condition, and

   3) the test and or operating methods meet the TS or FSAR/SER requirements, commitments and analyses (review actual performance data where practical).

6. Include procedure field verification items in checklist for system and procedure walkdowns.

7. Conduct an in plant walkdown of subject systems to verify the results of the document review; confirm that:

   1) the as built hardware configuration matches the information obtained from the document review,

   2) the installed hardware is adequately addressed in the

procedures and TS,

3) the licensee's test and operating methods are appropriate to the actual equipment, and

4) the equipment configuration and features provide for definitive determination or measurement of conformance with the TS.

8. Review the licensee's program for correlating TS requirements to procedures and procedure revision needs, design change impact upon TS and TS implementing procedures, planning and scheduling of surveillar testing, etc.

Technical Review Report Outline

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General Conclusions

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APPENDIX 2.1

INSPECTION REPORT DATA SHEET

CONTAINMENT ISOLATION AND SUPPORT SYSTEMS

SYSTEM/EQUIPMENT: CONTAINMENT ISOLATION SYSTEM
CONTAINMENT PURGE AND EXHAUST

TECHNICAL SPECIFICATIONS:

3/4.6.3	CONTAINMENT ISOLATION SYSTEM - CONTAINMENT ISOLATION VALVES
3/4.6.1	CONTAINMENT INTEGRITY
3/4/9.9	CONTAINMENT PURGE & EXHAUST ISOLATION SYSTEM
3/4.6.5.2	CONTAINMENT SYSTEMS - MECHANICAL VACUUM PUMPS
3/4.6.5.1	CONTAINMENT SYSTEMS - STEAM JET STEAM JET AIR EJECTOR

FINAL SAFETY ANALYSIS REFERENCES (By Section No.):

6.2, 7.3.1, 9.4.7, 15

NRC SAFETY EVALUATION REPORT REFERENCES (By Section No.):

6.2.4, 6.2.1

PROCEDURES AND DRAWINGS REVIEWED:
NOTE: All drawing numbers are prefixed by "12179-"
All "letter" revisions indicate draft documents

DOCUMENT	TITLE	REVISION
SP-3612B.1	CONTAINMENT MANUAL ISOLATION VALVES (O.S. CONTAINMENT)	A
SP-3612B.1	CONTAINMENT MANUAL ISOLATION VALVES (I.S. CONTAINMENT)	A
SP-3447A01	CONTAINMENT HI 1,2,3 CAL.	0
EM-153A	CONTAINMENT STRUCTURE VENTILATION	2
SP3613.F1	CONTAINMENT PURGE & SUPPLY EXHAUST ISOLATION VALVE SURVEILLANCE	A
SP3613.F2	CONTAINMENT PURGE AIR ISOLATION VALVE OPERABILITY TEST	A
SP3613.F4	CONTAINMENT PURGE SYSTEM VALVE OPERABILITY TEST	A
3313EP	CONTAINMENT PURGE AIR SYSTEM PREOP-ERATIONAL TEST	0
ESK-70F	CONTAINMENT PURGE & EXHAUST DAMPER ELEMENTARY DIAGRAM	4
ESK-6BA	CONTAINMENT AIR RECIRCULATION FAN ELEMENTARY DIAGRAM	7
ESK-6AV	CONTAINMENT SHROUD FAN ELEMENTARY DIAGRAM	6

APPENDIX 2.2

INSPECTION REPORT DATA SHEET

SUPPLEMENTARY LEAK COLLECTION AND RELEASE SYSTEM

SYSTEM/EQUIPMENT: SUPPLEMENTARY LEAK COLLECTION AND RELEASE SYSTEM

TECHNICAL SPECIFICATIONS:

3/4.6.6.1	CONTAINMENT SYSTEMS - VENTILATION SYSTEM

FINAL SAFETY ANALYSIS REFERENCES (By Section No.):

6.2.3, 7.3.1.1.5

NRC SAFETY EVALUATION REPORT REFERENCES (By Section No.):

6.5.1.(4)

PROCEDURES AND DRAWINGS REVIEWED:
NOTE: All drawing numbers are prefixed by "12179-"

DOCUMENT	TITLE	REVISION
EM-148E	P&ID REACTOR PLANT VENTILATION	A
T-3314-IP	SLCRS PHASE II TESTING	0
SP-3614I.1	SLCRS OPERABILITY TEST	A
SP-3614I.8	SLCRS NEGATIVE PRESSURE VERIFICATION	DRAFT
SP-3712F	SLCRS FILTER ASSEMBLY HTR SURVEILLANCE TESTING	A
SP-3449B01	SLCRS RADIATION MONITOR CALIBRATION	DRAFT
LSK-221T	SLCRS BYPASS INDICATION	4

APPENDIX 2.3

INSPECTION REPORT DATA SHEET

CONTAINMENT HYDROGEN REMOVAL SYSTEM

SYSTEM/EQUIPMENT: CONTAINMENT HYDROGEN REMOVAL SYSTEM

TECHNICAL SPECIFICATIONS:

3/4.6.1	CONTAINMENT INTEGRITY
3/4.6.2	CONTAINMENT RECIRCULATION SPRAY SYSTEM

FINAL SAFETY ANALYSIS REFERENCES (By Section No.):

6.2.5

NRC SAFETY EVALUATION REPORT REFERENCES (By Section No.):

6.2.5

PROCEDURES AND DRAWINGS REVIEWED:
NOTE: All drawing numbers are prefixed by "12179-"

DOCUMENT	TITLE	REVISION
SP-3613A.3	HYDR RECOMBINER VALVE OPERABILITY TEST	A
SP-3712E	HYDR RECOMBINER HEATER SURVEILLANCE TESTING	A
T-3313-AP	HYDR RECOMBINER/MONITOR & HYDR RECOMBINER BLDG. VENTILATION SYSTEMS	0
OP-3313A	HYDR RECOMBINER, HYDR MONITORS & RECOMBINER BLDG. VENTILATION	0
EM-115A	P&ID QUENCH SPRAY & HYDR RECOMBINER	2B
LSK-13A	DBA HYDR RECOMBINER SYSTEM LOGIC	4
LSK-13B	DBA HYDR RECOMBINER SYSTEM LOGIC	4
LSK-13C	DBA HYDR RECOMBINER SYSTEM LOGIC	4
LSK-13D	DBA HYDR RECOMBINER SYSTEM LOGIC	4
LSK-13E	DBA HYDR RECOMBINER SYSTEM LOGIC	4
ESK-7XQ	HYDR INLET AIR & EX. DPR. MOD 20A/21A	2
ESK-7XR	HYDR INLET AIR & EX. DPR. MOD 20B/21B	2
ESK-7XS	HYDR INLET & OUTLET DPR. MOD 23A/23B	1
ESK-7XT	HYDR EXHAUST FAN FN-1	1

APPENDIX 2.4

INSPECTION REPORT DATA SHEET

CONTAINMENT QUENCH SPRAY SYSTEM

SYSTEM/EQUIPMENT: CONTAINMENT QUENCH SPRAY SYSTEM

TECHNICAL SPECIFICATIONS:

3/4.6.1	CONTAINMENT QUENCH SPRAY SYSTEM - CONTAINMENT INTEGRITY
3/4.3.2	ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FINAL SAFETY ANALYSIS REFERENCES (By Section No.):

6.2.2.4.1, 15.6.5, 7.3.1

NRC SAFETY EVALUATION REPORT REFERENCES (By Section No.):

6.2.2

PROCEDURES AND DRAWINGS REVIEWED:
NOTE: All drawing numbers are prefixed by "12179-"

DOCUMENT	TITLE	REVISION
EM-115A	P&ID QUENCH SPRAY & HYDR RECOMBINER	2B
73309-P001	QUENCH SPRAY SYSTEM	0
ESK-5DG	QUENCH SPRAY PUMP P3A	8
ESK-6LS	QUENCH SPRAY HDR ISOL VALVE MOV34A	4
OP-3309	QUENCH SPRAY OPERATING PROCEDURE	0
OPS FORM 3309-1	QUENCH SPRAY VALVE LINEUP	0
OPS FORM 3309-2	QUENCH SPRAY VALVE LINEUP (TRAIN A)	0
OPS FORM 3309-3	QUENCH SPRAY VALVE LINEUP (TRAIN B)	0
OPS FORM 3309-4	QUENCH SPRAY ELECTRICAL LINEUP	0
SP-3609.3	CONTAINMENT QUENCH SPRAY TRAIN A VALVE LINEUP SURV.	A
SP-3609.1	QUENCH SPRAY PUMP A OPERATIONAL READINESS TEST	B
ESK-7TP	ESF AUX. RELAY TRAIN A	4
ESK-6MC	REFUEL WTR CTIN. ADD TK DIESEL VLV MOV29A	4
ESK-7AM	REFUEL WTR RECIRCULATION PR. SUCT. ISOL VV AOV27,28	4
ACP-QA-2.12	SYSTEM VALVE ALIGNMENT CONTROL	6

APPENDIX 2.5

INSPECTION REPORT DATA SHEET

CONTAINMENT RECIRCULATION SYSTEM

SYSTEM/EQUIPMENT: CONTAINMENT RECIRCULATION SPRAY SYSTEM

TECHNICAL SPECIFICATIONS:

3.6.2.2.	CONTAINMENT RECIRCULATION SYSTEM - CONTAINMENT RECIRCULATION SPRAY SYSTEM

FINAL SAFETY ANALYSIS REFERENCES (By Section No.):

6.2.2.2, 7.3.1, 9.2.1, 10.5

NRC SAFETY EVALUATION REPORT REFERENCES (By Section No.):

6.2.2

PROCEDURES AND DRAWINGS REVIEWED:
NOTE: All drawing numbers are prefixed by "12179-"

DOCUMENT	TITLE	REVISION
EM-112A/B/C	LOW PRESSURE SAFETY INJECTION	1
EM-133A	SERVICE WATER & CHEMICAL FLOOD - CHLORINATION	2
EM-133B	SERVICE WATER & CHEMICAL FLOOD - CHLORINATION	2
T3306-P	CTMT RECIRCULATION SPRAY	1
ESK-6LH	CTMT RECIRCULATION PMP SUCT. ISOL V MOV 23 A	4
ESK-6LD	CTMT RECIRC. WTR SPRAY HOR. ISOL V 20A	5
SP-3606.1	CTMT RECIRCULATION PUM 3RCS PIA OPERATION READINESS TEST	C
SP-3606.7	CTMT RECIRCULATION RESPONSE TEST	A
SP-3606.5	CTMT RECIRCULATION SPRAY SYSTEM TRAIN A MONTHLY VALVE LINEUP CHECK	A
EM-115A	QUENCH SPRAY & HYDR RECOMBINER	2
ESK-77P	ESF AUX. RELAYS (TRAIN A)	4
SP-3606.8	RECIRCULATION SPRAY VALVE OPERABILITY	A
ESK-5CN	CNTMT RECIRCULATION PUMP 1A	B
ESK-27-11A	FLOW DIAGRAM CONTAINMENT RECIRCULATION	9

APPENDIX 2.6

INSPECTION REPORT DATA SHEET

AUXILIARY FEEDWATER SYSTEM

SYSTEM/EQUIPMENT: AUXILIARY FEEDWATER SYSTEM

TECHNICAL SPECIFICATIONS:

3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

FINAL SAFETY ANALYSIS REFERENCES (By Section No.):

10.4.9.1, 7.3.1, 15.2

NRC SAFETY EVALUATION REPORT REFERENCES (By Section No.):

10.4.9

PROCEDURES AND DRAWINGS REVIEWED:
NOTE: All drawing numbers are prefixed by "12179-"

DOCUMENT	TITLE	REVISION
EOP-35E-2	FAULTED STEAM GENERATOR ISOLATION	0
EOP-35E-1	LOSS OF REACTOR OR SECONDARY COOLANT	0
EOP-35E-0	REACTOR TRIP OR SAFETY INJECTION	0
EM-130B	FEEDWATER SYSTEM	2
EM-130A	FEEDWATER SYSTEMS	2
FSK-6-2A	AUXILIARY FEEDWATER & RECIRCULATION	13
FSK-6-2B	AUXILIARY FEEDWATER & RECIRCULATION	11
EM-123A	MAIN STEAM	1B
FSK-3-1	MAIN STEAM	9
FSK-3-1A	MAIN STEAM	14
T-3322-P	AUXILIARY FEEDWATER SYSTEM 02 PREOP.	0
SP-3622M	AUXILIARY FEEDWATER SYSTEM LINEUP OPERABILITY TEST	A
SP-3622.5	AUXILIARY FEEDWATER PUMP OPERABILITY START	A
SP-3622.1	AUXILIARY FEEDWATER PUMP P1A OPERABILITY READINESS TEST	B
SP-3622.3	AUXILIARY FEEDWATER PUMP P2 OPERABILITY READINESS TEST	B
SP-3622.6	AUXILIARY FEEDWATER FLOWPATH VERIF.	A
ESK-5DX	STEAM GENERATOR AUXILIARY FEEDWATER PUMP MOTOR DRIVEN P1A	12
SP-3444D01	AUXILIARY F10 FLOW INDICATORS (15C)	0
SP-3450B01	TDAF RAD. MONITOR DET. CALIBRATION	0
ESK-GVV	AFW TURB. STEAM SUPPLY NON-RETURN VALVE MOV 17A	5
ESK-7XA	AFW PUMP CONTROL VALVES	3

APPENDIX 2.7

INSPECTION REPORT DATA SHEET

AC POWER SOURCES

SYSTEM/EQUIPMENT: AC POWER SOURCES

TECHNICAL SPECIFICATIONS:

3/4.8.1	ELECTRICAL POWER - AC SOURCES
3/4.3.2	ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FINAL SAFETY ANALYSIS REFERENCES (By Section No.):

8.3.1.1.3; 9.5.4; 9.5.5; 9.5.6; 9.5.7; 9.5.8, 8.3.1.1.4(3C)

NRC SAFETY EVALUATION REPORT REFERENCES (By Section No.):

8.3.1.7; 8.3.1.8; 8.3.1.9; 8.3.1.10; 8.3.1.11; 8.3.1.12; 8.3.1.13; 8.3.1.14; 9.5.4.2; 9.5.5; 9.5.6; 9.5.7; 9.5.8

PROCEDURES AND DRAWINGS REVIEWED:
NOTE: All drawing numbers are prefixed by "12179-"

DOCUMENT	TITLE	REVISION
SP-3646A	EMERGENCY DIESEL GEN. OPERABILITY TEST	A
SP-3646AD	EMERGENCY DIESEL GEN. INDEPENDENCE TEST	A
SP-3646B.5	EMERGENCY DIESEL GEN. FUEL OIL STRG TANK DEWATERING & SAMPLE ANALYSIS	
OP-3346A	EMERGENCY DIESEL GENERATOR	1
OP-3346B	DIESEL FUEL OIL	0
ESK-7Q	DIESEL GENERATOR BREAKER AUX. CKT. ELEMENTARY DIAGRAM	7
ESK-8KD	EMERGENCY GEN. A STOP CKT. ELEMENTARY DIAGRAM	6
ESK-8JF	EMERGENCY GEN. A SHUTDOWN CKT. ELEMENTARY DIAGRAM	3
ESK-7TP	EMERGENCY GEN. A AUX. RELAY ELEMENTARY DIAGRAM	6
EE-1K	4.16 KV ONE LINE DIAGRAM BUS. 34C (TRAIN A)	12
EE-1L	4.16 KV ONE LINE DIAGRAM BUS. 34C (TRAIN A)	9

APPENDIX 2.8

INSPECTION REPORT DATA SHEET

D.C. POWER SOURCES

SYSTEM/EQUIPMENT: D.C. POWER SOURCES

TECHNICAL SPECIFICATIONS:

3/4.8.2	ELECTRICAL POWER SYSTEMS - D.C. SOURCES

FINAL SAFETY ANALYSIS REFERENCES (By Section No.):

8.3.2.1.2.2; 8.3.2.1.2.3

NRC SAFETY EVALUATION REPORT REFERENCES (By Section No.):

8.3.2

PROCEDURES AND DRAWINGS REVIEWED:
NOTE: All drawing numbers are prefixed by "12179-"

DOCUMENT	TITLE	REVISION
SP-3712N	STATION BATTERY SURVEILLANCE TESTING	A
EE-1BA	ONE LINE DIAGRAM 125 VDL & 120V AC DISTR. SYSTEM COMPOSITE	10

APPENDIX 2.9

INSPECTION REPORT DATA SHEET

ONSITE POWER DISTRIBUTION

SYSTEM/EQUIPMENT: ONSITE POWER DISTRIBUTION

TECHNICAL SPECIFICATIONS:

3/4.8.3	ELECTRICAL POWER SYSTEMS - ONSITE POWER DISTRIBUTION
3/4.8.4	ELECTRICAL POWER SYSTEMS - ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

FINAL SAFETY ANALYSIS REFERENCES (By Section No.):

8.3.1.1.2; 8.3.1.2; 8.3.2.1.2; 8.3.2.2, 8.3.1.1.4 (TABLE 8.3.3)

NRC SAFETY EVALUATION REPORT REFERENCES (By Section No.):

8.3.2.1; 8.3.2.2; 8.3.2.3, 8.3.3.6.1, 8.3.3.6.2, 8.3.3.6.3, 8.3.3.6.4, 8.3.3.6.5, 8.3.3.6.6

PROCEDURES AND DRAWINGS REVIEWED:
NOTE: All drawing numbers are prefixed by "12179-"

DOCUMENT	TITLE	REVISION
OP-3343	STATION ELECTRICAL SERVICE (4KV)	1
OP-3344A	480-VOLT LOAD CENTERS	1
OP-3344B	480-VOLT MOTOR CONTROL CENTERS	1
OP-3345B	120-VOLT VITAL INST. AC	0
OP-3345C	125-VOLT DC	A
3345BP-001	120-VOLT AC CHANNEL	A
3-1HT-3000	(AP 3024) ELECTRICAL DISTRIBUTION	DRAFT
EE-1K	4.16 KV. ONE LINE DIAGRAM BUS 34C	12
EE-1L	4.16 KV. ONE LINE DIAGRAM BUS 34C	9
EE-1N	480-VOLT ONE LINE DIAGRAM (BUS 32R&W)	6
EE-APA	125-VOLT DC & 120-VOLT AC ONE LINE DIAGRAM COMPOSITE	10
EE-1A	MAIN ONE LINE/PHASING DIAGRAM POWER DIST. COMPOSITE	7
E'K-6LH	CONTAINMENT RECIRCULATION PP. SUCTION ISOLATION VALVE ELEMENTARY DIAGRAM VALVE 3RSS*MOV23A	5
ESK-1EK	480-VOLT ONE LINE DIAGRAM 3EJS*US-4A & US-4B	2
SP3712T	CONTAINMENT PENETRATION OVERCURRENT DEVICE SURVEILLANCE TEST	A
LSK-24-3C,D H,L,	RESERVE STATION SERVICE BREAKER CONTROL LOGIC DIAGRAM	6
LSK-24-4A,B	MEDIUM VOLTAGE SERVICE BUS TIE BREAKER CONTROL	6
ESK-5BD,BF,7J	4KV BREAKER ELEMENTARY DIAGRAMS	VARIOUS

APPENDIX 2.10

INSPECTION REPORT DATA SHEET

SAFETY INJECTION SYSTEMS

SYSTEM/EQUIPMENT: SAFETY INJECTION SYSTEMS

TECHNICAL SPECIFICATIONS:

3/4.5.1	BORATION SYSTEMS FLOW PATH - SHUTDOWN
3/4.5.2	EMERGENCY CORE COOLING SYSTEMS - ECCS SUBSYSTEMS T-avg >350F
3/4.5.3	EMERGENCY CORE COOLING SYSTEMS - ECCS SUBSYSTEMS T-avg <350F
3/4.5.4	EMERGENCY CORE COOLING SYSTEMS - REFUELING WATER STORAGE TANK
3/4.4.1.4.1	REACTOR COOLANT SYSTEMS - REACTOR COOLANT LOOPS AND COOLANT CIRCULATION
3/4.4.1.4.2	REACTOR COOLANT SYSTEMS - SAFETY VALVES
3/4.4.1.3	REACTOR COOLANT SYSTEMS - PRESSURIZER

FINAL SAFETY ANALYSIS REFERENCES (By Section No.):

6.3 (ENTIRE), 5.4.7, 15.0 (ENTIRE)

NRC SAFETY EVALUATION REPORT REFERENCES (By Section No.):

6.3 (ENTIRE), 5.4.7

PROCEDURES AND DRAWINGS REVIEWED:
NOTE: All drawing numbers are prefixed by "12179-"

DOCUMENT	TITLE	REVISION
EM-113SH1-2	P&ID, HIGH PRESSURE SAFETY INJECTION	1
EM-112SH1-3	P&ID, LOW PRESSURE SAFETY INJECTION	1
3307B1I02	RHS INSTRUMENTATION TEST	0
33081E02	HPSI PUMP P3 TEST	0
3307 B1E03	RHS PUMP P1A,B TEST	0
3306P	RECIRCULATION SYSTEM TEST	0
3307AP001	LPSI TEST	0
3307AP003	SI ACCUMULATOR TEST	0
3307AP002	RHS TEST	0
3308P001	HPSI FLOW BALANCE TEST	0
3308P002	HPSI SYSTEM TEST	0
SP3608A/B	SI PUMP OPERATIONAL READINESS TEST	0
SP3610A/B	RHR PUMP OPERATIONAL READINESS TEST	0
LSK-27-2A-D	HPSI LOGIC DIAGRAMS	VARIOUS
LSK-27-3A-H	LPSI LOGIC DIAGRAMS	VARIOUS
LSK-27-7G-J	RHR LOGIC DIAGRAMS	VARIOUS
LSK-27-11A-H	CNTMT RECIRCULATION LOGIC DIAGRAMS	VARIOUS
LSK-27-2E-L	HPSI LOGIC DIAGRAMS	VARIOUS
ESK-6MW	CHS/RCS COLD LEG ISOL VLV ELEMENTARY	6
ESK-6MN	HPSI MINI-FLOW BYPASS ELEMENTARY	5

ESK-6MF	RWST-SIP ISOLATION ELEMENTARY	5
ESK-6MX	RWST-RHR ISOLATION ELEMENTARY	7
ESK-6MZ	RHR-COLD LEG ISOLATION ELEMENTARY	8
SP3852	ISOLATED LOOP BORON CONCENTRATION DETERMINATION	DRAFT
SP3859	RWST BORON CONCENTRATION	DRAFT
SP3610.A4	RHR LOOP OPERATIONAL VERIFICATION	DRAFT
SP3610.A3	RHR SYSTEM VENT AND LINEUP	DRAFT
SP3610.B1	SI ACCUMULATOR ISOLN VALVE DISABLES	DRAFT
SP3610.B2	LPSI VALVE OPERABILITY TEST	DRAFT
SP3608.5	SIH PUMP FLOW BALANCE	DRAFT
SP3608.1	SI PUMP OPERATIONAL READINESS	0
SP3608.3	ECCS SUBSUSTEM THROTTLE VALVE SETTING VERIFICATION	DRAFT
SP3610.A5	RHR PUMP LOGIC W/RWST LEVEL TEST	DRAFT
SP3610.A6	RHR PUMP INJECTION FLOW VERIFICATION	DRAFT
SP3610.A7	RHR "A" TRAIN VALVE OPERABILITY TEST	DRAFT
SP3604.C3	BORATED WATER SOURCE FLOW PATH OPERABILITY	DRAFT
SP3604.C2	BORATED WATER SOURCE FLOW PATH VERIFICATION	DRAFT
MP3712D	RHR SUCTION RELIEVE VALVE SURVEILLANCE TESTING	DRAFT
EOP3505	LOSS OF SHUTDOWN COOLING (RHR)	0
EOP3504	COOLDOWN OUTSIDE CONTROL ROOM	0
EOP3503	PLANT SHUTDOWN OUTSIDE CONTROL ROOM	0
OP3310A	RHR SYSTEM	0
OP3208	PLANT COOLDOWN	0

APPENDIX 2.11

INSPECTION REPORT DATA SHEET

CHEMICAL AND VOLUME CONTROL SYSTEM

SYSTEM/EQUIPMENT: CHEMICAL AND VOLUME CONTROL SYSTEM

TECHNICAL SPECIFICATIONS:

3/4.1.2.1	BORATION SYSTEMS FLOW PATH - SHUTDOWN
3/4.1.2.2	BORATION SYSTEMS FLOW PATH - OPERATING
3/4/1.2.3	CHARGING PUMP - SHUTDOWN
3/4.1.2.4	CHARGING PUMPS - OPERATING
3/4.1.2.5	BORATED WATER SOURCES - SHUTDOWN
3/4.1.2.6	BORATED WATER SOURCES - OPERATING
3/4.1.1.1	BORATION CONTROL - SHUTDOWN MARGIN, T-avg <200 F.
3/4.1.1.2	SHUTDOWN MARGIN - Tavg - >200 F.
3/4.1.3.6	ROD INSERTION LIMITS
3/4.3.2	ESFAS INSTRUMENTATION

FINAL SAFETY ANALYSIS REFERENCES (By Section No.):

4.6, 9.3.4, 9.3.5, 15.1, 15.4

NRC SAFETY EVALUATION REPORT REFERENCES (By Section No.):

4.6, 9.3.4, 9.3.5, 15.1

PROCEDURES AND DRAWINGS REVIEWED:
NOTE: All drawing numbers are prefixed by "12179-"

DOCUMENT	TITLE	REVISION
EM-113A-B	HIGH PRESSURE SAFETY INJECTION P&ID	1
EM-112A-C	P&ID, LOW PRESSURE SAFETY INJECTION	1
EM-104A-D	CVCS P&ID	2
FSK-26-2	CVCS FLOW DIAGRAM	VARIOUS
3304AP001	CHARGING LETDOWN AND PURIFICATION PREOPERATIONAL TEST	0
3304P002	CHARGING PUMP FLOW BALANCE TEST	0
3304CP	BORIC ACID SYSTEM TEST	0
3304A1M002	CHARGING PUMP FLOW TEST	0
SP3604A/B/C	CHARGING PUMP OPER'L READINESS TEST	0
SP3604F	CVCS VALVE OPERABILITY TEST	0
SP3604D/E	BORIC ACID PUMP OPER'L READINESS	0
LSK-26-2.2D	VOLUME CONTROL TANK LOGIC DIAGRAM	1
LSK-26-2.5A-G	RX MAKEKUP ADN BA BLENDER LOGIC DIAGR	VARIOUS
SP-3CHS*7	3CHS*LT102, -104 SETPOINT CALC'N.	1
LSK-26-2.3A	CHARGING PUMPS LOGIC DIAGRAM	VARIOUS

ESK-7CW	VOLUME CONTROL TANK ISOLATION AND DIVERT ELEMENTARY DIAGRAM	VARIOUS
ESK-7CT	BORIC ACID INJECT AND MU ELEM. DIAGR	4
SP3604C.2	BORATED WATER SOURCE FLOW PATH VALVE LINEUP VERIFICATION	DRAFT
SP3604C.3	BORATED WATER SOURCE FLOW PATH OPERABILITY TEST	DRAFT
AOP3566	ABNORMAL OPERATING PROCOEDURE - IMMEDIATE BORATION	0
OP3201	PLANT HEAT UP OPERATIONS	0
OP3203	PLANT STARTUP OPERATIONS	0
OP3208	PLANT COOLDOWN OPERATIONS	0

APPENDIX 2.12

INSPECTION REPORT DATA SHEET

MAIN STEAM ISOLATION VALVES AND STEAM GENERATOR ATMOSPHERIC RELIEF VALVES

SYSTEM/EQUIPMENT: MAIN STEAM ISOLATION VALVES AND STEAM GENERATOR ATMOSPHERIC RELIEF VALVES

TECHNICAL SPECIFICATIONS:

3/4.7.1.5	CONTAINMENT SYSTEMS - MAIN STEAM ISOLATION VALVES
3/4.3.2	POWER DISTRIBUTION LIMITS - ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FINAL SAFETY ANALYSIS REFERENCES (By Section No.):

10.3, 15.1.5, 3.84, 7.3

NRC SAFETY EVALUATION REPORT REFERENCES (By Section No.):

10.3, 15.1.5, 15.6.4

PROCEDURES AND DRAWINGS REVIEWED:
NOTE: All drawing numbers are prefixed by "12179-"

DOCUMENT	TITLE	REVISION
EM-123SH1-4	P&ID, MAIN STEAM & REHEAT	1/2
3316AP001	MAIN STEAM PREOPERATIONAL TEST	0
LSK-3-1.2A-E	MSIV LOGIC DIAGRAM	VARIOUS
LOOP 27 D	MSIV LOOP DIAGRAM	VARIOUS
LOOP 20	SG ATMOSPHERIC RELIEF VALVES	VARIOUS
SP3616A.1	MSIV AND SG ATMOSPHERIC RELIEF VALVE OPERABILITY TESTS	DRAFT
3MSS-020A	LOOP CALIBR REPORT MS PRV	1
3MSS-77A	LOOP CALIBR REPORT MSW	1
ESK-7UW	MSIV ELEMENTARY DIAGRAM	4
ESK-7UX	MSIV ELEMENTARY DIAGRAM	4
ESK-7UV	MSIV ELEMENTARY DIAGRAM	4
ESK-7UZ	MSIV ELEMENTARY DIAGRAM	4

APPENDIX 2.13

INSPECTION REPORT DATA SHEET

PRESSURIZER POWER OPERATED RELIEF AND BLOCK VALVES

SYSTEM/EQUIPMENT: PRESSURIZER POWER OPERATED RELIEF AND BLOCK VALVES

TECHNICAL SPECIFICATIONS:

3/4.4.4 REACTOR COOLANT SYSTEM - RELIEF VALVES

FINAL SAFETY ANALYSIS REFERENCES (By Section No.):

5.2, 5.4, 7.7, 15.5

NRC SAFETY EVALUATION REPORT REFERENCES (By Section No.):

5.2.2, 5.4.11, 15.9.7, 15.9.8

PROCEDURES AND DRAWINGS REVIEWED:
NOTE: All drawing numbers are prefixed by "12179-"

DOCUMENT	TITLE	REVISION
EM-102A-C	REACTOR COOLANT SYSTEM P&ID	VARIOUS
3301P002	RCS PREOPERATIONAL TEST	0
LSK-25-1.2A-H	PRESSURIZER PRESSURE CONTROL LOGIC	VARIOUS
LOOP 456	PRESSURIZER PORV LOOP DIAGRAM	7
SP2601.G1	PORV ISOLATION VALVE OPERABILITY	DRAFT
LRC-3RCS*455A-C	LOOP CALIBRATION REPORT - PRESSURIZER PRESSURE CONTROL	1
EM-3442-501	RCS WIDE RANGE PRESSURE CALIBRATION	0
LRC-3RCS*463	PORV PIPING TEMPERATURE LOOP CALIBRATION REPORT	1
3301E05	PORV BLOCK VALVE PREOP TEST	0

APPENDIX 2.14

INSPECTION REPORT DATA SHEET

SERVICE WATER SYSTEM

SYSTEM/EQUIPMENT: SERVICE WATER SYSTEM

TECHNICAL SPECIFICATIONS:

3/4.7.4 SERVICE WATER SYSTEM

FINAL SAFETY ANALYSIS REFERENCES (By Section No.):

9.2.1, 9.2.5, 10.4.5, 2.4.11.5 & 6 (OHS LEVEL)

NRC SAFETY EVALUATION REPORT REFERENCES (By Section No.):

9.2.1, 2.4.11.2

PROCEDURES AND DRAWINGS REVIEWED:
NOTE: All drawing numbers are prefixed by "12179-"

DOCUMENT	TITLE	REVISION
EM-133A	SERVICE WATER & CHEMICAL FEED CHLORINATION	2
EM-133B	SERVICE WATER & CHEMICAL FEED CHLORINATION	2
OP-3326	SERVICE WATER SYSTEM	0
OPSFORM 3326-16	SWS (A CONTAINMENT RECIRCULATION SUPPLY)	0
OPSFORM 3326-1	SWS (TRAIN A)	0
T-3326P	SWS PREOPERATIONAL	0
3326/3328	SWS TRAINING MANUAL	0
SP-3626J	A SERVICE WATER TRAIN VLV. LINEUP CK.	0
SP-3626.4	A SERVICE WATER PUMP OPERATIONAL READINESS TEST	DRAFT B
ESK-5CJ	SERVICE WATER PUMP P1A	12
ESK-6AAV	SERVICE WATER PUMP DIESEL VALVE	
ESK-6AAA	CONTAINMENT RE. (SW) OUTLET VALVE MOV 57A	5
ESK-6AAF	CONTAINMENT RE. (SW) OUTLET VALVE	6

APPENDIX 2.15

INSPECTION REPORT DATA SHEET

REMOTE SHUTDOWN AND ACCIDENT MONITORING INSTRUMENTATION

SYSTEM/EQUIPMENT: ACCIDENT MONITORING INSTRUMENTATION
REMOTE SHUTDOWN INSTRUMENTATION

TECHNICAL SPECIFICATIONS:

3/4.3.3.6	ACCIDENT MONITORING INSTRUMENTATION
3/4.3.3.5	*REMOTE SHUTDOWN INSTRUMENTATION

*NOTE: REVIEW LIMITED TO RCS W.R. PRESSURE CHANNEL ONLY

FINAL SAFETY ANALYSIS REFERENCES (By Section No.):

7.5, 7.4, TABLE 7.4.1

NRC SAFETY EVALUATION REPORT REFERENCES (By Section No.):

7.5.2.4, 7.4.2.3

PROCEDURES AND DRAWINGS REVIEWED:
NOTE: All drawing numbers are prefixed by "12179-"

DOCUMENT	TITLE	REVISION
SP-3442-501	RCS WIDE RANGE PRESSURE CALIBRATION	0
ESK-4BA	AUXILIARY SHUTDOWN PANEL ELEMENTARY SHEETS 3 THRU 9	6

APPENDIX 3

REVIEW OF MILLSTONE UNIT 3 TECHNICAL SPECIFICATIONS

LICENSEE PERSONNEL CONTACTED DURING INSPECTION

The inspection team met and held discussions with and inspected plant systems with numerous licensee personnel. Listed below are the licensee contacts who materially participated in the inspection and entrance or exit meetings.

NAME	TITLE
M. Brown	I&C Supevisor
P. Brown	Startup Engineer
K. Burton	Operations Supervisor
J. Chunis	Startup Engineer
C. Clement	Maintenance Supervisor
J. Crockett	Unit 3 Superintendent
J. Dimarzo	Startup Engineer
E. Fries	Startup Engineer
C. Goldberg	SWEC Construction Engineer
K. Gray	Staff Asst. - CQA
R. Grebasch	Startup Engineer
R. Kozler	Startup Engineer
T. Kulterman	Operations Engineer
J. Langan	Startup Enginer
R. Lefebvre	Project Staff Engineer
D. McDaniels	Operations Supervisor
F. Michaels	Startup Engineer
D. Miller	Startup Manager
L. Nadeua	Asst. Project Engineer
B. Nichols	Startup Engineer
S. Orefice	Nuclear Project Engineer
B. Pinkowitz	Startup Engineer
R. Rothgeb	Staff Engineer
S. Savage	I&C Technician
D. Scase	Startup Engineer
A. Stengel	Startup Engineer
S. Sudigala	NSS Asst. Startup Manager
W. Terry	Senior Engineer