

TECHNICAL REVIEW REPORT
NRC REGION I REPORT NO. 50-243/85-71

REVIEW OF MILLSTONE UNIT 3 TECHNICAL SPECIFICATIONS
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TABLE OF CONTENTS

SECTION	TITLE	PAGE
	EXECUTIVE SUMMARY.....	i
1.0	INTRODUCTION.....	1
	1.1 PURPOSE	
	1.2 BACKGROUND & GENERAL SCOPE	
	1.3 GENERAL EVALUATION CRITERIA	
	1.4 GENERAL EVALUATION METHODS	
2.0	EVALUATION - GENERAL.....	4
	2.1 CONTAINMENT, ISOLATION AND SUPPORT SYSTEMS.....	9
	2.2 REFUELING OPERATIONS.....	11
	2.3 QUENCH SPRAY SYSTEM.....	13
	2.4 CONTAINMENT RECIRCULATION SYSTEM.....	15
	2.5 AUXILIARY FEEDWATER SYSTEM.....	18
	2.6 AC POWER SOURCES.....	21
	2.7 DC POWER SOURCES.....	25
	2.8 ONSITE POWER DISTRIBUTION.....	27
	2.9 SAFETY INJECTION SYSTEMS.....	27
	2.10 CHEMICAL AND VOLUME CONTROL SYSTEM.....	30
	2.11 REACTOR PROTECTION SYSTEM	32
	2.12 ENGINEERED SAFETY FEATURE ACTUATION SYSEM	38
	2.13 SERVICE WATER SYSTEM.. ..	40
3.0	GENERAL CONCLUSIONS.....	42
4.0	APPENDICES	

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 Surveillance Requirements of Technical Specifications (TS), the Final Safety Analysis Report (FSAR), the Safety Evaluation Report (SER) and the associated implementing Surveillance Procedures (SPs) are compatible with each other and the as-built plant configuration and operating characteristics; and,

The Surveillance Procedures properly implement the TS requirements and commitments documented in the FSAR and SER; and,

The TS requirements involved are definitively measured by the associated Surveillance Procedures.

The inspection was concentrated on plant systems, structures and components identified by the inspectors' evaluation and 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, the service water system, electrical power systems, the reactor protection system, and the engineered safety feature actuation system

A sample of TS Surveillance Requirements was selected for each system and was compared to the FSAR, the SER, licensee Surveillance Procedures, drawings, administrative procedures and actual plant hardware.

Licensee documents reviewed included: Surveillance and Inservice Test Procedures, Master Surveillance Test Control Lists, Piping and Instrumentation Drawings, Logic Diagrams, Electrical Schematics and One Line Diagrams, Operating and Emergency Procedures, Calibration Procedures and data, Maintenance Procedures, Administrative Procedures, 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.

The licensee's programs for ensuring that all changes in draft and final TS are incorporated into implementing procedures were also reviewed for effectiveness.

RESULTS AND CONCLUSIONS

The TS surveillance testing program appears to be substantially in place for the plant systems reviewed but numerous procedures require finalization in accordance with the licensee's plans for progressive completion of startup activities on a milestone by milestone basis.

The TS, FSAR, SER, and SPs were found to be compatible. The SPs accurately reflected the configuration of the safety related systems, structures and components and definitively determined compliance with TS.

Licensee actions on findings previously identified during NRC Inspection No. 50-243/85-37 were also reviewed.

Significant findings of the inspection involved:

1. Deficiencies in the licensee's procedure preparation, review and approval processes which resulted in procedures incorrectly reflecting or implementing pending TS requirements.
2. The overall status of procedure preparation for near term plant startup milestones met minimum requirements. However, many of the procedures required for initial fuel load and heatup were being revised. Licensee programs for control and completion of these activities were considered adequate.
3. A number of technical deficiencies were identified in reviewed procedures, including:
 - Editorial, format, and content inconsistencies and discrepancies in Surveillance and Operating Procedures,
 - Omission of TS requirements and licensee commitments from procedures designated to include them,
 - Incorrect translation of TS requirements into procedures, and
 - Needs for clarification or correction of procedures to provide better assurance that important or safety related design features are properly tested or operated,

Executive Summary

The licensee was responsive to the above findings, correcting many specific discrepancies during the inspection. Items recommended for additional NRC followup and evaluation have been identified in this report.

The licensee's programs and plans were found generally effective in correcting and preventing recurrence of the discrepancies identified.

Additional licensee and NRC attention is recommended for procedure preparation, review, and approval processes to assure that acceptable levels of quality are maintained.

1.0 - INTRODUCTION

1.1 - PURPOSE

The purpose of this inspection was to assist the Nuclear Regulatory Commission in determining that the Surveillance Test Procedures (SPs) for selected safety related systems were compatible with the final draft Millstone Nuclear Power Station, Unit 3, Technical Specifications, the FSAR, SER, and the as-built configuration of plant systems, structures and components and that the Technical Specification requirements were definitively measurable or determinable by the SPs.

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. NRC Inspection No. 50-423/85-37 was previously conducted by Parameter, Inc. at Millstone Unit 3 in July, 1985 to gain additional assurance that the proposed Millstone Unit 3 TS are compatible with the assumptions and requirements of the safety analyses performed and the as-built plant configuration.

Based on the results of the above inspection Parameter, Inc. was requested to assist NRC Region I in performing this followup inspection at the Millstone Unit 3 site to determine whether the facility SPs are properly compatible with the TS, FSAR, SER, and as-built plant.

The general scope of the inspection included review of the following systems:

ECCS SYSTEMS	CONTAINMENT SYSTEMS
RHR SYSTEM	SERVICE WATER SYSTEM
VITAL AC POWER	ESF ACTUATION SYSTEM
VITAL DC POWER	REFUELING OPERATIONS
POWER DISTRIBUTION	EMERGENCY DIESEL GENERATORS

The following general categories of documents were reviewed:

- Technical Specifications
- Final Safety Analysis Report
- NRC Safety Evaluation Report (with Supplements 1-3)
- Piping and Instrumentation Diagrams (P&IDs)
- Instrumentation and Control Logic Diagrams (LSKs)
- Electrical One Line Diagrams (EEs)
- Electrical Schematic Diagrams (ESKs)

INTRODUCTION

Instrument Loop Drawings
Plant General Arrangement & Layout Drawings
Surveillance Test Procedures (SPs)
Maintenance Procedures (MPs)
Operating Procedures (OPs)
Emergency Operating Procedures (EOP)S
Inservice Test Program and 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 final draft TS, FSAR, SER, and SPs.

The capability of the SPs 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 specific TS Surveillance Requirements.

1.4 - GENERAL EVALUATION METHODS

Prior to the onsite inspection activities, the licensee's proposed TS, Master Surveillance Test Control List, and selected administrative procedures and procedure listings were reviewed by the inspection team and a sample of TS requirements selected for onsite inspection. The Inspection Plan (Appendix 1.0) was prepared and approved by USNRC Region I.

Licensee personnel and contractors contacted during the inspection are listed in Appendix 1.1.

Key evaluation items implemented per the Inspection plan included:

Licensee procedures for administration of operating and surveillance procedure activities were reviewed for general conformance with the proposed license requirements and commitments.

The Master Surveillance Test Control List and related documents were compared with the final draft TS, FSAR, and

INTRODUCTION

SER to determine whether the required procedures had been planned, written, verified by initial performance, and a schedule identified for routine performance at the frequency and in the Operating Modes required by TS.

Surveillance Procedures (SPs) were reviewed, in final form where available, to verify their conformance with the TS and to establish that the TS requirements could be definitively measured.

SP reviews included comparison to as-built plant drawings, construction and calibration data, and actual plant hardware to ensure compatibility of the various documents with the as-built plant.

SP reviews were also extended to the review of data for the initial performances of selected SPs to establish whether the licensee has suitably verified the procedures' efficacy and that the data and results obtained complied with the TS, FSAR, and SER. Only a few procedures had been performed in their current status.

The licensee's formal and informal programs for ensuring that all changes in draft (and final) TS Limiting Safety System Settings (LS-3s), Limiting Conditions for Operation (LCOs), and Surveillance Requirements (SRs), including setpoint and parametric data are incorporated into implementing procedures, were reviewed for effectiveness.

Actual performance of selected procedures was observed to assist in determining that the procedures are effective in achieving their stated purpose; where actual observation was impractical, "walk through" procedure simulations were conducted.

2.0 EVALUATION

2.0.1 GENERAL

The Surveillance Requirements and Procedures of the system and equipment listed below were reviewed in accordance with the methods of Section 1.2 and Appendix 1.0.

The Appendices 2.1 - 2.15 list the Technical Specifications, detailed procedures, and related plant documents specifically reviewed for each system.

In addition to the specific inspection and review items discussed in Sections 2.1 - 2.15 below, the following documents were reviewed and used for the evaluation of the licensee's Surveillance Program and its implementation:

ACP-QA-1.01	Millstone Administration, Revision 4
ACP-QA-1.02	Organization and Responsibilities, Revision 16
ACP-QA-1.04	Plant Operations Review Committee, Revision 20
ACP-QA-2.02B	Retests, Revision 11
ACP-QA-2.02C	Work Orders, Revision 5
ACP-QA-2.06A	Station Tagging, Revision 10
ACP-QA-2.06B	Station Bypass/Jumper Control, Revision 6
ACP-QA-9.02	Station Surveillance Program, Revision 13
ACP-QA-9.02C	Unit 3 Surveillance Master Test Control List, Revision 0
---	Surveillance Master Test Control Printout, 11/8/85
ACP-QA-2.12	System Valve Alignment Control, Revision 7
OP 3260	Unit 3, Conduct of Operations, Revision 0
---	Westinghouse Setpoint Methodology for Protection Systems, Millstone Nuclear Power Station, Unit 3, May, 1984
---	Precautions, Limitations and Setpoints (PLS) for Nuclear Steam Supply Systems, May, 1984
---	SWEC Master Setpoint List (MSL), 10/22/85
---	Unit 3 (PORC) Commitment Follow Printout, 11/12/85
---	Unit 3 Matrix - Surveillance Test Compliance vs. Startup Tests, 11/11/85
ISI-3.0	Millstone Unit 3 Inservice Testing Program, Revision 0
SP 3408A04	Safety Related Instrument Stop Valve Quarterly Lineup, Revision 0

2.0.1 LICENSEE COMMITMENT TRACKING SYSTEM

A review was performed of the licensee's commitment tracking system as it related to TS Surveillance Procedures. Commitments from sources other than the FSAR and TS are referenced by a computerized system to the individual SPs and the corresponding commitment number is included in parentheses in the applicable

SP. This is intended to ensure that actions applicable to the commitments are not deleted or revised without authorization.

TS items are not directly referenced as commitments but are included in the scope and applicability sections of each SP. FSAR items are treated similarly to the TS requirements but are not consistently included in the SP sections. Licensee personnel expect the procedure performers to otherwise determine which procedure items are FSAR commitments.

The licensee was advised that exclusion of the FSAR commitments from the commitment tracking and in-procedure identification system appeared to create a potential for inadvertent deletion or revision of commitment implementing procedure actions. No alternative method of commitment identification was identified. The acceptability of the licensee's approach in this area will be measured by NRC checks of adherence to commitments and requirements through operation.

2.0.3 FOLLOWUP ON PREVIOUS INSPECTION FINDINGS

(Open) 50-423/85-37-01 NRR Review of Inservice Test Program and Procedures status to support plant operations.

ISI-3.0, Inservice Testing Program, was in preparation at the time of the above inspection as were the pump and valve Surveillance Procedures which implement it. During this inspection, the program was reviewed with respect to the TS and FSAR testing requirements and listings of components subject to testing.

(Note: ISI-3.0 was not reviewed for adequacy with respect to 10CFR50.55a and the ASME B&PV Code, Section XI. That review was concurrently being accomplished by NRC.)

Several Quench Spray and Recirculation Spray System valves listed in TS and FSAR as requiring testing were not listed in ISI-3.0. The IST Engineer provided pending program revisions (to be submitted to NRC) which corrected the omissions.

Review of individual pump and valve SPs (documented later herein) found that the existing provisions of ISI-3.0 were being implemented, notwithstanding the draft status of many of the SPs. A review of the licensee's ongoing procedure revision program found acceptable coordination of IST program requirements with the procedure preparation effort.

Based on the above status, this item will remain open pending licensee submittal of revised listings of Quench Spray and Recirculation Spray System valves to NRR. The acceptability of the final, implemented IST program will be determined during

future routine NRC program inspections.

(Open) 50-423/85-37-03 Review implementation of NUREG 0737, Clarification of TMI Action Plan Requirements, Item I.C.6, commitments for independent verification of return to service equipment alignment following surveillance testing.

The licensee's commitment to the subject NUREG guidance is provided by FSAR Section 13.5.2. The commitment is discussed and found acceptable by NRC:NRR in SER Section 13.1.5.6 and SSER-2 Section 13.1.5 based on the NRC staff's review of the applicable Station Administrative Control Procedure (ACP).

During this inspection, the licensee procedures and implementation methods were reviewed and discussions were held with licensee management regarding implementation status.

ACP-QA-2.12, System Valve Alignment Control, Revision 7, implements the basic requirements of I.C.6 and appears generally consistent with the commitments. The ACP requires establishment of a list of safety related systems and systems important to safety for which independent system alignment verification is required. This list was prepared during this inspection.

Since Inspection No. 50-423/85-37, the Operations Department had also issued OP 3260, Conduct of Operations, Revision 0, which provides additional guidance for operators performing the independent position verifications.

Surveillance Procedures (SPs) requiring independent verification of system restoration will include appropriate instructions and record sheets. At the time of this inspection, many of the SPs reviewed were under revision and only a few of those reviewed had yet been revised to include these provisions.

Additionally, the Unit 3 I&C Supervisor stated that separate independent verification provisions will not be routinely included in procedures for instrument, control, and protection rack surveillances. The licensee's position is that the physical configuration of the equipment and the existing return to service instructions of the procedures provide adequate assurance of proper equipment restoration.

For example, failure to properly restore an instrument rack switch or test status to service would result in an alarm condition on the Main Control Board which would be detected by the control room operator as he or she reviews the board and interfaces with the I&C technician per the I&C procedure. Such procedures were reviewed during this inspection and were found to be consistent with the licensee's assessment.

With respect to instrument sensor and transmitter isolation valve position verifications, the licensee plans to perform independent position verification on all instrument root valves (per Operations Department procedures) and on those instrument (local) stop valves on instruments which are not on scale during normal operations or surveillance testing (IC Procedure 3408A04, Safety Related Instrument Stop Valve Quarterly Lineup, Revision 0).

Instrument (local) stop valves on instruments expected to be onscale and subject to routine Channel Checks will be aligned and lockwired in position per operating procedures by a single I&C technician without an independent position verification.

It is the licensee's position that the use of lockwiring extends beyond the controls applied to local instrument stop valves at his other operating plants and that the controlled use of a single, identified technician has provided good control over such valve positioning at those operating plants.

Acceptability of this position remains unresolved pending additional NRC:RI management review.

(Open) 50-423/85-37-04 Incorporation of latest valid TS setpoints and parameters into station procedures.

During Inspection No. 50-423/85-37, Technical Specifications and the various implementing procedures had not been finalized and the TS requirements were changing as they were refined. The licensee had not established a comprehensive program to ensure that the final TS data was incorporated into procedures.

At the time of this followup inspection, each department had established their own programs for reviewing and revising (or writing) TS implementing procedures in this regard. The programs for the I&C and Operations Departments were evaluated by discussion with responsible personnel, review of the results of the departmental programs, and review of specific TS implementing procedures for accuracy.

These programs were found to be somewhat informal with licensee reviewers providing procedure comments and recommendations for incorporation and informally documenting and transmitting the extent and status of their reviews. No controlling administrative procedures nor written instructions appeared to be available.

Again, most of the TS implementing procedures reviewed by this inspection were undergoing revision (see further discussion later in this report). The inspection team found that the draft procedures' parametric requirements did, however, agree with the

TS and that the disagreements found had been identified for later correction by the licensee (see Sections 2.11 and 2.12 below).

(Open) 50-423/85-37-05 Status of Surveillance Procedure readiness to support plant operations.

During the referenced inspection, most SPs were available in only draft form and represented a major work effort necessary to support fuel load and plant startup. Immediately prior to this inspection, the licensee presented their plans to NRC Region I for the progressive completion of procedure preparation and validation activities as prerequisites for the various plant startup milestones.

As a result, procedures for upcoming plant startup milestones, i.e. heatup, initial criticality, low power physics testing, power ascension, and full power operation, may not be issued and available until they are necessary to support the applicable milestone.

Consequently, during this inspection, some of the SPs remained in draft form and a number of others were under revision, with the licensee's principal efforts directed at finalizing and issuing those required to support the pending Operating License issuance and fuel load. The quantitative status of procedure availability was reviewed by another NRC team on site concurrently.

2.0.3 New Unresolved and Inspector Follow Items

The findings of this inspection were reviewed by NRC Region I management and determined to warrant additional review as Unresolved Items or Inspector Follow Items.

Unresolved Items are matters which require further information to determine their status as acceptable or as violations of NRC requirements. Inspector Follow Items are matters which appear acceptable but warrant additional confirmation of licensee actions or information to ensure that pending activities are acceptably completed.

The Unresolved and Inspector Follow Items identified during this inspection are identified herein and incorporate NRC tracking system numbers.

2.0.4 Surveillance Procedure Status

The licensee made significant progress immediately prior to and during this inspection in readying TS Surveillance Procedures for implementation. At the outset of this inspection, many of the SPs initially reviewed were in a draft form or required substantial revision and/or retyping to achieve usable, technically complete and accurate form.

The licensee's program for completion of these activities had been in progress since Inspection No. 50-243/85-37, including establishment of PORC subcommittees for the review and refinement of procedures in both draft and PORC approved form.

During this followup inspection, many of the procedures in-process underwent such reviews and retyping, resulting in meaningful improvement. A number of procedures remained to be completely cycled through the process by the end of the inspection as noted later herein. Where appropriate, Unresolved or Inspector Follow Items have been identified for further NRC review.

2.1 - CONTAINMENT, CONTAINMENT ISOLATION AND SUPPORT SYSTEMS

The Containment Isolation and support systems review included all major piping, valves, instrumentation, and safety related actuation signals. In addition the Containment Ventilation Purge and Exhaust Subsystem, the Containment Hydrogen Removal (Recombiner) System and the Supplementary Leak Collection and Release System (SLCRS) were reviewed.

2.1.1 OBSERVATIONS

Appendices 2.1A - 2.1C list the specific documents reviewed. The following specific comments and observations resulted from this review:

SP 3613F.1 and F.2 Containment Purge and Exhaust Air Isolation Valve Operability Tests, Revision 0

This procedure provides for periodic position verification and isolation operability testing. The air operated purge and exhaust vent valves' handwheels can be positioned to override remote manual and automatic isolation operation. The procedures reviewed did not clearly address the actions necessary to prevent the override and assure valve operability. The licensee stated that the valve handwheels will be locked and administratively controlled to ensure operability. Procedure changes implementing the controls were not available for review

at the close of the inspection.

Prerequisite 4.1 of SP 3613F.2 requires the Area Radiation Monitor System to be in operation per OP 3363 to support Radiation Elements (detectors) 3HVV*RE31A and B. OP 3363 could not be located during the inspection and apparently does not exist. Additionally, RE31A & B (procedure label) appear to actually be RE-41 & 42 per P&ID EM-153A-2.

Additional discrepancies were found between the procedure nomenclature used for identifying various air handling units and that used in P&ID EM 153A-2.

Correction of the above items will be reviewed as Inspector Followup Item (IFI) 50-243/85-71-01.

SP 3614I.2 SLCRS Filter Bank Testing, Draft B

The procedure refers the performer to OP 3614I to align the SLCRS for testing. OP 3614I specifies that the Process and Area Radiation Monitoring Systems be aligned and operable per OP 3362 and OP 3364. Currently neither OP is indexed or available in the operating procedure manuals.

Correction of the SPs or provision of OPs to support performance of the test will be reviewed as IFI 50-243/85-71-02.

SP 3614.3 SLCRS Negative Pressure Verification, Draft B

This SP also references the use of OP 3614I (see above) and requires revision for proper implementation.

Further, the SP provides little instruction or direction as to how data taking is accomplished. In particular, no instructions are provided for determining how the ESF Response Time is to be obtained during the test.

Licensee revision of the SP and/or OPs will be reviewed as IFI 50-243/85-71-03.

SP 3712F, SLCRS Filter Assembly Heater Surveillance Testing, Revision 0

The SP was written by the Maintenance Department and found to be well defined and easy to follow.

The only discrepancy identified was in the TS reference section detailing the SP acceptance criteria. The TS 4.6.6.1.d.5 reference was incorrect, apparently due to TS changes occurring after the procedure was originally written and approved.

Correction of this discrepancy will be pursued as IFI 50-243/85-71-04 to verify that the correct TS is referenced for applicability.

SP 3613A.1 Hydrogen Recombiner System L.P. Surveillance,
Revision 0

The SP requires the use of OP 3313A, Hydrogen Recombiners, Monitors, and Recombiner Building Ventilation, for system startup and shutdown. The procedures are deficient in that neither the SP nor the OP contained provisions for independent verification of return to service of the containment isolation valves manipulated during these operations.

Incorporation of independent verification of return to service actions in this SP will be confirmed (IFI 50-243/35-71-05).

2.1.2 RESULTS AND CONCLUSIONS

Except as noted above, the procedures and programs appeared to be in place for surveillance testing of the subject systems.

The licensee was informed of the discrepancies between the OPs and SPs. This problem appeared to be common throughout the procedures reviewed during this inspection and is especially significant due to the heavy reliance upon the OPs in the performance of the SPs.

The license acknowledged the findings and advised that further reviews and/or revisions of the procedures were being accomplished. Following licensee corrective actions, a further assessment of SP and OP compatibility will be made (IFI 50-243/85-71-06).

2.2- REFUELING OPERATIONS TECHNICAL SPECIFICATIONS

The Refueling Operations addressed by TS Section 3/4.9 were reviewed with respect to:

- Source Range Nuclear Instruments (See Sections 2.10 & .11)
- Refueling Communications
- Refueling Machine and Auxiliary Hoist
- Residual Heat Removal/Reactor Coolant System Operations
- Reactor Vessel Water Level Maintenance
- Spent Fuel Pool Water Level Maintenance
- Containment Purge and Exhaust Isolation (See Section 2.1)

2.2.1 OBSERVATIONS

Appendix 2.2 lists the specific documents reviewed. This review was added to the scope of the inspection based on the imminent issuance of the Operating License during the inspection.

Many of the TS requirements for the above items are implemented by the respective system Operating Procedures, the Fuel Load/Refueling procedure (reviewed by another concurrent NRC inspection), and SP 3672.1, Cold Shutdown/Refueling Control Room Surveillance Log.

Review of the system Operating Procedures identified no discrepancies in this regard.

SP 3672.1 Cold Shutdown/Refueling Control Room Surveillance Log, Draft A

SP 3672.1 appeared to acceptably implement the applicable TS requirements. The SP was in the form of three sets of log sheets (one per shift). The forms were hand printed but neat and readable. The licensee considered them to be complete except for typesetting and "blocking out" data blocks to graphically represent the frequencies of data taking.

Several minor inconsistencies were identified. The use of ">" and "<" signs frequently appeared to be backwards (e.g. "6700 gallons < BORIC ACID TK A LVL") and could cause confusion. The SP also cross referenced SP 3672.2 which could not be produced or identified by the licensee.

TS surveillances with a frequency of 12 hours, e.g. Channel Checks, are typically performed on every shift by many other licensees to ensure that the frequency requirements are not exceeded. Most such surveillances are implemented on every other shift by the above SP.

The above was identified to the Operations Supervisor and his staff for evaluation and correction. Licensee action on the above will be reviewed further as Inspector Follow Item 50-243/85-71-07.

SP 3603C.1 Refueling Machine Operability Test, Revision 0 SP 3603C.2 Auxiliary Hoist Operability Test, Draft A

As reviewed, both procedures included extensive handwritten revision and, at a minimum, required retyping to be usable. Both procedures did, however, quantitatively verify the respective TS requirements. The Refueling Machine and Auxiliary

Hoist Operability Test Procedure acceptability will be reviewed further under Inspector Follow Item 50-243/85-71-08.

Fuel Building Filter System Procedures

The Fuel Building Filter System is required to be operable only with irradiated fuel present. Accordingly the licensee did not intend to complete development of the applicable surveillance procedures until they were needed for the first refueling. Review of the draft procedures available (SP 3614C.1 and C.2) found them in very rough draft form and unacceptable for use. Licensee action to complete preparation of these procedures and their acceptability will be reviewed during a future inspection as Inspector Follow Item 50-243/85-71-09.

2.2.2 Conclusions

No significant deficiencies were identified. Other Surveillance Requirements applicable to Mode 6 (Refueling) operations are addressed throughout this report in conjunction with the respective systems.

2.3 - QUENCH SPRAY SYSTEM

The Quench Spray System (QSS) review included all major piping, valves, instrumentation, system lineups and safety related actuation signals. In addition the flowpaths and equipment involving the Refueling Water Storage Tank (RWST) and the Chemical Addition Tank (CAT) were reviewed.

2.3.1 OBSERVATIONS

Appendix 2.3 lists the specific documents reviewed. The following specific comments and observations resulted from this review:

TS Table 3.3-6, Item 5, QSS ESF Time Response

A comparison of the FSAR and final draft TS found that, following a Loss of Offsite Power (LOOP) event, approximately 10 seconds are required for the Emergency Diesel Generator(s) (EDG) to power the emergency busses, after which loads are sequenced on at predetermined intervals. The QSS Pumps' sequence delay is 5 seconds. The total sequence delay, with LOOP, is therefore about 15 seconds.

The final draft TS, Table 3.3-5, Item 5, specifies a maximum

allowable time delay of only 10 seconds for QSS actuation with LOOP. Although the actual EDG start time may be less than the 10 seconds designed and allowable, the overall QSS - LOOP time response may be unachievable under test and accident conditions. No data was available to determine the above.

This discrepancy was identified to the licensee and will be further examined as an Unresolved Item (50-243/85-71-10).

It should also be noted that the licensee does not intend to test ESF time response requirements per TS Table 3.3-5 by actual integrated equipment/system actuation and initiation. SPs 3443E01 - E04 (See Section 2.11) provide for testing and collecting time data for each element of an equipment/system time response, e.g. sensor, processing electronics, controller and circuit breakers, and ESF component operating times are taken individually and "summed" by the procedure to determine a equipment/system response time per the TS Table. This testing method was reviewed in light of discussions with NRC:RI management and was evaluated as compatible with requirements and licensee commitment.

SPs 3609.3 and 4 Containment Quench Spray Trains A & B Valve Lineup Verification, Revision 0

Review of these SPs found inconsistencies in the administration of locked valves. For example, in SP 3609.4 the position of locked open B Pump suction valve QSS*V6 is checked during the valve lineup verification while locked suction valve QSS*V5 and discharge valve QSS*V946 are not.

The P&ID, EM 115A-3, shows that the A pump suction valves QSS*V2 and V10 should be locked open while SP 3609.3 does not include them on the valve lineup sheet.

In addition, P&ID EM-115A-3 shows QSS*V6 locked open while the above procedure's valve lineup sheet for valve lineup verification does not indicate that this is a locked valve.

The P&ID also shows that the A pump suction valves (V2 and V10) should be locked open while SP 3609.3 does not include them on the valve lineup sheet.

TS 4.6.2.1 (and other similar system alignment verification TSs) require a periodic lineup verification of all non-automatic valves that are not locked or otherwise secured in position. In some cases the licensee procedures also verify locked valve positions as discussed above. The licensee's understanding and implementation of these TS requirements is questionable as reflected by the inconsistencies in approach and the lack of administrative guidance available. It appears that the licensee

has not finalized the approach for administration of valve lineup verifications of locked valves.

The licensee stated during the exit meeting that the SPs would be reviewed for inconsistencies and revised appropriately. The acceptability of the licensee's actions in this regard is Unresolved (50-243/85-71-11).

ISI-3.0 Inservice Test Program

See Section 2.0.2, Item 50-423/85-37-01 for additional discussion of ISI-3.0.

QSS valve stroke times for 3QSS*MOV-34A & B were found to disagree with the FSAR requirements; IST-3.0 specifies a stroke time of 60 seconds vice 30 seconds in the FSAR.

Licensee personnel advised that the IST Program maximum allowable stroke times required revision in that they did not reflect several recent revisions of the FSAR and TS. These changes were being processed for submittal of a revised IST program to NRC:NRR. Completion of that effort is being tracked as Inspector Follow Item 50-423/85-37-01 (Section 2.0.2).

(See similar findings, Section 2.4, RSS System)

2.3.2 RESULTS AND CONCLUSIONS

Except as noted above, the procedures and programs were in place to implement surveillance requirements for the QSS.

The licensee was informed of the above inconsistencies regarding locked valves and advised that additional procedure reviews and revisions would be performed to rectify the differences among the procedures.

2.4 - CONTAINMENT RECIRCULATION SYSTEM

The Containment Recirculation System (RSS) review included all major piping, valves, instrumentation, system lineups and safety related actuation signals. In addition the flowpaths and equipment for the containment sumps and Low Pressure Safety Injection System were reviewed to the extent that they affect RSS.

2.4.1 OBSERVATIONS

Appendix 2.4 lists the specific documents reviewed. The

following specific comments and observations resulted from this review:

TS Table 3.3-5, RSS ESF Time Response

Comparison of the TS, FSAR and SP for time response requirements for the RSS Containment Depressurization Actuation (CDA) signal found that the final draft TS included a recent change in the maximum allowable time response from 220 \pm 20 seconds to 660 \pm 20 seconds. The FSAR and SP 3606.7, RSS Response Time Test, included the former criteria.

Subsequent discussion with the licensee found that the difference had been identified and that FSAR and procedure changes were being processed. Updated draft SP and FSAR sections were provided. The I&C Department had also been provided a request to reset the ESF Sequence Timer accordingly.

Completion of licensee incorporation of this TS change into implementing procedures will be reviewed as IFI 50-243/85-71-12.

SP 3606.7, RSS Response Time Test, Draft B

Review for consistency with the TS and usability for test performance identified discrepancies with respect to the RSS Operating Procedure 3606 referenced by and used to perform the SP.

Section 4.0 of OP 3606 includes TS LCO Action Statements for RSS System inoperability that are inconsistent with the final draft TS 3/4.6.2.2.

SP 3606.7 requires the RSS main piping to be filled and vented in accordance with OP 3606 prior to system testing. The OP does not contain instructions to perform these actions.

The SP also requires operation of portions of the Residual Heat Removal System (RHRS) for the test. SP Section 7.0 requires the realignment of the RHRS per OP 3310. OP 3310 does not exist but OPs 3310A and B each include realignment instructions.

No provisions were provided in the SP for independent verification of system restoration per the licensee's commitments and procedures for NUREG 0737, Item I.C.6 (See Section 2.0.2).

The licensee advised that the procedures will be reviewed for revision; acceptable completion of these items will be reviewed (IFI 50-243/85-71-13).

ISI-3.0 IST Program

The IST Program includes a tabulation of the maximum acceptable valve stroke times to be verified by testing. The maximum stroke time listed for RSS discharge valves 3RSS*MOV-20A, B, C, and D is sixty (60) seconds. This would normally be an acceptable stroke time for valves of this type and application.

However, the overall system response time requirement provided by the FSAR and TS is thirty (30) seconds.

The licensee stated that the values listed in the IST Program table were generated from an earlier draft of the TS and that the next revision of the IST Program would reflect the current TS values. (See similar findings, Section 2.3 of this report.)

Inclusion of RSS valve stroke time corrections in the IST Program, FSAR, and TS, as appropriate, will be reviewed as part of IFI 50-243/85-37-01 (Detail 2.0.3 of this report).

SP 3606.1 Containment Recirculation Pump 1A Operational Readiness Test, Revision 0

The SP's provisions for system restoration (Ops Form 3606.1-3) appeared to leave the system with the pump suction and discharge valves closed. This alignment is inconsistent with the system lineup in the other RSS procedures and P&ID EM 112C-3. This comment also applies to SP 3606.2 for the other train.

Additionally, the procedure includes Ops Form 3606.1-4, System Restoration, that is not referenced in the body of the procedure. No instructions direct the performer to complete the form and it is unclear that the form is to be used in the performance of the SP.

Resolution of this item is identified as IFI 50-243/85-71-14.

SP 3606.8, RSS Train A Valve Operability, Draft A

Ops Form 3606.8-1 is appended to the above SP for system restoration and independent verification following the performance of the valve testing. The Ops Form requires the performer to leave valve 3RSS*M38A, Train A recirculation line isolation valve, in a closed position while P&ID EM 112C-3 disagrees, indicating that the valve is in a normally open position.

The licensee advised that this alignment disagreement would be reviewed and appropriately corrected. The acceptability of the

corrected alignment will be reviewed with respect to proper valve positioning for system automatic actuation (IFI 50-243/85-71-15).

2.4.2 RESULTS AND CONCLUSIONS

Except as noted above, the procedures and programs were in place and acceptable.

As discussed in Section 2.1 of this report, the SPs rely upon the OPs for performance. Again, functional disconnects were identified between the SPs and OPs. The adequacy of the OPs referenced in SPs for the RSS system will be reviewed further (IFI identified above).

2.5 - AUXILIARY FEEDWATER SYSTEM

The Auxiliary Feedwater System (AFW) review included all major piping, valves, instrumentation, system lineups and safety related actuation signals. In addition the flowpaths and equipment for the AFW steam supply and Demineralized Water Storage Tank were reviewed to the extent that they affect AFW System.

2.5.1 OBSERVATIONS

Appendix 2.5 lists the specific documents reviewed. The following specific comments and observations resulted from this review:

Turbine Driven Auxiliary Feedwater Pump (TDAFWP)

Review of the Terry Turbine Technical Manual and the AFW SPs and OP found potential problems relating to the operation of the turbine governor manual speed adjustment knob.

The technical manual and precautions in SP 3622.5 caution the operator to exercise the manual speed adjusting knob following turbine operation to bleed off entrapped oil from the main speed piston to ensure proper operation of the turbine during the 30 minutes immediately following a normal system shutdown. Failure to accomplish the above can result in a system failure (spurious pump overspeed trip) upon a valid start signal.

The procedures reviewed (SPs 3622.5, 3622.6, OP 3322, and others) did not adequately delineate the steps necessary to ensure that the above is correctly performed nor did the procedures contain independent verification that the governor was reset to its standby position.

A failure to properly adjust the manual speed knob at the Turkey Point NPP resulted in a pump start failure upon a valid start signal and degraded the response to an actual event.

As a result of this finding, the licensee had requested but had not yet received clarifying information from the equipment vendor to permit appropriate procedure revisions. Temporary procedure changes were issued to address the above pending receipt of the vendor input.

Implementation of vendor recommendations in a permanent procedure change will be reviewed (IFI-50-423/85-71-16).

SP 3622.6, Auxiliary Feedwater Flowpath Verification, Draft B
OP 3322, Auxiliary Feedwater System Operating Procedures,
Revision 0

Precautions 6.1 and Procedure step 7.1 of SP 3622.6 refer the performer to OP 3322 for general operating precautions and pump start instructions. OP 3322, step 4.2, refers to TS Figure 3.7 for the minimum allowable water volume. Figure 3.7 is not provided in the TS; minimum volume requirements are provided in the TS text. Several other SPs (SPs 3622.5, 3622.1, 3622.2, 3622.3) made similar references to the OP.

The precautions of SP 3622.6 further require operation of the TDAFW Pump at the minimum governor speed for 2 minutes to warm the turbine and lubricate the bearings. OP 3322 and several other SPs state that the pump should not be operated below 1500 rpm to "ensure proper lubrication". Licensee review and elimination of the contradictory instructions appear warranted.

OP 3322 and several SPs (3622.1, 3622.2, and 3622.6) require manual lubrication of AFW pump bearings (all pumps) if the pumps have not been operated within the previous 30 days. The procedures, however, do not provide instructions for the lubrication methods.

The licensee indicated that the above lubrication schedule was per vendor recommendations but that additional clarification of specific lubrication methods and requirements and information on the consequences of improper lubrication was needed from the vendor. The licensee had not pursued acquisition of the additional information from the vendor.

Correction of these AFW Pump lubrication procedure discrepancies is unresolved (50-423/85-71-17).

SP 3622.4 AFW System Lineup Verification, Revision 0

OPS Forms 3622.4-1, 2, 3, and 4 of the above SP include incorrect TS References. The forms refer the performer to TS 4.7.1.2.a.3 when reference should be made to TS 4.2.1.2.a.3.

Section 3 of the SP also contains incorrect TS Surveillance Requirements 4.2.1.2.a.3 as described above. These discrepancies appear to be transcription errors; the licensee has identified them for correction in future procedure revisions.

As described in Section 2.3, the licensee's approach to the administration of locked valves has resulted in valve position verification lineup sheet discrepancies. AFW vent valves 3FWA*V944, V945, V948, and V949 are shown locked closed on P&ID EM 120B-2 but are included on Ops Form 3622.4-1 for position checks and are stated as being locked. TS do not require a check of locked valves but, in some instances as described above, locked valve positions are checked by the SPs.

In addition, Ops Forms 3622.4-1 & -3 and the P&ID do not show AFW Pump Suction Valves 3FWA*V2, V10 or V30 as being locked open while a previous inspection confirmed that these valves are locked in the open position.

Correction of these procedure discrepancies is unresolved (50-243/858-71-18).

ISI-3.0 Inservice Test Program

AFW header isolation valves AFW-AOV35A - D and AFW-SOV36A - D were not required to be stroke tested by the ISI-3.0 program, even though the valves receive an ESF Actuation Signal. IST personnel stated that the valves were considered "passive" per the program (normally in the position required during a system actuation), thus, they would not be stroke time tested and were not included in the ISI-3.0 stroke time test tabulations.

Although the IST Program and the ASME Boiler and Pressure Vessel Code, Section XI do not require the testing of "passive" valves, this approach could result in no testing for a number of valves which receive "confirmatory" ESF actuation signals. Similar examples are discussed in Section 13 of this report.

The IST Program was submitted on October 25, 1985 to NRC:NRR for review and approval. Additional licensee program revisions (silent on the above matter) were in process.

NRC:RI intends to identify the above concerns to NRC:NRR for specific review. The acceptability of the licensee's existing

position in this regard will remain unresolved pending NRC:NRR disposition or licensee action (50-423/85-71-19).

2.5.2 RESULTS AND CONCLUSIONS

Except as noted above, the procedures and programs were in place and acceptable. With regard to the administrative control of locked valves, the licensee advised that future routine procedure and P&ID reviews and revisions are expected to reduce the number of inconsistencies.

2.6 - AC POWER SOURCES

The AC Power Sources review included:

- A & B Emergency Diesel Generators & Auxiliaries
- Offsite Transmission Network
- Onsite Class 1E Distribution System

2.6.1 OBSERVATIONS

Appendix 2.6 lists the specific documents reviewed. The following specific comments and observations resulted from this review:

SP 3646A.1 A EDG Operability Test, Revision 1

The test was reviewed in the approved format and required very minor editorial cleanup. The TS Surveillance requirements for this test were applicable in all Modes.

TS 4.8.1.1.2.a.6) requires the EDG to be "fast start" tested in accordance with Table 4.8-1 (test frequency vs. failures/100 tests). A TS Note referenced to TS 4.8.1.1 permits the engine to be prewarmed for these tests except that one test in each 184 day period must be accomplished without prewarming. The TS note is difficult to understand without some background knowledge. The SP (including A.2 below) included only restatement of the TS note without additional instructions, amplification, or provisions for documenting the "cold" vs "prewarmed" starts. The licensee issued a procedure revision during the inspection to include Ops Form 3646A.1-2 to document cold start performance, but the new Ops Form 3646A.1-2 was not referenced in the main body of the SP.

OP3 Forms 3646A.1-1 and -2 (Step 7.1.2) did not include the 10 second time criteria for voltage and frequency to be within specifications as per TS 4.8.1.1.2.a.5). The acceptance

criteria and main body of the SP included this provision as did an earlier step (7.1.1) on Ops Form -1. These forms also did not provide for recording the as found time as previously done for TS 4.8.1.1.a.6 (in steps 7.2.2. and 7.6).

TS 4.8.1.2 provides the Surveillance Requirements applicable for Modes 5 & 6 by cross referencing to TS 4.8.1.1. The Master Surveillance Test Control List (MSTCL) indicates that the only SP applicable for TS 4.8.1.2 is SP 3672.1, Cold Shutdown/Refueling Surveillance Logs, which does not fulfill the TS. Additionally, SP 3646A.1 (and A.2) which fulfill the TS are not listed and do not themselves include Mode 5 & 6 applicability.

The MSTCL instructs the user to perform TS 4.8.1.1.2 (except 4.8.1.1.2.a.5)) for TS 4.8.1.2. TS 4.8.1.2. states the exception is TS 4.8.1.1.2.a.6).

The procedure did not include provisions for independent verification upon return to service (e.g. steps 7.6 and 7.8). In addition the Restoration Section stated "NONE", even though a reference was made in mid-procedure to restore the unit to standby alignment per the OP. Three action steps followed that reference.

The procedure did not include provisions for verifying the diesel generator to be in standby alignment every 31 days or after operation per TS 4.8.1.1.2.a.7), even though the Acceptance Criteria of SP Section 2.8 listed this requirement. The licensee has revised the SP to correct this. Additionally, neither the SP nor OP provided for verification of standby alignment following operation for any reason other than SP performance.

TS 4.8.1.1.2.b requires checking for and removing accumulated water from the day tank at least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to one hour. The 31 day requirement was satisfied by SP 3646A.1 and .2, but the one hour requirement was not addressed by the SP or the OP by which the units would be operated for other than surveillance testing. The system OP was acceptably revised during the inspection to include this specific provision..

The SP includes a note to start the EDG from the load sequencer to satisfy the Surveillance Requirements of TS Table 3.3-5. The correct TS Table reference is Table 4.3-2. The quarterly surveillance requirement did not include the provisions of Notes 1 and 2 of Table 4.3-2 and provided no instructions on how to accomplish and document this surveillance. TS Table 4.3-2 Note 1 provides information on how to accomplish sequencer testing. Note 2 states that each channel should be tested every 62 days

and may be tested in conjunction with EDG start testing. The procedure did not appear to implement Note 2.

The procedure did not reference partial satisfaction of TS 4.8.1.1.2.b in Section 3.0 of the SP, even though it appeared to be accomplished by the SP.

SP 3646A.2 B EDG Operability Test, Revision 1

The test was reviewed in approved form and required very minor editorial revision. The TS Surveillance Requirements are applicable in all modes.

All comments re SP 3646A.1 above also apply to this SP.

Ops Forms 3646A.2-1 and -2 referenced incorrect SP steps for fuel oil storage and day tank level verification. The day tank level verification (Step 7.4) also included a typographical error, providing instructions to check for and drain water from the tank; this is redundant to step 7.7 for the same actions.

Correction of the outstanding discrepancies noted in SP 3646A.1 and SP 3646A.2 is Inspector Follow Item 50-243/85-71-20.

SP 3646A.3 Diesel Generator Interdependence Test, Revision 0

The test was reviewed in approved form and required very minor editorial revision. The TS Surveillance Requirements for the SP are applicable in all modes.

The procedure title, objective section and MSTCL all incorrectly identify the test as an "independence" test vice "interdependence".

The SP referenced SPs 3646A.1 and .2 for starting and stopping the EDGs. Both of these latter SPs refer the performer to OP3646A (a circular reference). This was corrected during the inspection.

The precautions section and restoration section of the SP both listed "None". This appeared to be inappropriate and inconsistent with the other EDG SPs in format and content, e.g. with regard to verification of standby alignment, day tank water checks, etc. This SP did not include the same level of information and instructions as sister procedures in the same series for the EDGs.

The Procedure did not include provisions for independent verification of equipment restoration following testing. Restoration was accomplished in accordance with the system OP

which also did not include verification of the shutdown and standby realignment.

The above discrepancies were presented to the licensee for review. Acceptability of the licensee's correction of these items is unresolved (50-243/85-71-21).

SP 3646A.6 Loss of Offsite Power Test, Revision 0

The SP was reviewed in draft form and was concurrently being reviewed by the PORC procedures subcommittee. The TS Surveillance Requirement applicability for this SP was ambiguously documented in the procedure.

The SP did not contain a surveillance cover sheet as required by administrative procedures.

No TSs were referenced as applicable by the SP. The Master Surveillance Test Control List (MSTCL) stated that the SP satisfied TS 4.3.2.1.9.d as the "P-14 Interlock Slave Relay Test". The objectives section of the SP did not reflect this applicability and body of the procedure does not reference nor appear to involve the P-14 test. The TS reference in the MSTCL does appear to correctly match and implement the actual subject of the SP. The licensee was unable to reconcile the above during the inspection.

The SP also referenced several operational evolutions without providing the applicable OP identification, e.g. step 4.5 for EDG standby alignment, step 4.8 for radwaste processing, step 7.3.7 for the EDG checklist.

The restoration section of the SP is similarly vague. The test affects or perturbs numerous plant systems but only provides a very general statement directing restoration of the systems affected. No references to specific system listings or system OPs are provided, creating a potential for oversight.

These findings were presented to the licensee for review and correction. The acceptability of licensee action to correct these discrepancies is unresolved (50-243/85-71-22).

SP 3646B.5 DG Fuel Oil Storage Tank Dewatering and Sample, Revision 0

SP 3646B.7 New Fuel Oil Delivery Sampling, Revision 0

These tests were reviewed in approved form and appeared to require no major retyping.

The precaution sections provided no specific guidance, stating

only "as applicable". No restoration steps were provided.

Review of licensee action in this regard will be IFI 50-423/87-71-23.

SP 3712K Diesel Generator Inspection Test, Revision 0

The procedure was reviewed in draft form and had been recently approved by the PORC procedures subcommittee. Although the TS Surveillance requirements are applicable in all modes, the Maintenance Forms reflected applicability in only Modes 1-4. Correction of this discrepancy will be reviewed as IFI 50-423/87-71-24.

TS 4.8.1 requires implementation of the vendor's preventive maintenance recommendations for the engines. A recent (11/12/85) change to the vendor's recommendations for pressure testing the engine cooling system was not addressed by the SP; an acceptable procedure revision was issued during the inspection.

Vendor's recommendations for checking all safety and shutdown controls was similarly not addressed by the SP but was included in the licensee's Preventive Maintenance Management System (PMMS). The licensee reissued the PMMS procedure as an SP for consistency.

2.6.2 RESULTS AND CONCLUSIONS

As noted above, deficiencies were noted in the licensee's program for translating TS Surveillance Requirements into implementing procedures. The most significant of these involved the omission of discrete TS requirements from the applicable procedures and incorrectly administering the applicability of the TS requirements vs. procedures.

Except as noted, the licensee provided a resolution or demonstrated that the discrepancy had been previously identified and was in the process of resolution.

These inspection results, however, appear to identify weaknesses in the licensee's procedure review and approval process as further discussed in Section 3.0 of this report.

2.7 - DC POWER SOURCES

The DC Power Sources review included the four vital 125 VDC Battery Banks and their associated full capacity chargers and distribution systems.

2.7.1 OBSERVATIONS

Appendix 2.7 lists the specific documents reviewed. The following specific comments and observations resulted from this review:

SP 3712NA Battery Surveillance Testing, Revision 0

The test was reviewed in approved form and appeared to require no major editorial revision. The TS Surveillance Requirements for this procedure are applicable in all modes.

The acceptance criteria stated in step 2.1.3 of the SP included a minor disagreement with TS: the SP omitted "or equal to" from the criteria "greater than or equal to". The same comment applied to Maintenance Forms 3712NA-1 and -2.

All the SP cover sheets stated that the SP was applicable in Modes 1 - 4 per TS 4.8.2.1. TS 4.8.2.2 is applicable in Modes 5 - 6 and applies TS 4.8.2.1 to one battery/charger train. This requirement was not reflected by either the MSTCL nor the SP.

Correction of these discrepancies will be followed as IFI 50-423/87-71-25.

SP 3712NB Battery Surveillance Discharge Testing, Revision 0

The test was reviewed in approved form. The TS surveillance requirements for the SP are applicable in all modes.

The acceptance criteria of SP step 2.1 did not agree with Maintenance form 3712NB-2 in that it did not include the 8 hour TS discharge test time requirement. Similarly, neither document included the 125 VDC minimum voltage acceptance criteria of TS 4.8.1.c.4.

Maintenance Forms 3712NB-1 and -2 did not include Mode 5 - 6 applicability as per TS 4.8.2.2 (see similar item above).

Acceptable procedure revisions were issued to correct the above during the inspection.

2.7.2 RESULTS AND CONCLUSIONS

The inconsistencies noted above are further examples of difficulties in accurately translating TS into implementing procedures. Except as noted, the SPs were found to properly

implement the TS requirements.

2.8 ONSITE POWER DISTRIBUTION

The Onsite Power Distribution System review included:

- 4160 VAC Emergency Busses 34C and D
- 480 VAC Emergency Busses 32R, S, T, U, V, W, X, and Y
- 120 VAC Vital Busses VIAC-1, -2, -3, and -4
- 125 VDC Busses 301A-1 and -2, 301B-1 and -2

2.8.1 OBSERVATIONS

Appendix 2.8 lists the specific documents reviewed. The following comments and observations resulted from this review:

SP 3672.1 Cold Shutdown/Refueling Control Room Surveillance, Draft B

The SP was reviewed in draft form. See additional reviews of this SP documented in Sections 2.2 of this report.

The SP provides for verification of circuit alignments per TS 4.8.1.1.1.a, 4.8.1.2., 4.8.2.1., 4.8.2.2., 4.8.3.1., and 4.8.3.2 by verifying correct breaker alignment and bus energization (with no low voltage alarms present). No actual voltage readings are taken for trend review.

Although the logs acceptably satisfy the minimum requirements of the TS, licensee consideration of voltage reading documentation is recommended for purposes of identifying adverse trends prior to reaching alarm or undervoltage and degraded grid voltage trip setpoints.

2.8.2 RESULTS AND CONCLUSIONS

No significant discrepancies were identified.

2.9 - EMERGENCY CORE COOLING SYSTEMS

The Emergency Core Cooling Systems review included:

- ECCS Accumulators
- ECCS Subsystems - T-avg < 350F
- ECCS Subsystems - T-avg > 350F
- High Head Safety Injection System
- Coolant Charging Pumps

Low Head Safety Injection System and Accumulators
Refueling Water Storage Tank
Applicable Inservice Testing Requirements

2.9.1 OBSERVATIONS

Appendix 2.9 lists the specific documents reviewed. The following specific comments and observations resulted from this review:

SP 3610B.2 Low Pressure Safety Injection Valve Operability Test, Draft A

The test was reviewed in draft form and required major retyping and editorial cleanup. The procedure was being concurrently reviewed by the PORC subcommittee for pump and valve testing. The TS for this procedure are applicable in all Modes.

Although the data sheets (OPS Forms) were technically correct, their form identification numbers did not match those in the procedure.

The procedure did not include provisions for independent position verification upon return to service (Example: Sections 7.6.2 and .3).

In Section 7.7 the procedure provided optional test sequences for the four accumulator check valves requiring precautionary isolation steps (e.g. 7.7.3) but did not clearly carry these through for circumstances where fewer than all four valves were to be tested sequentially.

ISI-3.0 includes provisions for those valves having no "safety analysis" requirements for stroke time, e.g. Accumulator Tank Outlet Valves. In these cases, the valves will be tested to meet limits based on design values and preservice data. SP 3610.B2, as reviewed had improperly transferred the applicable acceptance criteria notation for the accumulator outlet valves from ISI-3.0 to the SP data tables, omitting a "whichever is greater" statement critical to proper application of the acceptance criteria.

The SP lists valve 3SIH*CV8968 as having a maximum acceptable stroke time of 13 seconds. ISI-3.0, Section 5.4, does not list CV8968 but lists the acceptance criteria for 3SIH*3968 (an apparent typographical error) as per the above to be 5 seconds or 2 times the preservice stroke time, whichever is greater.

Correction of these discrepancies will is an Unresolved Item (50-243/85-71-26).

SP 3604A.2 B Charging Pump Operational Readiness Test, Revision 0

The procedure had been reviewed by the PORC subcommittee and was ready for major retyping. The TS Surveillance Requirements addressed by this procedure are applicable in all modes.

The procedure did not include provisions for independent verification of equipment restoration following testing; restoration was accomplished in accordance with the system operating procedure (OPP3304A) to suit actual system and plant operating conditions and modes.

The draft procedure reviewed included markups indicating that mode dependency information was to be deleted, apparently without replacement, from the data sheet (OPS Form) cover sheets.

No provisions for baseline date nor acceptance criteria were included for check valve "open" testing.

The presentation of acceptance criteria for charging pump differential pressure per the IST Program requirements and TS 4.5.2 were incorrect. The data sheets required recording of "discharge pressure" vice differential pressure and did not include a minor change from 2410 psid to 2411 psid in the TS acceptance criteria (change made November 8, 1985).

These procedure discrepancies were acceptably corrected during the inspection.

SP 3610A.2 B RHR Pump Operational Readiness Test, Revision 0

The procedure had been reviewed by PORC with comments, had been revised by the PORC subcommittee, and was slated for major retyping.

In that status, the procedure did not include independent verification of return to service. Additionally, no quantitative acceptance criteria were provided for check valve flow testing nor ESF time response test pump discharge pressure. Ops Forms data sheet number did not match the procedure.

These procedure discrepancies were acceptably corrected during the inspection.

SP 3608.6 SI Valve Operability Test, Revision 0

This procedure, although previously approved by PORC, had been scheduled by the licensee for rewriting. The reviewed version of the procedure did not include acceptance criteria in the Ops Form data tables ("later" provided).

Licensee completion of the procedure review and rewriting is Inspector Follow Item 50-243/85-71-27.

SP 3608.1 A SI Pump Operational Test, Revision 0

This procedure (and SP 3608.2 for the B pump) were reissued in acceptable form during the inspection as previously planned by the licensee. The previously issued Revision 0 versions included extensive handwritten revisions.

2.9.2 CONCLUSIONS

No substantive deficiencies were identified in the other procedures and documents listed in Appendix 2.9.

In general, most procedures required retyping to incorporate handwritten changes on copy, included editorial errors such as incorrect cross references to TS, data sheets, etc., and were generally inconsistent in their presentation of initial conditions, precautions, references, and prerequisites.

Similarly, most procedures did not include implementation of the licensee's policies for independent verification of return to service (See Section 2.0.2)

The specific procedure deficiencies above were corrected during the inspection. In general, the procedures available at the beginning of the inspection were not suitable for use due to both the general and specific comments above. See Section 2.0.4 of this report for additional discussion. The general comments were being addressed by the PORC subcommittee activities; this activity appeared effective in preparing the procedures for use.

2.10 - CHEMICAL AND VOLUME CONTROL (CVCS) SYSTEM

Portions of the CVCS System providing core reactivity shim control and emergency reactivity control were reviewed, including:

- Boric Acid Storage Tanks & Normal Flowpaths
- Emergency Boration Flowpaths
- Coolant Charging Pumps

Refueling Water Storage Tank (RWST) and Flowpaths

2.10.1 OBSERVATIONS

Appendix 2.10 lists the specific documents reviewed. This review was combined with the review of the ECCS systems for shared components and flow paths such as the Charging Pumps, RWST, etc.

Again, many of the TS requirements involving the above inspection items are implemented by the respective system Operating Procedures, and SP 3672.1, Cold Shutdown/Refueling Control Room Surveillance Log. See Section 2.2 of this report for a discussion of the Logs.

Review of the system Operating Procedures identified no discrepancies in this regard.

The SPs listed in Appendix 2.10 all shared the following general comments:

Each included handwritten revisions on copy, including those previously reviewed by PORC, and required retyping to be fully usable.

Again, the front matter of the procedures was variable in content and quantity, e.g. SP 3604C.2, Borated Water Source Flowpath Verification - Monthly, Draft A, included no prerequisites and listed only SRO authorization as an initial condition; SP 3604C.1, Borated Water Source and Flowpath Verification - Weekly, Draft A, similarly listed no prerequisites and essentially identical initial conditions.

Restoration instructions were only necessary for several of the procedures reviewed but were generally minimal where they existed. See Section 2.9 of this report for additional discussion.

Each procedure appeared technically adequate to implement the respective TS requirements, notwithstanding the editorial comments above. The specific comments were provided to the cognizant licensee personnel.

2.10.2 RESULTS AND CONCLUSIONS

No significant deficiencies were identified.

2.11 - REACTOR PROTECTION SYSTEM

The Reactor Protection System review included:

- Source Range NI Channels SRN 31 & 32
- Intermediate Range NI Channels IRN 35 & 36
- Power Range NI Channels PRN 41, 42, 43, 44
- Pressurizer Pressure Narrow Range Instruments
- Delta-T/T-Avg Instruments
- RCS Flow Instruments
- Steam Generator Water Level Analog Channels
- Reactor Trip System Interlocks
- Reactor Trip Breakers
- Automatic Trip and Interlock Logic
- Reactor Trip System Instrumentation Response Time

2.11.1 OBSERVATIONS

Appendix 2.11 lists the specific documents reviewed. The following specific comments and observations resulted from this review:

SP 3440A.1 Plant Startup Surveillance Procedure, Revision 0

The procedure was reviewed in draft form and required major retyping and editorial revision. It was being concurrently reviewed by the PORC subcommittee. This SP was also scheduled for additional revision to delete the test of reactor trip breakers (to be included in another SP).

The TS applicability references in SP Section 3.0 and the SP cover sheets referenced only TS Table 4.3-1. The TS actually addressed by the procedure were TS 4.3.1.1.2.8, 4.3.1.1.5, 4.3.1.1.6, 4.3.1.1.15.a, and 4.3.1.1.15.b.

The procedure included documentation on I&C Forms of annunciator and status light actuation for various trip state conditions but did not document the reset of these conditions, e.g. Steps 7.8 and 7.28. In addition, step 7.8 which performed the restoration of Source Range Channel SRN 31, was immediately followed step 7.9 which started testing Channel SRN 32, but did not provide any return to service verifications, e.g. return to normal of trip bypass conditions, etc. for the previously tested channel.

The order in which annunciator and status light actuations and resets are verified in the body of the procedure is different than the order provided by the I&C Forms, e.g. steps 7.16.1 of the procedure consists of eleven separate

verifications grouped into a single, nonspecific verification on the form.

The annunciator title nomenclature varied between the SP body and the forms for the same device, e.g. step 7.16.2.

The step numbers on the forms do not flow in order with the SP steps.

The procedure did not have a separate restoration section providing an overall verification of return to service. The licensee advised that this had been inadvertently omitted during revision and would be reinstated.

The source range high flux trip setpoint tolerance was inconsistent with other tolerances used in other applications for the same channel. This setpoint was 8.30 VDC and the desired limit band was 8.20 to 8.50 VDC (i.e. -0.1, +0.2 VDC). Typical tolerances for this circuit are $\pm 1\%$ or 0.1 VDC. Earlier revisions of the SP provided a setpoint of 8.35 VDC, -0.15, + 0.05 VDC. The licensee could not provide an explanation for the above nor provide a rationale for the existing setpoint tolerance philosophy. The following SPs share these tolerance inconsistencies:

SP 3441C01	Source Range Channel Calibration
SP 3441C11	Source Range Analog Channel Op Test
SP 3441C12	Gamma Metric/Source Range Op Test
SP 3441C13	Source Range Analog Channel Op Test

Licensee disposition of these discrepancies is an unresolved item (50-423/87-71-28).

SP 3441C01 Source Range Channel Calibration SRN31 & 32,
Revision 0

The test was reviewed in approved form. The TS requirements for this procedure are applicable in Modes 2 - 6.

Data recorded on the I&C forms is not done in the order of the SP body steps, e.g., I&C Form 3441C01-1 step numbers do not agree for steps 7.10.1, .2, etc.

Step 7.15.4 of the level amplifier calibration adjusts the voltage to +10.00 VDC without a tolerance provided, even though the vendor technical manual permits a tolerance of + 0.005 VDC.

Licensee resolution of these discrepancies will be reviewed (IFI 50-423/87-71-29).

SP 3441C02 Source Range Detector Characteristic Curves,
Revision 0

The SP was reviewed in approved form and was applicable in Modes 2 - 6.

The discriminator voltage settings stated in steps 7.2.4 and 7.2.7 were positive numbers instead of negative as required by the technical manual. A change was issued to acceptably correct the signs during the inspection.

Adjustment of the discriminator voltage potentiometer in step 7.2.4 did not agree with the technical manual which adjusts the potentiometer to indicate ≤ 10 counts per second and verifies a voltage reading of < -0.2 volts. The SP adjusts the potentiometer until the voltage is -0.2 ± 0.04 volts.

Licensee resolution of these discrepancies will be reviewed (IFI 50-423/87-71-30).

SP 3441C12 Gamma Metric/Source Range Operational Test, Revision
0

The procedure was reviewed in approved form. The TS associated with this SP are applicable in Modes 2 - 6.

TS 4.9.2.c requires implementation of the same test during Mode 6 operations. The TS Requirements section of the SP and the I&C Form cover sheets did not reference TS 4.9.2.c and the MSTCL incorrectly identified SP 3441B21, Protection Cabinet 2 Operational Test as satisfying this TS. The MSTCL was revised to show this SP as applicable to the TS but the revised procedure sections were not available for inspector review at the close of the inspection.

Additionally, I&C Form 3441C12-1, page 10, was incomplete, including two "laters" in the desired limit column for two calibration steps (7.22.2 and .6).

Licensee resolution of these discrepancies will be reviewed (IFI 50-423/87-71-31).

SP 3441C11 and 3441C13 SRN31 and SRN32 Analog Channel
Operational Tests, Revision 0

The test were reviewed in approved form, required retyping and editorial cleanup, and were applicable in Modes 2-5. The procedures were not in the standard two column format of the other procedures reviewed. The procedure acceptably implemented the TS requirements; the format discrepancy involved editorial

form only.

SP 3443B21 Protection Set Cabinet 2 Operational Test, Revision
0

The SP was reviewed in draft form, required major retyping, and had recently been approved by the PORC subcommittee. The TS Surveillance Requirements fulfilled by this procedure are applicable in all modes.

The cover sheet for I&C Form 3443B21 stated the applicability as Modes 1 and 2 although the correct applicability appeared to be Modes 1 - 6. Additionally, the TS reference section did not specifically identify which TS Surveillance Requirements were actually fulfilled by the SP.

The procedure did not provide space for initials for any step in the body of the instruction nor on the I&C Forms regardless of the significance of the step. This was inconsistent with other similar procedures.

As indicated previously, the I&C Department had adopted a two column format for their procedures, the left hand column being the procedure action steps and the right hand column being the expected system response or result. This SP included several cases where the typing convention resulted in these columns being only one word wide, making them extremely difficult to follow, e.g. pp 38, 60, 81, 105, 112.

Similarly, the desired range tolerance columns on the data sheets were overtyped into adjacent columns, hampering clear data recording.

Desire range tolerance values were not provided for the Low Pressurizer Pressure PORV Logic Bistable (PB456H).

The procedure included at least three incorrect setpoints:

- The High Pressure Reactor Trip setpoint of 17.40 ma corresponded to a sensed pressure of 2370 psia. The TS value for this trip is 2385 psia. This error was in the conservative direction with respect to TS.
- The SI Actuation Bistable setpoint of 7.55 ma corresponded to 1876.8 psia (1861.8 psig). The TS value for this setpoint is ≤ 1877.3 psig, resulting in a nonconservative error.
- The SI Manual Block Enable setpoint was 9.70 ma (1985 psia, 1970 psig) in contrast to the TS value of 1985 psig, resulting in a conservative error.

As discussed in Section 2.0.2, the licensee had begun a verification program for identifying and correcting such setpoint discrepancies and had previously identified the first two items above. Procedure revisions were in progress to correct these discrepancies.

Initial review at the beginning of this inspection had identified several discrepancies between the MSTCL and the SP with respect to surveillance frequency and applicability of the various SP subsections. These discrepancies had been similarly identified by the licensee's review and were corrected.

TS Table 4.3-1, Items 9, 10, and 13 are annotated by Notes 17 and 18 involving surveillance frequency. The Notes appear to be contradictory and confusing and warrant licensee review for revision in future TS Change Requests.

Note 17 requires staggered testing of the four RPS channels resulting in one channel being tested on a staggered test basis at least once every 23 days (all channels tested over a 92 day period). Note 18 applies a cross reference to the ESF Actuation System TS, 3/4.3.2 which requires testing of all four channels once per 31 days without test staggering. The licensee is implementing the testing on the more conservative basis of Note 18.

Licensee review and resolution of these discrepancies will be reviewed (IFI 50-423/87-71-32).

SP 3442C01 Pressurizer Pressure Narrow Range Analog Channel Calibration, Revision 1

The test as reviewed had been recently marked up by the licensee for revision and required major retyping and editorial cleanup. The TS requirements subject to this procedure are applicable in Modes 1 - 3.

The TS requirements references in the SP and on the form cover sheets do not provide specific references to the TS Surveillance requirements actually fulfilled by the SP. Similarly, the SP indicates applicability in only Modes 1 and 2 when the SP also appears to be applicable in Mode 3.

The procedure included two incorrect setpoint values:

- The High Pressure Reactor Trip Setpoint was 8.745 VDC, equivalent to 2400 psia. The nominal TS value is ≤ 2385 psia with the maximum allowable setpoint ≤ 2395 psia, resulting in a minor but unconservative error.

- The SI Manual Block Enable setpoint was 3.563 VDC, equivalent to 1985 psia (1970 psig). The TS setpoint required is \leq 1985 psig, resulting in a minor but conservative error.

Both items had also been identified by the licensee's setpoint verification program and had procedure revisions pending.

Licensee resolution of these discrepancies will be reviewed (IFI 50-423/87-71-33).

SP 3442A01 Delta-T/T-Avg Channel Calibration, Revision 0

The SP was reviewed in approved form and fulfilled TS requirements applicable in Modes 1 - 2.

The comments applicable to TS references and step signoffs re SP 3442C01 are also applicable to this SP.

Setpoint and tolerance discrepancies were identified for:

- The Low Low T-avg Bistable reset tolerance, lower limit voltage was incorrect (449.076 ohms vice 440.224 ohms).
- Temperature indicator TI-411B lower limit value was 106.6 ohms vice 106.5 ohms.
- The Overtemperature Delta-T trip bistable reset input value of 426.1 ohms did not satisfy the SP tolerance (desired limits) requirements.
- The Summing Amplifier Card, TY-411M, desired range lower limit was -8.02 V vice -0.02 V (typographical error).

The licensee was reviewing the above for disposition at the close of the inspection. Licensee resolution of these discrepancies will be reviewed (IFI 50-423/87-71-34).

2.11.2 RESULTS AND CONCLUSIONS

In general, the I&C Department Procedures reviewed (Appendix 2.11) met or exceeded minimum requirements for TS implementation. The discrepancies discussed above are believed to be reflective the substantial procedure preparation effort undertaken by the licensee over the past months.

The licensee had maintained an visibly aggressive program to develop and refine these procedures and had implemented the several programs discussed above and in Section 2.0.2 of this report which should, in combination with initial procedure

performances, correct both the isolated and systemic discrepancies identified.

With regard to the setpoint errors, the licensee's verification program was in place but somewhat informal. During this inspection, the program was augmented and formalized, resulting in the development of matrix including each applicable TS, SP data point, verification results, discrepancies, and corrections. This program appeared effective in identifying and correcting the discrepancies.

The setpoint tolerance discrepancies reported above were not resolved by the licensee during the inspection and appear to require additional attention to assure accurate and conservative treatment.

2.12 ENGINEERED SAFETY FEATURE (ESF) ACTUATION SYSTEM

The ESF Actuation System review included:

- Containment Pressure SI Actuation
- Pressurizer Pressure SI Actuation
- Steam Line Pressure SI Actuation
- Containment Pressure CS Actuation
- Containment Pressure Containment Isolation
- Containment Pressure Steam Line Isolation
- Steam Line Pressure Steam Line Isolation
- Steam Line Pressure - Rate Steam Line Isolation
- Steam Generator Water Level
- Low T-Avg Coincident with Reactor Trip
- Control Building Isolation
- Loss of Offsite Power
- ESF Actuation System Interlocks
- Emergency Diesel Generator Load Sequencer
- ESF Response Times

2.12.1 OBSERVATIONS

Appendix 2.12 lists the specific documents reviewed. The following specific comments and observations resulted from this review:

SP 3443B21 Protection Set Cabinet 2 Operational Test, Rev. 0

See Section 2.11.1

SP 3442J01 Reactor Coolant System Wide Range Pressure Calibration, Revision 0

The test was reviewed in approved form. The TS Surveillance Requirements fulfilled by the SP are applicable in Modes 3 - 6.

The procedure did not contain a data forms package due to an in process revision of the package to support procedure performance.

Precaution 6.10 instructs the performer to ensure the RCS overpressurization circuit is in a trip block position prior to performing the action step (7.1.4.1) for the channel. The Precaution was located in the SP front matter instead of immediately prior to the action step.

Notwithstanding the above editorial comment, the procedure acceptably implemented the applicable TS requirements.

SP 3443E02, ESF Response Time Test, Revision 0

This test was reviewed in approved form and was applicable in various mode combinations vs. channels.

The MSTCL indicated that the SP was not applicable for Mode 6 operations. However, the Control Room Isolation channels were required to be operable in Mode 6 by TS. The licensee acceptably corrected the matrix and scheduled the test for pre-fuel load.

The test is determines the time response of each respective channel by testing the channel in segments, e.g. sensor response, process electronics response, and actuated equipment response times. The actuated equipment response times are typically determined during the routine equipment surveillances by timing valve strokes, pump start/acceleration, etc. This method was discussed with NRC:RI personnel and was found acceptable.

Although the SP collected all the necessary data, no instructions nor data collation was provided for determining the "reactor trip on SI actuation" response time per TS Table 4.3-2. Procedure changes were issued during the inspection to acceptably correct this item.

2.12.2 RESULTS AND CONCLUSIONS

Only minor inconsistencies were noted in the TS implementing procedures. The licensee's program was found to be satisfactorily implementing the TS Surveillance Requirements.

2.13 - SERVICE WATER SYSTEM

The Service Water System (SWS) review included all major piping, valves, instrumentation, system lineups and safety related actuation signals.

2.13.1 OBSERVATIONS

Appendix 2.13 lists the specific documents reviewed. The following specific comments and observations resulted from this review:

SP 3626.6 Service Water Pump 1C Operational Readiness Test

Although the test appears to be generally workable, the pump is not equipped with suitable suction pressure instrumentation. As a result, the procedure specifies that performance can only occur when tide (pump suction) conditions in the bay are between 0 and 2 feet MSL to provide "baseline" performance conditions.

Use of this prerequisite/acceptance criteria may preclude performance of the procedure at the required TS frequency, and, if performed, the data may not be useful for comparison/trending of equipment degradation.

Resolution of this concern will be pursued as IFI 50-423/85-71-35).

SP 3626.3 Service Water Valve Operability Test

Several valves (AOVs 25A & B, AOV 50A and AOV 24A) that receive an ESF Actuation Signal do not appear to receive routine stroke time testing. The valves' status as "passive" vs "active" valves as defined in ISI-3.0 was not determined but the valves were not included in the IST 3.0 tables as requiring testing.

Although the IST program does not require the testing of valves classified as passive, this approach would result in numerous valves that receive actuation signals during accident conditions not being tested, e.g. SWS, QSS, RSS, AFW valves, etc.

The IST Program was submitted on October 25, 1985 to NRC:NRR for review and approval. At the time of this inspection, the licensee was preparing updating revisions to the program for further submittal that did not address the above.

NRC:RI intends to identify this matter for additional NRC:NRR review. The acceptability of the above licensee practices is

unresolved pending completion of the NRC:NRR reviews and will be followed as Unresolved Item 50-423/85-71-19 as previously documented in Detail 2.5.1 of this report.

2.13.2 RESULTS AND CONCLUSIONS

Except as noted above, the procedures and programs were in place and acceptable.

3.0 GENERAL CONCLUSIONS

The inspection evaluated the licensee's program for implementing the TS Surveillance Requirements as discussed in Sections 1.0 and 2.0 of this report.

During meetings with NRC in the weeks preceding this inspection, the licensee had presented their plans for progressively completing the prerequisite activities for each major milestone from issuance of the Operating License through full power operation. Under this planning, the systems, equipment, plant procedures, etc. required for each milestone would be ready prior to reaching that milestone, but not necessarily for earlier milestones.

During this inspection, the licensee had advised NRC of their readiness for issuance of an Operating License and commencement of initial fuel loading (Operational Mode 6). The inspection documented in this report focussed only in part on the licensee's readiness for initial fuel loading (Mode 6). Much of the inspection was directed at the Surveillance Requirements applicable through plant heatup, initial criticality, and eventual Power Operation (Modes 1-5).

Consequently, many of the specific observations and findings presented herein were made with respect to activities which were not yet effective as license conditions nor were they necessarily considered completely implemented by the licensee.

The licensee's TS surveillance testing programs appears to be substantially in place for the plant systems included in this inspection. See Section 2.0.4 for additional discussion of overall status.

The TS, FSAR, SER and the Surveillance Procedures were found to be compatible. Except as noted in Section 2.1 - 2.13 the SPs accurately reflected the configuration of the safety related systems, structures, and components and implemented the TS Surveillance Requirements and commitments documented in the FSAR and SER. The SPs also, except as noted, provided definitive and measurable demonstrations of conformance with the TS requirements.

However, the individual findings discussed herein represent several deficiencies in the licensee's programs:

1. The licensee's initial procedure preparation and review programs appeared to be ineffective in identifying and correcting procedure errors.

Although recent licensee actions such as establishment of

General Conclusions

PORC procedure review subcommittees appears effective in improving performance, the large number of procedures involved and the absence of written procedure review criteria or instructions limits the effectiveness.

2. The overall status of procedure preparation for near term plant startup milestones (initial fuel load and heatup) appeared to meet minimum requirements but many of the procedures reviewed applicable to Modes 5-6 and 3-4 were still under revision by the licensee.

However, the licensee's plans for progressively satisfying the prerequisites for each milestone and Mode escalation appeared to provide adequate assurance that acceptable control of these activities if aggressively implemented.

SECTION 4.0

APPENDICES

- 1.0..... INSPECTION PLAN
- 1.1..... LICENSEE PERSONNEL CONTACTED
DURING INSPECTION
- 2.1-2.13... INSPECTION DATA SHEETS

APPENDIX 1.0

INSPECTION PLAN
NRC/PARAMETER TECHNICAL ASSISTANCE PROJECT
VERIFICATION OF CONSISTENCY OF TECHNICAL SPECIFICATIONS, FSAR/SER,
AND FACILITY PROCEDURES FOR MILLSTONE UNIT 3

BACKGROUND

Recent inspections at Millstone Unit 3 have identified numerous discrepancies between the plant's Technical Specifications (TS), Final Safety Analysis Report (FSAR), Safety Evaluation (SER), and facility procedures. NRC Region I desires additional assurance that these discrepancies have been corrected and the documents made compatible with each other and the as-built plant.

The objective of this effort is to assist in determining whether the Millstone Unit 3 TS, FSAR/SER, and facility surveillance procedures are properly compatible.

GENERAL WORK SCOPE

An eleven (11) day onsite audit will be conducted by three auditors: one specialist in mechanical/nuclear engineering as team leader; one team member specialist in electrical/instrumentation engineering; and one team member specialist in mechanical, nuclear or electrical engineering.

The audit will compare the plant's TS to the appropriate FSAR sections and facility surveillance procedures. The audit will establish whether:

the TS, FSAR/SER, and the associated procedures are compatible with each other,

the procedures properly implement the TS requirements and commitments documented in the FSAR and SER and,

the TS requirements involved are definitively measured by the associated procedures.

DETAILED WORK PLAN

1. The team leader will obtain the following licensee documents via NRC Region I for distribution to team members for pre-audit review:

Current draft (proof & review) TS
Licensee Operating and Surveillance Procedure Listings

Master TS vs. Surveillance Test Matrix
Relevant Station/Unit Administrative Procedures

2. Team members will be assigned specific systems for audit including, but not limited to:

Vital AC/DC Power	ECCS Systems
Service Water System	RHR System
Containment Systems	Reactor Protection System

3. A sample of TS requirements will be selected from each of the above system groupings and will be compared to the FSAR/SER to establish whether the TS are compatible with the relevant system information, licensee commitments, and licensee assertions made in support of the license application.
4. The licensee's procedures for administration of surveillance procedure preparation and promulgation, document control during plant operation, and conduct of plant operations and surveillance testing will be reviewed for general conformance with the licensee's QA Program requirements and will be used as a partial basis for inspection and review of detailed operating and surveillance procedures.
5. The licensee's master surveillance and procedure listings will be reviewed with respect to the sampled TS and FSAR/SER to determine whether all procedures required by the TS and FSAR/SER have been planned, written, verified by initial performance and/or scheduled and fully implemented.
6. The licensee's program for ensuring that all changes in draft (and final) TS Limiting Safety System Settings (LS-3s), Limiting Conditions for Operation (LCOs) and Surveillance Requirements (SRs) including parametric data are incorporated into implementing procedures will be reviewed for its effectiveness.
7. A sample of specific operating and surveillance procedures will be selected from the sample of TS requirements above. The specific procedures will be reviewed in detail with respect to the TS for characteristics listed below:

Procedure Scope or Purpose
Initial Conditions (System and Plant)
References
Precautions and Limitations
Acceptance Criteria, Setpoints, Operating Parameters
System/Component Alignment
Independent Verification Requirements (NUREG 0737)
Test and Operating Methods

Operating Mode Changes/Return to Service

As-built plant drawings, construction and calibration data, and actual plant hardware will be reviewed to ensure compatibility of the above documents and characteristics with the as-built plants.

This will also extend to review of data for the initial performance(s) of each procedure to establish whether the licensee has suitably verified its efficacy and that the data and results obtained complied with the TS and FSAR/SER requirements.

8. Where feasible, actual performances of selected procedures will be observed to determine that the procedures are effective in achieving their stated purpose and that the operations and results of the procedures are in compliance with TS.

Where actual performances cannot be observed, the procedures will be simulated or "walked through" on the as-built plant to the extent possible.

APPENDIX 1.1

REVIEW OF MILLSTONE UNIT 3 SURVEILLANCE PROCEDURES PROGRAM

LICENSEE PERSONNEL CONTACTED DURING INSPECTION

The inspection team met 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.

<u>NAME</u>	<u>TITLE</u>
D. Asay	Procedure Engineer
M. Brown	I&C Supervisor
K. Burton	Operations Supervisor
A. Cardillo	IST Engineer/Coordinator
C. Clement	Maintenance Supervisor
R. Conway	Engineer (Consultant)
K. Covin	Shift Supervisor
J. Crockett	Unit 3 Superintendent
E. Hall	I&C Specialist
M. Hess	Station Engineer
V. Joseph	Shift Supvr. Staff Assistant
J. Kelliher	Procedure Engineer
J. Kowalchuk	Assistant Engineer
T. Kulterman	Operations Engineer
R. Lefebvre	Project Staff Engineer
M. Manolakis	I&C Specialist
D. Miller	Startup Manager
L. Nadeux	Asst. Project Engineer
G. Olsen	I&C Engineer
D. Pasquale	Engineer (SWEC)
M. Pearson	Operations Assistant
E. Peterson	I&C Foreman
J. Rhodes	Project Staff Engineer
D. Robinson	I&C Foreman
R. Rothgeb	Staff Engineer
P. Russell	Shift Supvr. Staff Assistant
J. Steffas	Engineer (Consultant)
R. Walker	Shift Supervisor

APPENDIX 2.1A
INSPECTION REPORT DATA SHEET
CONTAINMENT SYSTEMS

TECHNICAL SPECIFICATIONS:

3/4.3.2 ESF ACTUATION SYSTEMS, TABLE 3.3.5
3/4.6 (ALL) CONTAINMENT SYSTEMS

FSAR REFERENCES: Sections 6.2.4, 7.3.1

NRC SER REFERENCES: 6.2.4

DOCUMENTS REVIEWED:

NOTE: Procedure revisions listed by number indicate Plant Operations Review Committee review completed; letter revisions indicate draft documents.

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SP 3646A.4	ENGINEERED SAFETY SYSTEMS INTEGRATED TEST	A
SP 3612B.2	CONTAINMENT MANUAL ISOLATION VALVES (INSIDE CONTAINMENT) VALVE POSITION VERIFICATION	O
SP 3612B.3	CONTAINMENT LEAK RATE TYPE BE TESTS	A
SP 3013A.1	HYDROGEN RECOMBINER SYSTEM LOW POWER SURV.	O
SP 3612B.1	CONTAINMENT MANUAL ISOLATION VALVES (OUTSIDE CONTAINMENT) POSITION VERIFICATION	O

APPENDIX 2.1B
INSPECTION REPORT DATA SHEET
CONTAINMENT PURGE AND EXHAUST

TECHNICAL SPECIFICATIONS:

3/4.9.9 REFUELING OPERATIONS - CONTAINMENT PURGE AND
EXHAUST SYSTEM
3/4.6.1.2 CONTAINMENT VENTILATION SYSTEMS

FSAR REFERENCES: Sections 6.2, 9.4.7.3, 15

NRC SER REFERENCES: None

DOCUMENTS REVIEWED:

NOTE: Procedure revisions listed by number indicate Plant Operations Review Committee review completed; letter revisions indicate draft documents.

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SP 3613F.2	CONTAINMENT PURGE AND EXHAUST AIR ISOLATION VALVE OPERABILITY TEST	0
EM 153A	CONTAINMENT STRUCTURE VENTILATION P&ID	2
EM 148A-3	REACTOR PLANT VENTILATION P&ID	3
SP3613F.1	CONTAINMENT PURGE SUPPLY AND EXHAUST ISOLATION VALVE POSITION VERIFICATION	0

APPENDIX 2.1C

INSPECTION REPORT DATA SHEET

SUPPLEMENTARY LEAK COLLECTION AND RELEASE SYSTEM

TECHNICAL SPECIFICATIONS:

3/4.6.6.1 SECONDARY CONTAINMENT - SUPPLEMENTARY LEAK
COLLECTION AND RELEASE SYSTEM

FSAR REFERENCES: Sections 6.2.3, 15

NRC SER REFERENCES: 6.2.3

DOCUMENTS REVIEWED:

NOTE: Procedure revisions listed by number indicate Plant Operations Review Committee review completed; letter revisions indicate draft documents.

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SP 3614I2	SLCRS FILTER BANK TESTING	B
SP 3712F	SLCRS FILTER ASSEMBLY HEATER SURV. TESTING	O
SP 3714I.3	SLCRS NEGATIVE PRESSURE VERIFICATION	B
OP 3314I	SLCRS OPERATING PROCEDURES	O

APPENDIX 2.2
INSPECTION REPORT DATA SHEET
REFUELING OPERATIONS

TECHNICAL SPECIFICATIONS:

3/4.9.2	REFUELING INSTRUMENTATION - NUCLEAR INSTRUMENTS
3/4.9.5	REFUELING COMMUNICATIONS
3/4.9.6	REFUELING MACHINE
3/4.9.8.1	REFUELING - RHR AND COOLANT CIRCULATION - HIGH WATER LEVEL
3/4.9.8.2	REFUELING - RHR AND COOLANT CIRCULATION - LOW WATER LEVEL
3/4.9.9	REFUELING - CONTAINMENT PURGE AND EXHAUST ISOLATION
3/4.9.10	REFUELING - WATER LEVEL - REACTOR VESSEL SOURCES - OPERATING
3/4.9.11	REFUELING - WATER LEVEL - STORAGE POOL
3/4.9.12	REFUELING - FUEL BUILDING EXHAUST FILTER SYSTEM

FSAR REFERENCES: None

NRC SER REFERENCES: None

DOCUMENTS REVIEWED:

NOTE: Procedure revisions listed by number indicate Plant Operations Review Committee review completed; letter revisions indicate draft documents.

NUMBER TITLE REVISION

SP 3672.1	COLD SHUTDOWN/REFUELING CONTROL ROOM LOGS	0
IC 3443A21	SOURCE RANGE NI ANALOG CHANNEL TEST	0
SP 3603C.1	REFUELING MACHINE OPERABILITY TEST	0
SP 3603C.2	AUXILIARY HOIST OPERABILITY TEST	A
SP 3614C.1	FUEL BUILDING FILTER SYSTEM OPERABILITY TEST	A
SP 3614C.2	FUEL BUILDING FILTER SYSTEM TESTING	A
SP 3614F.2	CONTAINMENT PURGE AND EXHAUST AIR ISOLATION VALVE OPERABILITY TEST	0

APPENDIX 2.3
INSPECTION REPORT DATA SHEET
QUENCH SPRAY SYSTEM

TECHNICAL SPECIFICATIONS:

3/4.6.2.1	CONTAINMENT QUENCH SPRAY SYSTEM
3/4.6.2.3	CONTAINMENT SPRAY ADDITIVE SYSTEM

FSAR REFERENCES: Sections 6.2.2.4, 7.3.1

NRC SER REFERENCES: 6.2.2

DOCUMENTS REVIEWED:

NOTE: Procedure revisions listed by number indicate Plant Operations Review Committee review completed; letter revisions indicate draft documents.

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SP3609.4	CONTAINMENT QUENCH SPRAY TRAIN B VALVE LINEUP VERIFICATION	0
SP 3609.1	QUENCH SPARY PUMP P3A OPERATIONAL READINESS	B/O
SP 3609.2	QUENCH SPRAY PUMP P3B OPERATIONAL READINESS	A/O
SP 3646A.4	ESF INTEGRATED TEST	A
SP 3609.9	QUENCH SPRAY VALVE OPERABILITY TEST	B/O
SP 3609.3	CONTAINMENT QUENCH SPRAY TRAIN A VALVE LINEUP VERIFICATION	0
SP 342E02	WHITE CHANNEL REACTOR TRIP AND ESF RESPONSE TIME TEST	0

APPENDIX 2.4
INSPECTION REPORT DATA SHEET
RECIRCULATION SPRAY SYSTEM

TECHNICAL SPECIFICATIONS:

3/4.6.2.2	RECIRCULATION SPRAY SYSTEM
3/4.3.2	ESF ACTUATION SYSTEM INSTRUMENTATION
3/4.6	CONTAINMENT SYSTEMS
3/4.5.2	ECCS SYSTEMS

FSAR REFERENCES: Sections 6.2.2.2, 15

NRC SER REFERENCES: 6.2.2

DOCUMENTS REVIEWED:

NOTE: Procedure revisions listed by number indicate Plant Operations Review Committee review completed; letter revisions indicate draft documents.

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
FM 112A	LOW PRESSURE SAFETY INJECTION P&ID	3
EM 112C	LOW PRESSURE SAFETY INJECTION P&ID	3
SP 3606.7	CONTAINMENT RECIRCULATING RESPONSE TEST	B
SP 3606.1-4	CONTAINMENT RECIRCULATION PUMP OPERATIONAL READINESS TESTS	O/C
SP 3606.8	RECIRCULATION SPRAY VALVE OPERABILITY	A
ESK-6LD	CONTMT RECIRC WATER SPRAY HDR ISOL VLV ELEMENTARY DIAGRAM	5
ESK-6LH	CONTMT RECIRC PMP SUCT ISOL VLV ELEMENTARY DIAGRAM	5
OP 3606	CONTAINMENT RECIRCULATION SPRAY SYSTEM OPERATING PROCEDURES	0

APPENDIX 2.5
INSPECTION REPORT DATA SHEET
AUXILIARY FEEDWATER SYSTEM

TECHNICAL SPECIFICATIONS:

3/4.7.1.2	PLANT SYSTEMS - AUXILIARY FEEDWATER SYSTEM
3/4.3	ESF ACTUATION INSTRUMENTATION

FSAR REFERENCES: Sections 7.3.1, 10.4.9, 15.2.8

NRC SER REFERENCES: 10.4.9

DOCUMENTS REVIEWED:

NOTE: Procedure revisions listed by number indicate Plant Operations Review Committee review completed; letter revisions indicate draft documents.

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SP 3622.4	AFW SYSTEM LINEUP VERIFICATION	0
OP 3322	AFW SYSTEM OPERATING PROCEDURES	0
SP 3622.6	AFW FLOWPATH VERIFICATION	B
SP 3622.2	AFW PUMP P1B OPERATIONAL READINESS TEST	0
SP 3622.1	AFW PUMP P1A OPERATIONAL READINESS TEST	0
SP 3622.5	FW PUMP AUTO START TEST	A
EM 130B-2	FEEDWATER SYSTEM P&ID	2
EM 123A-2	MAIN STEAM & REHEAT P&ID	2
SP 3622.8	AFW VALVE OPERABILITY TEST	0
SP 3622.3	AFW PUMP P2 OPERATIONAL READINESS TEST	0
LSK 7.3.2	AFW PUMP AND DRIVE LUBE OIL LOGIC DIA.	5
ESK 6VV	AFW PUMP TURBINE STEAM SUPPLY NONRETURN VALVE ELEMENTARY DIAGRAM	4
FSK 6-2A	AFW & RECIRC FLOW DIAGRAM	15

APPENDIX 2.6
INSPECTION REPORT DATA SHEET
AC POWER SOURCES

TECHNICAL SPECIFICATIONS:

3/4.8.1	AC SOURCES - OPERATING
3/4.8.2	AC SOURCES - SHUTDOWN

FSAR REFERENCES: Sections 8.3, 15

NRC SER REFERENCES: Sections 8.3, 15

DOCUMENTS REVIEWED:

NOTE: Procedure revisions listed by number indicate Plant Operations Review Committee review completed; letter revisions indicate draft documents.

NUMBER TITLE REVISION

SP 3646A.1	A EDG OPERABILITY TEST	1
SP 3646A.2	B EDG OPERABILITY TEST	1
SP 3646A.3	DG INTERDEPENDENCE TEST	0
SP 3646A.4	ESF INTEGRATED TEST	A
SP 3646A.5	OFFSITE POWER TRANSFER OPERABILITY TEST	0
SP 3646A.6	LOSS OF OFFSITE POWER TEST	0
SP 3646B.5	DG FUEL OIL STORAGE TANK DEWATERING & SAMPLE	0
SP 3646B.7	NEW FUEL DELIVERY SAMPLING	0
SP 3712K	DG INSPECTION	0
SP 3672.1	COLD SHUTDOWN/REFUELING CONTROL ROOM SURV. LOG	B
SP 3670.1	POWER OPERATION TO HOT SHUTDOWN CONTROL ROOM SURVEILLANCE LOG	B
OP 3646A	EDG OPERATING PROCEDURE	1
LSK 24-9.3A	EDG CONTROL & PROTECTION LOGIC DIAGRAM	3
EE 1A-1N	4.16KV ONE LINE DIAGRAMS	VARIOUS
OIM-241-001	FAIRBANKS MORSE AND COLT PIELSTIK LETTER ON DIESEL ENGINES	11/12/85

APPENDIX 2.7
INSPECTION REPORT DATA SHEET
DC POWER SOURCES

TECHNICAL SPECIFICATIONS:

3/4.8.2	DC SOURCES - OPERATING
3/4.8.2	DC SOURCES - SHUTDOWN

FSAR REFERENCES: Sections 8.3, 15

NRC SER REFERENCES: Sections 8.3, 15

DOCUMENTS REVIEWED:

NOTE: Procedure revisions listed by number indicate Plant Operations Review Committee review completed; letter revisions indicate draft documents.

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SP 3712NA	BATTERY SURVEILLANCE TESTING	0
SP 3712NB	BATTERY DISCHARGE TESTING	0

APPENDIX 2.8
INSPECTION REPORT DATA SHEET
ONSITE POWER DISTRIBUTION

TECHNICAL SPECIFICATIONS:

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

FSAR REFERENCES: Sections 8.3, 15

NRC SER REFERENCES: Sections 8.3, 15

DOCUMENTS REVIEWED:

NOTE: Procedure revisions listed by number indicate Plant Operations Review Committee review completed; letter revisions indicate draft documents.

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SP 3670.1	OPERATING TO HOT SHUTDOWN CONTROL ROOM SUVEILLANCE LOGS	B
SP 3672.1	COLD SHUTDOWN/REFUELING CONTROL ROOM SURVEILLANCE LOGS	B
EE 1A - 1N	4.16KV ONELINE DIAGRAMS	VARIOUS

APPENDIX 2.9

INSPECTION REPORT DATA SHEET

EMERGENCY CORE COOLING SYSTEMS AND RESIDUAL HEAT REMOVAL SYSTEM

TECHNICAL SPECIFICATIONS:

3/4.5.1	ECCS - ACCUMULATORS
3/4.5.2	ECCS SUBSYSTEMS - Tavg > 350F
3/4.5.3	ECCS SUBSYSTEMS - Tavg < 350F
3/4.5.4	REFUELING WATER STORAGE TANK
3/4.0.5	INSERVICE TESTING PER ASME SECTION XI

FSAR REFERENCES: Sections 5.4, 6.3, 15

NRC SER REFERENCES: Sections 6.3, 15

DOCUMENTS REVIEWED:

NOTE: Procedure revisions listed by number indicate Plant Operations Review Committee review completed; letter revisions indicate draft documents.

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SP 3604A.2	B CHARGING PUMP OPERATIONAL READINESS TEST	0
SP 36772.1	COLD SHUTDOWN/REFUELING CONTROL ROOM LOGS	B
SP 3610A.2	RHR PUMP 1B OPERATIONAL READINESS TEST	0
SP 3610B.2	LPSI VALVE OPERABILITY TEST	A
SP 3604A.6	CHARGING PUMP INOPERABILITY VERIFICATION	A
SP 3604A.4	CHS FLOW BALANCE TEST	B
SP 3608.3	ECCS SUBSYSTEM THROTTLE VALVE SETTING VERIF.	0
SP 3608.6	SI SYSTEM VALVE OPERABILITY TEST	0
OP 3308	HIGH PRESSURE SI OPERATING PROCEDURES	0
OP 3310A	RESIDUAL HEAT REMOVAL OPERATING PROCEDURES	0
OP 3310B	ACCUMULATOR LPSI OPERATING PROCEDURES	0
OP 3304A	CHARGING AND LETDOWN OPERATING PROCEDURES	0
SP 3610A.3	RHR SYSTEM VENT AND VALVE LINEUP VERIFICATION	0
SP 3608.5	SI PUMP FLOW BALANCE	B
SP 3612A.1	CONTAINMENT INSPECTION	0
SP 3608.1	A SI PUMP OPERATIONAL TEST	0
SP 3608.6	SI SYSTEM VALVE OPERABILITY TEST	0
SP 3608.4	HPSI VENT AND VALVE LINEUP VERIFICATION	0

APPENDIX 2.10

INSPECTION REPORT DATA SHEET

CHEMICAL AND VOLUME CONTROL SYSTEM (BORATION SYSTEMS/REDUNDANT REACTIVITY CONTROL)

TECHNICAL SPECIFICATIONS:

3/4.1.2.1	BORATION SYSTEMS FLOWPATH - SHUTDOWN
3/4.1.2.2	BORATION SYSTEMS FLOWPATH - OPERATING
3/4.1.2.3	REACTIVITY CONTROL SYSTEMS - CHS PUMP SHUTDOWN
3/4.1.2.4	REACTIVITY CONTROL SYSTEMS - CHS PUMP OPERATING
3/4.1.2.5	REACTIVITY CONTROL SYSTEMS - BORATED WATER SOURCES - SHUTDOWN
3/4.1.26	REACTIVITY CONTROL SYSTEMS - BORATED WATER SOURCES - OPERATING

FSAR REFERENCES: Sections 6.3, 15

NRC SER REFERENCES: Sections 6.3, 15

DOCUMENTS REVIEWED:

NOTE: Procedure revisions listed by number indicate Plant Operations Review Committee review completed; letter revisions indicate draft documents.

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SP 3172.1	COLD SHUTDOWN/REFUELING CONTROL ROOM LOGS	0
SP 3604C.1	BORATED WATER SOURCE AND FLOW PATH VERIF.	A
SP 3604C.3	BORATED WATER SOURCE FLOW PATH - OPERATING	0
SP 3604C.2	BORATED WATER SOURCE FLOW PATH - MONTHLY	0
SP 3646A.4	ESF INTEGRATED TEST	A
SP 3604A.6	CHARGING PUMP INOPERABILITY	A
SP 3604A.2	CHARGING PUMP OPERATIONAL READINESS TEST	0
OP 3304A	CHARGING AND LETDOWN OPERATING PROCEDURES	0

APPENDIX 2.11
INSPECTION REPORT DATA SHEET
REACTOR PROTECTION SYSTEM

TECHNICAL SPECIFICATIONS:

2.2	LIMITING SAFETY SYSTEM SETTINGS - REACTOR TRIP SYSTEM SETPOINTS
3/4.3.1	REACTOR TRIP SYSTEM INSTRUMENTATION
3/4.9.2	REFUELING OPERATIONS - NUCLEAR INSTRUMENTS
3/4.4.4	REACTOR COOLANT SYSTEM RELIEF VALVES
3/4.4.9	REACTOR COOLANT PRESSURE/TEMPERATURE LIMITS

FSAR REFERENCES: Sections 7.2, 15

NRC SER REFERENCES: Sections 7.2, 15

DOCUMENTS REVIEWED:

NOTE: Procedure revisions listed by number indicate Plant Operations Review Committee review completed; letter revisions indicate draft documents.

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SP 3440A01	PLANT STARTUP SURVEILLANCE PROCEDURE	0
SP 3441C01	SOURCE RANGE CHANNEL CAL SRN 31 & 32	0
SP 3441C02	SOURCE RANGE DETECTOR CHARACTERISTIC CURVES	0
SP 3441C12	GAMMAMETRIC/SOURCE RANGE OP TEST	0
SP 3441C11	SRN 31 ANALOG CHANNEL OP TEST	0
SP 3441C13	SRN 32 ANALOG CHANNEL OP TEST	0
SP 3443B21	PROTECTION SET CABINET 2 OP TEST	0
SP 3442C01	PZR PRESSURE NR ANALOG CHANNEL CAL	0
SP 3443A01	DELTA-T/T-AVG CHANNEL CAL	0
SP 3442G01	RCS FLOW CHANNEL CAL	0
3RCS*455A	PZR PRESSURE LOOP DIAGRAM	-
3RCS*411	DELTA-T/T-AVG LOOP DIAGRAM	-
3RCS*414-416	RCS FLOW LOOP DIAGRAM	-

APPENDIX 2.13

INSPECTION REPORT DATA SHEET
SERVICE WATER/ULTIMATE HEAT SINK

TECHNICAL SPECIFICATIONS:

3/4.7.4 PLANT SYSTEMS - SERVICE WATER SYSTEM
3/4.3 ESF ACTUATION INSTRUMENTATION

FSAR REFERENCES: Sections 6.2.2.2, 7.3.1, 9.2.1, 15

NRC SER REFERENCES: 9.2.1

DOCUMENTS REVIEWED:

NOTE: Procedure revisions listed by number indicate Plant Operations Review Committee review completed; letter revisions indicate draft documents.

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SP 3626I	A SERVICE WATER TRAIN VALVE LINEUP CHECK	0
SP 3626.3	SERVICE WATER VALVE OPERABILITY TEST	0
SP 3626.6	SERVICE WATER PUMP PIC OPERATIONAL READINESS	0
SP 3626.12	SERVICE WATER HEAT EXCHANGER LAYUP	0
EM 133A-2	SERVICE WATER & CHEMICAL FEED ELEMENTARY DIAG.	2
EM 133B-2	SERVICE WATER & CHEMICAL FEED ELEMENTARY DIAG.	2

APPENDIX 2.12

INSPECTION REPORT DATA SHEET

ESF ACTUATION SYSTEM

TECHNICAL SPECIFICATIONS:

3/4.3.2	ESF ACTUATION SYSTEM INSTRUMENTATION
3/4.5.2	ECCS SUBSYSTEMS - T-AVG < 350 F.
3/4.4.9	REACTOR COOLANT PRESSURE/TEMPERATURE LIMITS
3/4.3.3	MONITORING INSTRUMENTATION - REMOTE SHUTDOWN PANEL

FSAR REFERENCES: Sections 7.3, 15

NRC SER REFERENCES: Sections 7.3, 15

DOCUMENTS REVIEWED:

NOTE: Procedure revisions listed by number indicate Plant Operations Review Committee review completed; letter revisions indicate draft documents.

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SP 3443B21	PROTECTION SET CABINET 2 OP TEST	0
SP 3442J01	RCS WIDE RANGE PRESSURE CAL	0
IC 3472C20	ROSEMONT 1151/1153 SERIES DELTA-P TRANSMITTER O-RING REPLACEMENT	-
TM 4388	ROSEMONT MODEL 1153, SERIES D, PRESSURE TRANSMITTER TECHNICAL MANUAL	-
3RCS*403	RCS PRESSURE INSTRUMENT LOOP DIAGRAM	1