TECHNICAL REVIEW REPORT
NRC REGION I INSPECTION NO. 50-410/86-02

REVIEW OF NINE MILE POINT, UNIT 2,
TECHNICAL SPECIFICATIONS
NIAGARA MOHAWK POWER CORPORATION
NRC DOCKET NO. 50-410

NRC CONTRACT NO. NRC-157-01-007

ONSITE ACTIVITIES CONDUCTED
January 6 - 17, 1986

Prepared for:

U.S.N.R.C. Region 1
631 Park Avenue
King of Prussia, PA 19406

Prepared by:

Parameter, Inc.
13909 Watertown Plank Rd.
Elm Grove, WI 53122

NRC Liaison Personnel:

J. Linville
R. Gramm
S. Hudson

Authors:

D. Beckman
J. Rogers
S. Kaufman

TABLE OF CONTENTS

[illegible] Page Nos

EXECUTIVE SUMMARY

Parameter, Inc., under the direction of the Nuclear Regulatory Commission, conducted an inspection at the Nine Mile Point, Unit 2, Nuclear Power Station:

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

to determine whether the draft Technical Specification Requirements are definitive, measurable.

The inspection was concentrated on plant systems, structures and components having particular significance with respect to minimizing the severity of potential accidents and accident consequences. The systems evaluated included: the reactor protection and safeguards actuation systems, standby liquid control system, primary and secondary containments and related support systems, emergency core cooling systems, radiation monitoring, and electrical power systems.

The inspection involved about 700 inspector hours onsite during the period January 6 - 17, 1986.

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

Proof and review TS issued by NFO:NRR on November 20, 1985 and pending revisions proposed by a licensee letter of December 20, 1985 were used for this inspection.

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

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

requirements were definitive, measurable or determinable.

At the time of the inspection the TS were still under development by the licensee in conjunction with the NRC Office of Nuclear Reactor Regulation (NRR). ~~The inspection was conducted using draft TS promulgated by NRC on November 27, 1985, and using pending TS revisions submitted by the licensee via letter dated December 5, 1985.~~

The TS applicable to the plant systems included this inspection were reviewed for congruence with the system, general clarity, and the ability to definitively establish compliance. Comments resulting from this review are included herein and were provided separately to NRC Region I for disposition with NRR. BWR-5 Standard Technical Specifications dated September 14, 1984 were used for this review.

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

Because both the TS and the licensee's implementing procedures were still under development, many plant configuration, operating characteristic, and parameter details remained to be firmly established. The licensee's programs for accomplishing this appeared to be functioning satisfactorily.

Isolated inconsistencies and discrepancies areas were identified with respect to these activities and were presented to the licensee during the inspection and at the exit meeting held on January 17, 1986. These involved: updating previously prepared Interim Operating and Surveillance procedures to reflect recent and ongoing revisions to the TS, editorial and technical errors in the above procedures, equipment nomenclature and identification (labelling) deficiencies, and satisfaction of FSAR commitments.

In this regard, the licensee's formal programs included a "final" review of all operating phase procedures to identify and correct such discrepancies. The licensee has several efforts in progress which will provide additional assurance that preparations for licensed operations will be satisfactorily completed.

These programs include: FSAR commitment verification, complete update and review of interim TS implementing procedures, post preoperational testing as-built (as-tested) verification of system configuration and drawing accuracy, and a computerized system which lists all baseline references used in surveillance procedure preparation.

All discrepancies were either resolved during the inspection or appropriate resolution was identified and initiated by the licensee. No programmatic breakdowns or systemic problems were identified.

CONCLUSION

The Technical Specification preparation process appears to be functioning properly. The licensee is maintaining adequate management control over the process.

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

1.0 - INTRODUCTION

1.1 - PURPOSE

The purpose of this inspection was to assist the Nuclear Regulatory Commission in determining that the Nine Mile Point, Unit 2, (NMP 2) Technical Specifications were compatible with the as-built configuration of plant systems, structures and components and that the Technical Specification requirements were definitively measurable or determinable.

1.2 - BACKGROUND AND GENERAL SCOPE

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

This inspection was conducted to gain additional assurance that the proposed NMP 2 TS are compatible with the assumptions and requirements of the safety evaluations performed and the as-built plant configuration. Parameter, Inc. was requested to assist NRC Region I in performing this inspection at the NMP 2 site. The inspection involved about 300 inspector hours onsite during the period January 5 - 17, 1986.

The general scope of the inspection included:

Report Section	
2.1	REACTOR PROTECTION SYSTEM (RPS)
2.2	PRIMARY CONTAINMENT INTEGRITY & LEAKAGE DRYWELL SUPPRESSION CHAMBER MAIN STEAM ISOLATION VALVES (MSIVs)
2.3	PRIMARY CONTAINMENT ISOLATION SYSTEM (PCIS)
2.4	SECONDARY CONTAINMENT SECONDARY CONTAINMENT INTEGRITY STANDBY GAS TREATMENT SYSTEM (SBGTS)
2.5	SERVICE WATER SYSTEM (SWS)
2.6	REACTOR CORE ISOLATION COOLING (RCIC)
2.7	AC POWER SOURCES (INCLUDING HPCS EDG)
2.8	DC POWER SOURCES
2.9	ONSITE POWER DISTRIBUTION
2.10	HIGH PRESSURE COOLANT INJECTION SYSTEM (HPCS)

Forced Page Here →

AND AUTOMATIC DEPRESSURIZATION SYSTEM (ADS)
2.11 RESIDUAL HEAT REMOVAL SYSTEM (RHR) INCLUDING LOW PRESSURE COOLANT INJECTION (LPCI), SHUTDOWN COOLING, AND CONTAINMENT SPRAY MODES)
2.12 LOW PRESSURE CORE SPRAY SYSTEM (LPCS)
2.13 STANDBY LIQUID CONTROL SYSTEM (SBLC)
2.14 RADIATION MONITORING SYSTEM

The following general categories of documents were reviewed:

Technical Specifications
Final Safety Analysis Report
NRC Safety Evaluation Report (with Supplement 2)
Piping and Instrumentation Diagrams (P&IDs)
Instrumentation and Control Logic Diagrams
Electrical One Line Diagrams (Elementaries)
Electrical Schematic Diagrams
Instrument Loop Drawings
Plant General Arrangement & Layout Drawings
Preoperational Test Procedures and test data
Surveillance Test Procedures
Maintenance Procedures
Operating Procedures
Emergency Operating Procedures
Inservice Test Procedures
Administrative Procedures
Setpoint Calculations
Loop Calibration Procedures and data

1.3 - GENERAL EVALUATION CRITERIA

The above systems and documentation were reviewed with respect to:

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

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

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

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

Forced page break here →

1.4 - GENERAL EVALUATION METHODS

Prior to the onsite inspection activities, the proof and review Technical Specifications were reviewed to identify those systems, structures and components which were particularly significant with respect to preventing or mitigating the consequences of analyzed accidents.

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

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

The detailed inspection plan used to conduct the onsite activities is provided as Appendix A1.0 to this report. Key evaluation items included:

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

Preoperational ~~and functional~~ tests were reviewed to verify that the "as tested" system configurations were consistent with the FSAR, TS, and SER.

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

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

Licensee personnel contacted during the inspection are listed in Appendix 1.1. An exit meeting was conducted with senior licensee management on January 17, 1986 to present the results of this inspection.

2.0 EVALUATION

GENERAL

In addition to the specific inspection and review items below, the administrative and Emergency Operating Procedures listed in Appendix 2.0 were used ~~throughout~~ during the inspection for evaluation of the licensee's programs.

(NOTE: All procedures listed herein are prefixed by "N2-" signifying their applicability to NMP 2.)

2.1 - REACTOR PROTECTION SYSTEM

2.1.1 - Evaluation Criteria and Scope

The Reactor Protection System (RPS) is a dual-trip electrical alarm and actuating system designed to prevent the reactor from operating under unsafe, or potentially unsafe conditions. The RPS is designed to provide a signal to cause rapid insertion of control rods (scram) and shutdown the reactor whenever predetermined setpoints are reached.

The RPS consists of two independent systems, A and B; each system has two independent reactor shutdown logic channels. Reactor shutdown logic channels A1 and A2 for the "A" system and B1 and B2 for the "B" system. Each logic channel receives, as a minimum, one input signal from the RPS monitored parameters. These parameters are measured by at least four independent instrument channels.

Each shutdown logic channel is arranged in a "one out of two" logic and each reactor shutdown system is arranged in a "one out of two twice" logic. This arrangement provides testing capability during reactor operation without shutting down the reactor. Sensor trip channel inputs to RPS causing reactor scram are:

a) Neutron Monitoring System
b) Reactor Vessel (RV) high pressure
c) RV low water level
d) Turbine Stop Valve position
e) Turbine Control Valve position
f) Main Steam Isolation Valve (MSIV) position
g) Scram Discharge Volume water level
h) Drywell pressure
i) Main Steamline radiation monitors

In addition to the above, the reactor can be scrammed by actuate

the appropriate manual scram switches or by placing the Reactor Mode Switch in the SHUTDOWN position.

The RPS instrumentation and equipment were reviewed with respect to the criteria and methods of Section 1.7 and 7.1 of this report. See Appendix 2.1 for a listing of documents reviewed. Specific channels or functions of the RPS were also reviewed in conjunction with other plant systems. Refer to the other Sections of this report and their respective appendices.

Proposed TS 2.2.1, 3/4.3.1, 3/4.8.4.1 and .2, (December 30, 1985 licensee comment issue) were reviewed for the systems and equipment listed above, and compared to the documents listed in Appendix 2.1 to verify that the proposed TS accurately represented the as-built plant configurations and operating characteristics and were in agreement with the information in the FSAR and SER.

2.1.2 Discussion

The review of the RPS instrumentation included normal, abnormal, and emergency operations described by the FSAR and the licensee's ~~draft and approved~~ procedures. ←

The system configuration drawings, operating logic diagrams, system operating parameters and limits, surveillance and preoperational test procedures, operating procedures, and setpoints were reviewed on a sampling basis to ensure that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the requirements of the proposed TS.

The review of the RPS system documents above indicated that the design features are in agreement with the proof and review TS.

Visual inspection of the RPS instrumentation system per se was not performed. The independent instrumentation channel separation requirements and the RPS instrumentation and controls in the control room and other plant areas were inspected. These inspections established that the design features were in agreement with the proposed TS.

2.1.3 Observations

No discrepancies were identified in the licensee's, drawings, procedures, or in situe equipment. The following comments about the proof and review TS were provided to NRC:RI for review and disposition with NRC:NRR.

1. TS Table, 4.3.1.1-1, RPS Surveillance Frequencies. The

footnotes applicable to the frequency columns are difficult to use and are, in some cases, redundant, e.g. Table Item 1, IRM & APRM, IRM Neutron Flux High, footnote "1" is redundant

Item 2.b, Flow Biased Simulated Thermal Power, footnote "g", refers to "established drive flow". This term appears undefined. The licensee was unable to clarify. The usage of "established core flow" from Standard TS appears appropriate.

2.1.4 Conclusions

No inconsistencies between the TS, FSAR, SER and the as-built plant were noted during the visual inspection. The as-built system was found in agreement with the various documents reviewed. The TS requirements were found to be definitively measurable.

2.2 - PRIMARY CONTAINMENT

2.2.1 - Evaluation Criteria and Scope

The primary containment systems are based on a Mark II primary containment and a cylindrical secondary containment surrounding the primary and housing equipment essential for a safe shutdown.

The drywell is a frustrum shaped, steel lined, reinforced concrete vessel closed by a dome. The pressure suppression chamber is a cylindrical, steel lined concrete enclosure located beneath the drywell.

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

The review included:

Primary Containment Integrity and Leakage
Primary Containment Airlocks
Drywell TS and Design Features
Suppression Chamber TS and Design Features
Primary Containment Purge System

Primary Containment Isolation System (PCIS) is discussed in Section 2.3 of this report and the Secondary Containment in Section 2.4.

For the primary containment system review, proposed TS 3/4.6.1.1 through 3/4.6.1.8, 4.5.2, and 4.6.5 were compared to the requirements listed in Appendix 2.2 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER.

2.2.2 Discussion

The features of these systems reviewed included normal, abnormal and emergency operations as described by the FSAR, Section 6.2, Containment Systems, and the licensee's ~~draft and approved~~ procedures. ←

The as-built configuration portion of the review included a sampling based overview of system piping configurations, instrument and control setpoints and operating logic, system operating parameters, and electrical control design. The circuits and logic functions of the systems were included in the review.

Operating Procedures, Surveillance and Inservice Tests, and Preoperational Tests were reviewed on a sampling basis to determine that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the requirements of the proposed TS.

Test methods and results of the preoperational tests were used on a sampling basis to verify that the system functioned within the parameters of the design drawings and requirements.

Typically, where a preoperational test proved the functions of a logic circuit, the detailed procedures and results were compared with the logic and elementary diagrams to verify that the test accurately reflected the circuits and that the circuits were consistent with the design bases reflected in the FSAR, SER, and TS.

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

- Normal system alignments and operations
- Emergency system alignments and operations
  - Pressure Suppression Operations
- System testing alignments and methods
  - I&C Functional Tests
  - Flow Path Valve Lineups and Operability Testing
  - System Operational Readiness Testing

A visual inspection of portions of the systems and selected equipment established that the design features were accurately translated into the as-built systems. The visual inspection

included verification of system piping, fluid system flow path and component configuration, ~~alarm~~ control station instrumentation, simulated partial performance of system alignments and tests, and general comparison of the systems with the proposed TS.

2.2.7 Observations

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

1. In OSP-ISC-M002, Vacuum Breaker Operability, Revision 0, the vacuum breakers are cycled closed to verify operability per the TS Surveillance Requirements. In Steps 7.2.1.4, 7.2.1.8, 7.2.1.14, etc. valve position should read "closed" vice "open" to verify closed indication following closure.

   The licensee acknowledged the above and stated that the comment would be reviewed and dispositioned during the final procedure review prior to licensed operation.

2. In ISP-PPS-202, MSIV Closure Scram Response, Revision 0, Steps 7.2.1.2 and 8.1 do not include the "less than or equal to" symbol (≤) required to make the time response acceptance criteria of ≤0.060 seconds consistent with TS 3.3.1-2.

   The licensee acknowledged the above and stated that the comment would be reviewed and dispositioned during the final procedure review prior to licensed operation.

3. OSP-MSS-M001, MSIV Partial Exercise Test and Functional Test of PPS-MSIV Closure, Draft, includes an incorrect reference to TS Table 4.3.1.1-1,5 vice TS Table 3.3.1-1, Item 5.

   The licensee acknowledged the above and stated that the comment would be reviewed and dispositioned during the final procedure review prior to licensed operation.

Correct numbering ← 4. TS 3.6.4, Drywell/Suppression Pool Vacuum Breakers, Action c. requires that if one vacuum breaker of a pair is inoperable, the other, operable unit will be verified to be closed within 2 hours and then at least once every fifteen days.

   The above requirement is inconsistent with the "normal" surveillance requirement of TS 4.6.4 which requires the all vacuum breakers be verified closed at least once every seven days.

This comment was provided to NRC:RI for resolution with NRC:NRR.

2.2.4 Conclusions

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

dbl space =>

2.3 - PRIMARY CONTAINMENT ISOLATION SYSTEM

2.3.1 - Evaluation Criteria and Scope

Primary containment isolation is initiated when sensors monitoring accident diagnostic parameters trip to initiate closure of the primary containment isolation valves and other isolation functions. There are typically two isolation valves per line. The control circuits are arranged in dual isolation channels so that trip must occur in both logic channels to close an isolation valve. Each logic channel contains at least two independent tripping sensors from each measured variable, only one of which is required to trip a logic channel. Isolation valves are divided into 15 groups per TS Table 3.7.2-1.

The Primary Containment Isolation System (PCIS) and its related equipment were reviewed with respect to the criteria and methods of Sections 1.7 and 1.8 of this report. See Appendix 2.3 for a listing of documents reviewed.

Proposed TS 3/4.7.2 and 3/4.6.3 were compared to the documents listed in Appendix 2.3 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER. Particular emphasis was placed on the valve closing times for the automatic isolation valves listed in TS Table 3.6.3.-1.

The proof and review TS were reviewed for the systems and equipment above.

2.3.2 Discussion

The features of these systems reviewed included normal, abnormal and emergency operations as described by the FSAR, Section 6.2,

Containment Systems, Section 5.4.5, Main Steam Isolation Valve (MSIV) Sealing System, and the licensee's draft and approved procedures.

The as-built configuration portion of the review included a sampling based overview of system piping configuration, instrument and control setpoints and operating logic, system operating parameters and electrical control design. The circuits and logic functions of the Nuclear Steam Supply Shutoff System and the MSIV Sealing System were included in the review.

Operating Procedures, Surveillance and Inservice Tests, and Preoperational Tests were reviewed on a sampling basis to determine that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the requirements of the proposed TS.

Test methods and results of the preoperational tests were used on a sampling basis to verify that the system functioned within the parameters of the design drawings and requirements.

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

- Normal system alignments and operations
- Emergency system alignments and operations
- System testing alignments and methods
  - ITC Functional Tests
  - Flow Path Valve Lineups and Operability Testing
  - System Operational Readiness Testing

PCIS valve closure time requirements and isolation signals reviewed in detail were Groups 1 - 12 of TS Table 3.6.3-1.

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

3.3.3 Observations

The following inconsistencies were identified in the proof and review TS. In each case, the item was identified to NRC:RI for resolution with NRC:NRR and was provided to the licensee for information and consideration for incorporation into the next planned TS change. request

1. TS Table 3.6.3-1, Primary Containment Isolation Valves includes valve closing stroke times for PCIS automatic

isolation valves different from those listed in FSAR Table 6.2-5a, sheets 1-18.

The licensee acknowledged the above and advised that the FSAR values are "as purchased" valve specification data as reflected by FSAR Table Note 5, whereas the TS values are the actual results of "dry," valve timing tests plus a 50% tolerance to account for valve performance under flow conditions.

The 50% tolerance is an arbitrary, engineering judgment value added to the actual test results. The licensee stated that, even with the above increase to the dry test results, all valves' TS criteria are less than or equal to the accident analysis maximum stroke time requirements.

The licensee stated that the bases for the TS values and the differences from the FSAR values would be addressed with NRC:NRR and appropriately annotated in the TS or TS Bases or another appropriate document location.

2. FSAR Table 6.2-5a, Page 17, "Key to Isolation Signals" contains discrepancies with regard to the equivalent TS Table 3.7.2-5.

FSAR Item J contains reference to a Reactor Water Cleanup high differential flow signal; TS ~~is~~ are silent.

FSAR Item K contains a reference to a RCIC low steam supply pressure signal; the TS should but does not.

FSAR Items BB, V, and W do not match the equivalent TS notes.

An Item Z is used in TS, not in the FSAR.

3. The licensee's December 30, 1985 proposed revisions to TS Table 3.6.3-1 deleted containment isolation valves RCS-SOV-218, 219, 220, 221 based on a plant modification of recirculation pump ~~and~~ fire protection features. At the time of visual inspection of the drywell, the valves and penetrations were still installed but neither had been re-incorporated into TS to reflect the expected isolation status (e.g. valves disabled and locked closed, valves removed and penetrations capped, etc.). ←

The licensee advised their intent is to remove the valves and seal the penetrations.

Additionally, FSAR Table 6.2-56 will require amendment to reflect the final intended penetration status.

4. The nomenclature used for identification of individual Traversing Incore Probe (TIP) shear isolation valves is inconsistent between the FSAR and TS, e.g. "TIP SOV A, B, C, D, E", "CSI-J004", etc.

5. TS 3.6.3, Limiting Condition for Operation - Primary Containment Isolation Valves, includes a "*" note which permits intermittent opening of inoperable containment isolation valves under administrative control. The note does not specify any conditions, duration, nor controls to be applied while the valve(s) are open.

   The licensee advised that the note was added to accomodate periodic opening of the ECCS "keep fill" system vent valves as required by the ECCS TS.

   The note is too general, can result in undesirable accident entry conditions, and should be limited specifically to only the keep fill system valves necessary.

2.3.4 Conclusions

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

2.4 - SECONDARY CONTAINMENT

2.4.1 - Evaluation Criteria and Scope

The secondary containment function is provided by the reactor building and functions to minimize the ground level release of radioactive material during normal and accident operations. Through the Standby Gas Treatment System (SBGTS), it provides the controlled, elevated release of the building atmosphere. The secondary containment also functions as the primary containment/confinement when the drywell is open during refueling or maintenance operations.

The reactor building encloses the primary containment system and provides fuel storage facilities and other reactor auxiliary and service equipment. The Reactor Building Ventilation System controls the pressure in secondary containment during normal operation to -0.25 in. water gage (WG). Following an accident signal, the building will be maintained at a negative pressure of 0.25 inches of water by SBGTS.

The secondary containment and its related equipment were reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. See Appendix 2.4 for a listing of documents reviewed.

Primary Containment Isolation System (PCIS) is discussed in Section 2.3 of this report and the Primary Containment in Section 2.2.

For the secondary containment system review, proposed TS 3/4.6.5.1, .2, and .3 were compared to the documents listed in Appendix 2.4 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER.

The proof and review TS were also reviewed for the systems and equipment above.

2.4.2 Discussion

The features of these systems reviewed included normal, abnormal and emergency operations as described by the FSAR, Section 6.2, Containment Systems, Section 6.5, Filtration, Recirculation, and Ventilation System, and the licensee's draft and approved procedures.

The as-built configuration portion of the review included a sampling based overview of the Reactor Building and containment system features including ductwork configuration, fans, filter trains, dampers, doors, instrument and control setpoints and operating logic, system operating parameters and electrical control design. The circuits and logic functions of the ECCS Actuation System were included in the review.

Operating Procedures, Surveillance and Inservice Tests, and Preoperational Tests were reviewed on a sampling basis to determine that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the requirements of the proposed TS.

Test methods and results of the preoperational tests were used on a sampling basis to verify that the system functioned within the parameters of the design drawings and requirements. Where a preoperational test proved the functions of a logic circuit, the detailed procedures and results were compared with the logic and elementary diagrams to verify that the test accurately reflected the circuits and that the circuits were consistent with the design bases reflected in the FSAR, SER, and TS.

Specifically, the system features and operations involving the

following were reviewed:

Normal system alignments and operations
Emergency system alignments and operations
Controlled, filtered Reactor Building exhaust
Post-LOCA Operations
System testing alignments and methods
I&C Functional Tests
Flow Path Lineups and Operability Testing
System Operational Readiness Testing

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

2.4.2 Observations

The following inconsistencies were identified and were reviewed with the licensee for corrective action. The licensee stated that procedure comments would be reviewed and dispositioned during the final procedure review scheduled prior to licensed operations.

1. OSP-GTS-Q001, SBGTS Valve Operability Test, Revision 0, implements valve exercise requirements of TS 4.0.5 but does not include instructions for determination or documentation of acceptable test results. The data sheet provides only for placing a checkmark in the appropriate "SAT" or "UNSAT" column.

1. OSP-GTS-R001, SBGTS Operability Test, Draft, contains out of date acceptance criteria for TS 4.6.5.1.c.1 and .2 concerning Secondary Containment draw down time (TS = 90 seconds) and subsystem flow requirements (TS = 3,160 cfm). The discrepancies involve procedure sections 7.2.5, 7.2.6, and 8.1.

During a review of control room panels used during the test, the following instruments and controls were not identified by equipment "mark" numbers:

SGTS Train Initiation Switch

Inlet Air Instrument Gage

Purge Outboard Valve Override.

S. Spence

The licensee showed that these and similar items had been identified by a control room human factors and design review and were scheduled for correction.

3. PDT-200, Secondary Containment Leak Test, Revision 0, also includes acceptance criteria which no longer match TS 4.6.5.1.c (see Item 2 above).

4. Test Loop Diagram, Reactor Building Vent Supply Air Isolation Damper, 2HVR*AOD-1B, was reviewed as part of the system walkdown. Damper solenoid valves are identified on the diagram as SOVX-1B and SOVY-1B. In the field, neither valve includes the "X" or "Y" designation.

Problem Report #11347 was issued during the inspection to correctly label the valves.

5. During the same walkdown, orientation errors involving installation of lever actuated (NAMCO) air operated valve (AOV) and damper (AOD) limit switches were identified. The installation drawings ~~frequently~~ provide insufficient information to correctly orient the limit switches for proper actuation. The responsible I&C engineer advised that about 50% of the installations require field changes.

The I&C engineer had previously initiated Problem Report #02551 identifying the above and ~~used~~ a generic Deficiency Report (DR) #11270 to effect and document corrective action. The as-built changes are documented in the field with individual DRs and Temporary Modification forms. The licensee intends to transmit the DRs to Engineering following testing for issuance as Engineering Change Notices.

2.4.4 Conclusions

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

2.5 - PLANT SERVICE WATER AND EMERGENCY SERVICE WATER SYSTEMS

2.5.1 - Evaluation Criteria and Scope

The Station Service Water System (SWP) serves as both the normal and emergency system for post accident operations. The SWP system is designed with three major flow loops. Two are "essential"; one is "non-essential". All essential components

are powered from safety related sources.

Served heat loads include: RHR heat exchangers and pump seals, EDG coolers, control building chillers, hydrogen recombiners, reactor building ventilation system, and backup cooling water to the spent fuel pool. A system cross tie is also provided to the RHR system to permit flooding of the reactor or containment. During accident conditions, the non-essential loop is isolated.

The SWP is an open loop cooling system consisting of an intake and discharge complex, six pumps, associated valves, piping, trash racks, travelling water screens and cooling components. The ultimate heat sink is Lake Ontario.

Both SWP systems were reviewed per the criteria and methods of Sections 1.7 and 1.4 of this report. See Appendix 2.5 for a listing of documents reviewed.

Proposed TS 3/4.7.1, 3/4.7.5 and 4.0.5 were compared to the documents listed in Appendix 2.5 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER.

2.5.2 - Discussion

The features of these systems reviewed included normal, abnormal, and emergency operations described by the FSAR, Section 9.2, and the licensee's draft and approved procedures.

The as-built configuration portion of the review included a sampling based review of system piping configuration, instrumentation and control setpoints and operating logic, system operating parameters and limits.

Operating Procedures, Surveillance and Inservice Tests were reviewed determine that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the requirements of the proposed TS.

The Preoperational Test for the SWP System was reviewed on a sampling basis to establish that the system functioned as portrayed by the design drawings and requirements.

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

Normal system alignments and operations
Emergency system alignments and operations
System testing alignments and methods

Flow Path Valve Lineups and Operability Testing
System Operational Readiness Testing
Pump and Valve Inservice and Operability Testing

2.5.3 - Observations

Minor procedure inconsistencies were identified and discussed with the licensee during the inspection. The licensee advised that the comments would be reviewed and dispositioned during the planned final procedure review prior to licensed operations.

1. OSP-SWP-Q001, SWP Valve Operability Test, Draft, does not include testing of valves having test requirements identified by the Inservice Test (IST) Plan, e.g. AOV-97A & B, AOV-581, -a54, -572, -573, -574, -78A & B, V800A & B, V720A & B. No other applicable procedure containing the valves were identified.

2. The licensee recently decided to develop piping and instrumentation drawings (P&IDs) for plant systems. Former plans included use of the AE flow diagrams for operating phase activities. The P&IDs were available in preliminary form during the inspection; the licensee advised that drawing development was not yet complete.

   SWP valves listed in the IST Plan were found to be missing from the SWP P&ID, Sheets 1A through 1Q: V1024, V1025, V1027, FV47A & B, FV54A & B, RV34A & B, AOV-78A & B, V720A & B, V800A & B.

2.5.4 Conclusions

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

2.6 - REACTOR CORE ISOLATION COOLING SYSTEM

2.6.1 - Evaluation Criteria and Scope

The Reactor Core Isolation Cooling (RCIC) System consists of a turbine, pump, piping and valves, and instrumentation designed to maintain sufficient reactor water level inventory to ensure the continuity of core cooling.

System provide the means to inject water to the core when the

reactor is isolated or during a small break Loss of Coolant Accident (LOCA).

This system and related equipment were reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. See Appendix 2.6 for a listing of documents reviewed.

Proposed TS 3/4.7.4, 3/4.3.2, and 3/4.3.5 were compared to the documents listed in Appendix 2.6 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER.

2.6.2 - Discussion

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

The as-built configuration portion of the review included a sampling based review of system piping configuration, instrumentation and control setpoints and operating logic, system operating parameters and limits, and electrical controls design. The circuits and logic functions of the RCIC Actuation Instrumentation and RCIC Isolation Instrumentation were included in the review.

Operating Procedures, Surveillance and Inservice Tests, and Preoperational Tests were reviewed on a sampling basis to determine that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the requirements of the proposed TS.

The test methods and results of the preoperational tests were used on a sampling basis to establish that the system functioned as portrayed by the design drawings and requirements.

For example, where a preoperational test verified the functions of a logic element, the detailed test methods and results were compared with the logic and elementary diagrams to establish that the test accurately reflected the circuits and that the circuits were consistent with the design basis reflected in the FSAR, SER, and TS.

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

Normal system alignments and operations
Emergency system alignments and operations
System testing alignments and methods

I&C Calibrations
I&C Functional Tests
Flow Path Valve Lineups and Operability Testing
System Operational Readiness Testing
Pump and Valve Inservice and Operability Testing

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

2.6.3 - Observations

1. Preoperational Test POT-35, RCIC System Preoperational Test, Revision 0, verified that the High Steam Flow Isolation Time Delay relay was set at "approximately 7 seconds" instead of the 3 - 12 second criteria of TS Table 3.3.3-2.

   The philosophy of the time delay function and the desirability to have the time delay set higher in the acceptable range to avoid spurious RCIC pump trips on startup steam flow surges was discussed with the licensee.

   The licensee acknowledged the above and confirmed that the POT had been written in accordance with the NSSS preoperational test specification. The licensee advised that the time delay relay would be reset, if necessary, in accordance with the TS surveillance requirement.

   Verification of the RCIC High Steam Flow Isolation Time Delay is recommended for confirmation by NRC during a future inspection.

2. POT-35 also included requirements for stroke time verification of motor operated valves which were greater than (unconservative) the current values of TS Table 3.6.3-1. Examples include valves: 2ICS*MOV-154 and -148 (22.5 sec. vice TS limit = 14 sec.) and MOV-121 and -123 (15 sec. vice TS limit = 14 sec.). The licensee stated that a review of the POT and actual valve performance would be conducted to ensure TS could be met.

3. IOP-35, RCIC Interim Operating Procedure, Revision 0, pages 7 & 9, include an incorrect value of 60 psig for the steam supply low pressure interlock of TS 3.3.2 (70-75 psig). The

licensee advised that this discrepancy would be reviewed and corrected as necessary in the next issue of the procedure.

4. OSP-ISC-R001, RCIC Functional Test, Revision 0, Sections 7.2.9.8 and 7.2.33.2, identifies AOV-109 as "TURB EXH TO SUPP POOL"; AOV-109 is actually a steam line drain pot drain. Other valve "noun" names appeared inappropriate to the valve applications, e.g. FV-108, MOV-124, etc. The licensee agreed to review and correct this item in the next procedure issue.

5. TS Table 4.3.2.1-1, Isolation Actuation Instrumentation Surveillance Requirements, Item 2h, RCIC Isolation Signals - Manual Isolation Pushbutton, contains a "*" note involving TG stop valve position and low main condenser vacuum. The note is not applicable to the subject item and its reference should be deleted. The note does apply to Item 1e, same table.

6. TS 3.7.4, RCIC LCO, includes a "**" note which permits the "manual" initiation circuit to be inoperable with less than 600 psi steam pressure. The licensee advised that the note was inserted to accommodate RV level instrument errors resulting from calibration to hot system conditions.

   At cold system conditions, the level instruments indicate an erroneously high level, causing a Level 8 trip (reset/off) of RCIC, effectively blocking manual initiation. Automatic (low level) initiation functions are considered operable due to an actual low level clearing the Level 8 condition and causing a low level initiation signal.

   The above "**" note is too general for the intended purpose and permits inoperability for inapplicable reasons. Additional NRC:RI review and referral of this item to NRC:NRR is recommended.

2.6.4 Conclusions

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

paginate

2.7 - AC POWER SOURCES

Cop 5

2.7.1 - Evaluation Criteria and Scope

The AC Power Sources consist of 115 kV offsite power, 13.8 kV safety related and non-safety related busses, 4.16 kV safety related and non-safety related busses, and 600 VAC, 120/240 VAC, and 120/208 VAC distribution systems and 120/208 VAC uninterruptible power supply system.

The safety related Class 1E AC power distribution system is divided into three independent divisions (Divisions I, II, and III). Each division has 4.16 KV normal and alternate power sources and a dedicated 4.16 KV emergency diesel generator (EDG) with complete auxiliary systems such as fuel and lube oil, starting air, and cooling systems.

The AC Power Sources and their associated equipment were reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. See Appendix 2.7 for a listing of documents reviewed.

Proof and review TS 3/4.8.1 was reviewed for the systems and equipment listed above and compared to the documents listed in Appendix 2.7 to verify that the TS accurately represent the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER.

2.7.2 Discussion

The review of the systems and equipment includes the normal, abnormal and emergency operations described by the FSAR and the licensee's procedures.

The system configuration drawings, operating logic diagrams, system operating parameters and limits, surveillance and preoperational test procedures, and operating procedures were reviewed on a sampling basis to ensure that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the requirements of the proposed TS.

The following system features and operations were specifically reviewed:

- Normal and abnormal system alignments and operations
- Emergency system alignments and operations
  - During loss of offsite power (LOOP)
    - Simultaneous LOOP and LOCA
    - LOOP with Delayed LOCA
    - LOCA with Delayed LOOP
- System testing alignments and methods
- System equipment operability testing

Emergency Diesel Generators
EDG Auxiliary Systems

A selective visual inspection of the systems and equipment established that the design features were accurately translated into as-built systems. The visual inspection also verified that the system configuration, equipment, bus arrangement, main control room and local stations, instrumentation and controls, and system operability were in agreement with the proposed TS requirements.

2.7.3 Observations

The following discrepancies were identified. The TS comments provided below were forwarded to NRC:RI for disposition with NRC:NRR. In each case of procedure or drawing comments, the licensee either provided or initiated a resolution.

1. References: TS 3/4.8.1; OSP-EGS-M001, DG Operability Test, Division 1 2, Revision 0; OSP-EGS-M002, DG Operability Test, Division 2, Revision 0; Drawing EE-1CA-6, One Line Diagram, Emergency and Vital Bus, Power Distribution,, Revision 6.

   TS 3.8.1.1.b.2 and 3.8.1.2.b.2 identify fuel oil minimum requirements of 52,654 gallons for EDG-1 and EDG-2 and 36,177 gallons for EDG-2.

   OSP-EGS-M001, Sections 1.1.1 and 8.1 identify a minimum requirement of 50,148 gallons. Sections 7.3 (note) and 7.3.1 of the same procedure identify a minimum requirement of 50, 502 gallons.

   OSP-EGS-M002, Sections 1.1.1 and 8.1 identify a minimum requirement of 37,878 gallons. Sections 7.2 (note) and 7.2.1 of the same procedure identifies a minimum requirement of 34,405 gallons.

   TS Section 4.8.1.1.2.a.7 identifies the required EDG air start receiver pressure for EDGs-1, -2, and -3 to be ≥225 psig.

   OSP-EGS-M001, Sections 1.1.2 and 8.2, identify a minimum receiver pressure of ≥240 psig. OSP-EGS-M002, Sections 1.1.2 and 8.2 identify a pressure of ≥ 215 psig.

   TS 3/4.8.1 refers to the EDGs as EDG-1, EDG-2, and EDG-3. OSP-EGS-M001 references 2 EDG-1, -2, -3. OSP-EGS-R001 uses the nomencalature 2EGS*EG1, *EG2, and *EG3. Consistent use of nomenclature was recommended to the licensee.

The TS reference numbers throughout both procedures (-M001, and -M002) above ~~and~~ are consistently incorrect and reference nonexistent TS paragraphs, e.g. 4.8.1.1.2.2.a.2 vice 4.8.1.1.2.a.2, etc.

The licensee advised that the procedures would be corrected as part of the final review prior to licensed operations.

2. Drawing EE-M01B-2 identifies the 2,000 hour rating of diesel generator 2EGS*EG1 to be 4,700 KW. TS 4.8.1.1.2.f.10 and the FSAR identify the 2,000 hour rating to be 4750 KW. The licensee issued internal correspondence during the inspection to correct this discrepancy. ←

3. The loading sequence of the Division I EDG for LOCA and simultaneous LOOP identified by IOP-72, Standby and Emergency AC Distribution System Interim Operating Procedure, Revision 0, is incorrect with respect to FSAR Table 8.3-1. ←

IOP-72, Section 1.18.3).4).b) states that injection valve 2CSL*MV104 receives an open permissive signal at T = 6 seconds; FSAR Table 8.3-1 states that T = 17 seconds for the valve open permissive signal.

Section 1.18.8).5).a, Note, states that 2SWP*P1C and *P1E are locked out until T = 5 minutes. FSAR Table 8.3-1 states that the lockout is released at T = 55 seconds. ←

Section 1.18.8).7)b states that injection valve 2RHS*MOV24 receives an open permissive time signal at T = 1 second. FSAR Table 8.3-1 states the signal will occur at T = 0 seconds.

Similarly, IOP-72 disagrees with FSAR Table 8.3-2 for LOOP and Delayed LOCA for the Division II EDG load sequence. IOP-72, Section 1.18.10).6).a, Note, states that 2SWP*P1D and *P1F are locked out until T = 5 minutes. The FSAR Table 8.3-1 value is 55 seconds.

Section 1.18.10).6), .7), and .8) state that 2SWP*P1B starts at T= 32 seconds, *P1D at T = 34.5 seconds, and *P1F at T = 37 seconds. Table 8.3-2 states 32, 36, and 39 seconds respectively.

Correct margins

The licensee stated that the correct values would be verified and the procedures corrected. Confirmation of actual time delay relay settings vs. the FSAR values is also recomended by the team. NRC:RI verification of these settings is recommended.

4. Prior issues of draft TS included requirements to maintain

minimum EDG-2 room air temperature; subsequent equipment modifications have removed that need and the December 30, 1985 licensee submittal deleted most references from TS. TS 3.8.1.1, Action d, still includes a partial reference to the above requirements and needs an editorial change.

5. TS 4.8.1, Table 4.8.1.1.2-1, Diesel Generator Test Schedule, is inconsistent with Standard TS and USNRC Regulatory Guide 1.108 and appears to be missing column headings or other key information to make the table readable. The table appears unusable in its current form.

6. TS 4.8.1.1.2.a.5 provides for periodic verification of EDG standby alignment per the schedule of Table 4.8.1.1.2-1 (mentioned above) based on failure frequency. The TS should also provide for similar verification after "each occasion when the diesel generator is operated for any reason". This is consistent with other recently issued TS (Millstone, Unit 2) and provides additional assurance that the units are service read, after a planned or unplanned operation.

5 Items

7. TS 4.8.1.1.2.f.4.a.2 and .b.2 require correction of the "**" note references in text and at the bottom of the page to be consistent throughout. The "**" note applies to the frequency of "cold start" vs. "pre-warmed and pre-lubed" starts for testing. The original text and the licensee markups (December 30, 1985 submittal) are both inconsistent. ←

8. TS 4.8.1.1.2.f.3, addresses EDG trip bypasses and provides for generator differential trips not to be bypassed. The item was modified by the December 30, 1985 submittal to delete "current" from the differential trip description. "Current" should therefore be replaced with the correct descriptive information.

9. TS 4.8.1.1.2.f.9 cross references to "4.1.1.2.e.4.a and b. This reference should read 4.8.1.1.2.f.4.a. and b.

Correct misspelling

10. Motor Control Center EHS MCC 303 consists of two physically separate free standing sections of MCC enclosures. Drawing EE-1CA-6 identifies one section as "Bus B" and the other as "Bus D". No identification (labels, etc.) is provided on the panels. The licensee initiated internal corresondence to add appropriate identification tags.

11. The 224 KVA transformer 2 EJS-X2 is labelled with an equipment identification tag having a green background and reading: "HFCS Motor COntrol Center

Correct Margin

Transformer ESF Division 3". The color coding is incorrect for the division. The licensee has initiated action to replace the tag with an appropriately colored replacement.

2.7.4 Conclusions

Except as noted above, no inconsistencies were noted during the visual inspection. The as-built system is in agreement with the documents reviewed and the TS requirements were definitively measurable

2.8 - DC POWER SOURCES

2.8.1 - Evaluation Criteria and Scope

The DC Power Sources consist of the Normal DC System and the Emergency DC System. The Normal DC System consists of three independent 125 VDC batteries, three static chargers and three groups of associated switchgear. Each battery is sized to carry its loads for a period of at least two hours. On loss of charger or normal AC power, the batteries supply all loads such as lighting, RPS, instrumentation, and controls.

The Emergency System consists of two independent 125 VDC batteries (Division I and II), four static chargers and two groups of associated switchgear. The Division I and II batteries supply nuclear safety related equipment and each is physically separated to provide independence and diversity. On loss of all AC power to the chargers, the batteries are sized to provide power to the emergency DC loads for at least two hours.

The DC Power Sources and their associated equipment were reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. See Appendix 2.8 for a listing of documents reviewed.

Proof and review TS 3/4.8.2 was reviewed for the systems and equipment listed above and compared to the documents listed in Appendix 2.8 to verify that the TS accurately represent the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER.

2.8.2 Discussion

The review of the systems and equipment included the normal, abnormal and emergency operations described by the FSAR and the licensee's draft and approved procedures.

The system configuration drawings, operating logic diagrams, system operating parameters and limits, surveillance and preoperational test procedures, and operating procedures were reviewed on a sampling basis to ensure that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the requirements of the proposed TS.

The following system features and operations were specifically reviewed:

Equipment Ratings
Independence of redundant power sources
Normal, abnormal and emergency system alignments and operations
System testing alignments and methods
System equipment operability testing
Batteries
Battery Chargers
System ventilation requirements

A selective visual inspection of the systems and equipment established that the design features were accurately translated into as-built systems. The visual inspection also verified that the system configuration, equipment and bus arrangement, main control room and local station instrumentation and controls, and system operability maintenance were in agreement with the proposed TS requirements.

2.8.7 Observations

The following discrepancies were identified. The licensee provided resolution as noted. Comments on the TS were provided to NRC:RI for disposition.

1. TS 4.8.1.f. DC Sources, ~~subparagraph f.~~ discusses surveillance requirements for battery discharge tests. The ~~sub~~paragraph is misworded and requires editorial correction: "...perform discharge tests of battery capacity shall be given to any battery...."

2. On Drawing EE-1CA-a, One Line Diagram, Emergency and Vital Bus, Power Distribution, Battery Charger 2BYS*CHGR2AB1(-G) appears to be mislabelled with regard to divisional assignment, i.e. (-G) represents the "green" division. The proper division should by (-Y) for the "yellow" division.

   The licensee initiated internal correspondence to correct the drawing error.

The licensee committed to review the above and make appropriate corrections in the next routine procedure revision. NRC:RI confirmation of this action is recommended.

2.8.4 Conclusions

No substantive inconsistencies were noted during the visual inspection. The as-built system is in agreement with the documents reviewed and the TS requirements were definitively measurable ←

2.9 - ONSITE POWER DISTRIBUTION SYSTEM

2.9.1 - Evaluation Criteria and Scope

The onsite AC power distribution system includes all equipment and systems required to provide AC power to all unit auxiliaries and service loads under all conditions of plant operation. This consists of the 13.8 KV switchgear, 4.16 KV switchgear, 600 V load centers, motor control centers, various distribution panels, uninterruptable power supply systems, cables and raceways, the standby diesel generators and the system loads.

The onsite ac power system is divided into two distinct categories: emergency or safety related and normal or non-safety related. The equipment, system, and loads required to safely shutdown the reactor in case of analyzed accidents are designed nuclear safety related to Class 1E.

The system and associated equipment were reviewed with respect to the criteria and methods of Sections 1.2 and 1.4 of this report. See Appendix 2.9 for a listing of documents reviewed.

Proposed TS 3/4.8.2 was reviewed for the systems and equipment listed above and compared to the documents listed in Appendix 2.9 to verify that the TS accurately represent the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER.

2.9.2 Discussion

The review of the systems and equipment included the normal, abnormal and emergency operations described by the FSAR and the licensee's procedures.

The system configuration drawings, operating and alarm logic diagrams, circuit breaker schematic diagrams, system operating parameters and limits, surveillance and preoperational test

procedures, and operating procedures were reviewed on a sampling basis to ensure that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the requirements of the proposed TS.

The following system features and operations were specifically reviewed:

Normal and abnormal alignments and operations
Emergency system alignments and operations
  During loss of offsite power (LOOP)
  During simultaneous LOOP and LOCA
  During LOOP with delayed LOCA
  During LOCA with delayed LOOP
System testing alignments and methods
System operability testing
Emergency Diesel Generators
Reactor Protection System (RPS) Power Supply System

A selective visual inspection of the systems and equipment established that the design features were accurately translated into as-built systems. The visual inspection also verified that the system configuration, equipment and bus arrangement, main control room and local station instrumentation and controls were in agreement with the proposed TS requirements.

2.9.3 Observations

No discrepancies were identified. Related discrepancies are discussed in Sections 2.7 and 2.8 of this report.

2.9.4 Conclusions

No inconsistencies were noted during the visual inspection. Except as noted above, the as-built system is in agreement with the documents reviewed and the TS requirements were definitively measurable

2.10 - HIGH PRESSURE CORE SPRAY SYSTEM AND AUTOMATIC DEPRESSURIZATION SYSTEM

2.10.1 - Evaluation Criteria and Scope

The High Pressure Core Spray (HPCS) System provides the means to inject water to the core during a Loss of Coolant Accident (LOCA). The system consists of a motor driven pump powered by dedicated diesel generator and taking suction from either a dedicated Condensate Storage Tank or Suppression Pool.

The Automatic Depressurization System will reduce reactor pressure upon indication of a design basis accident and failure of HPCS to permit injection to the reactor core by the low pressure ECCS systems (Low Pressure Core Spray and Low Pressure Coolant Injection).

These systems and their related equipment were reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. See Appendix 2.10 for a listing of documents reviewed.

Proposed TS 3/4.5.1., 3/4.5.2, 3/4.7.2, 3/4.4.2, were compared to the documents listed in Appendix 2.10 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER.

2.10.2 - Discussion

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

The as-built configuration portion of the review included a sampling based review of system piping configuration, instrumentation and control setpoints and operating logic, system operating parameters and limits, and electrical controls design. The circuits and logic functions of the ECCS Actuation Instrumentation and HPCS Isolation Instrumentation were included in the review.

Operating Procedures, Surveillance and Inservice Tests, and Preoperational Tests were reviewed on a sampling basis to determine that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the requirements of the proposed TS.

The test methods and results of the preoperational tests were

used on a sampling basis to establish that the system functioned as portrayed by the design drawings and requirements. ~~For example~~, Where a preoperational test verified the functions of a logic element, the detailed test methods and results were compared with the logic and elementary diagrams to establish that the test accurately reflected the circuits and that the circuits were consistent with the design basis reflected in the FSAR, SER, and TS.

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

Normal system alignments and operations
Emergency system alignments and operations
  ECCS Injection Phase Operations
  ECCS Recirculation Phase Operations
System testing alignments and methods
  I&C Calibrations
  I&C Functional Tests
  Flow Path Valve Lineups and Operability Testing
  System Operational Readiness Testing
  Pump and Valve Inservice and Operability Testing

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

9.10.7 - Observations

See Section 9.7 for observations involving the HPCS dedicated diesel generator.

Several minor inconsistencies were identified:

1. FSAR Section 5.2.2.10 (throught Amendment 22) includes extensive commitments to maintain and test ADS system Safety/Relief Valves (SRVs) in excess of current plant procedures. These FSAR commitments had been identified and assigned to the station Mechanical Maintenance Department for implementation by the licensee's FSAR verification and commitment program via memo dated October 16, 1985.

   Currently available and planned licensee procedures and the draft TS did not appear to meet all the FSAR requirements. The Superintendent of Mechanical Maintenance provided the inspector a January 14, 1986 transmittal to NMPC Licensing

responding to the above and recommending a change to the FSAR to delete maintenance and test items believed to be unnecessary and to bring the FSAR into agreement with the current licensee p' ns.

NRC:RI followup of this item is recommended to assure that the proposed FSAR amendment is submitted to NRR and/or that the licensee's implementation of SRV maintenance and testing activities meets the as-licensed requirements.

2. TS 4.5.1.b (and Table 3.7.2-2, and others) include a "+" footnote which indicates that proof and review TS acceptance criteria parameters are preliminary subject to confirmation of final data via the preoperational and startup test programs.

The various notes are inconsistently written, some providing licensee submittal time requirements (within 90 days), some not, etc. Further, the notes do not provide for circumstances in which the "final" parameters resulting from the test program are less conservative that those preliminarily included in the TS, causing possible compliance difficulties.

NRC:RI review of this matter with NRC:NRR is recommended.

2.10.4 Conclusions

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

2.11 - RESIDUAL HEAT REMOVAL SYSTEM

2.11.1 - Evaluation Criteria and Scope

The Residual Heat Removal System consists of three loops each containing a motor driven pump taking suction from the suppression pool. Loops A & B also contain heat exchangers cooled by service water, can take suction from the recirculation loops and can discharge to the recirculation loops, the suppression pool and drywell spray spargers.

The Low Pressure Coolant Injection (LPCI) System is an operating mode of the Residual Heat Removal (RHR) system and provides the means to inject high volume, low pressure water to the core during a Loss of Coolant Accident (LOCA).

This system and the related equipment was reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. See Appendix 2.11 for a listing of documents reviewed.

Proposed TS listed in Appendix 2.11 were compared to the documents listed in Appendix 2.11 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER.

2.11.3 - Discussion

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

The as-built configuration portion of the review included a sampling based review of system piping configuration, instrumentation and control setpoints and operating logic, system operating parameters and limits, and electrical controls design. The circuits and logic functions of the ECCS Actuation Instrumentation were included in the review; a specific review of reactor vessel level trips and LPCI actuation signals was performed.

Operating Procedures, Surveillance and Inservice Tests, and Preoperational Tests listed in Appendix 2.11 were reviewed on a sampling basis to determine that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the requirements of the proposed TS.

The test methods and results of the preoperational tests were used on a sampling basis to establish that the system functioned as portrayed by the design drawings and requirements.

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

- Normal system alignments and operations
- Emergency system alignments and operations
  - ECCS Injection Phase Operations
  - ECCS Recirculation Phase Operations
  - Containment Cooling
- System testing alignments and methods
  - I&C Calibrations
  - System Functional Tests
  - Flow Path Valve Lineups and Operability Testing
  - Pump and Valve Inservice and Operability Testing

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

2.11.3 - Observations

A number of minor inconsistencies were identified and were resolved by the licensee during the inspection:

1. OSP-RHS-Q004, RHR Loop A Pump and Valve Operability and System Integrity Test, Revision 0, requires updating to current TS as reflected by "laters" in procedure. The licensee advised that this would be addressed during conversion of the procedure from "interim" to permanent status.

2. IOP-T1, RHR Interim Operating Procedure, Revision 0, page 5, shutdown cooling valve interlock setpoint of ≤175 psig requires update to current value of ≤120 psig per TS Table 3.3.2-2. The licensee advised that this would be addressed during conversion of the procedure from "interim" to permanent status.

3. ISP-ISC-M003, LPCI/LPCS Injection Valve Permissive Functional Test, Draft, includes a setpoint of 650 psid (consistent with prior design requirements) The current TS value and proposed licensee disposition are as per item 2 above.

4. TS Table 4.3.2.1.-1, Isolation Actuation Instrumentation Surveillance Requirements, Item J.g, PCIS, Reactor Vessel Pressure High (RHR Cut in Permissive), footnote "(d)" is inappropriate and should be deleted. The footnote waives requirements for performing channel sensor calibrations and is applicable only to special cases of area temperature instruments.

5. TS Table 3.3.2-4, Valve Groups and Associated Isolation Signals. The "RHR Head Spray Valve" should be added to Group 5 of this table for clarity and consistency with TS Table 3.6.3.1.

6. TS 3.6.2.1, Suppression Pool Temperature, refers to suppression pool "sectors" for temperature monitoring instruments but does not define or reference a source for identifying actual sectors.

7. TS 3.4.6.2, Reactor Steam Dome Pressure, Action, requires that if pressure exceeds 1020 psig, pressure be reduced to the limit within 15 minutes or place the plant in Operational Condition 3 (Hot Shutdown) within the next 12 hours.

   The time limits appear inappropriate and detract from the meaningfulness of the TS. The limit appears to be based upon the 1020 psig initial condition for the analysis of high reactor pressure transients and accident sequences. TS 2.1.3 provides the Safety Limit value of 1325 psig for reactor pressure.

   A more realistic and meaningful TS 3.4.6.2 Action would include: 1) reduction of the overpressure within 15 minutes or 2) reduce power to a specified level to begin reducing system potential energy within the next "x" minutes, and if unable to accomplish 1) and 2) within the specified time periods, 3) be in Condition 3 within the next 12 hours.

The TS comments above were provided to NRC:RI for review and disposition. The comments were also provided to and acknowledged by the licensee.

2.11.4 Conclusions

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

2.12 - LOW PRESSURE CORE SPRAY SYSTEM

2.12.1 - Evaluation Criteria and Scope

The Low Pressure Core Spray (LPCS) System functions to spray water from the Suppression Chamber at high volume and low pressure directly to the core during a Loss of Coolant Accident (LOCA). The system consists of one motor driven pump drawing suction from the Suppression Pool and discharging to the reactor vessel via sparger nozzles immediately above the core.

This system and the related equipment was reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. See Appendix 2.12 for a listing of documents reviewed.

Proposed TS 3/4.5.1., 3/4.5.2, 3/4.7.2, 3/4.7.3, and 3/4.5.3 were compared to the documents listed in Appendix 2.12 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER.

2.12.2 - Discussion

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

The as-built configuration portion of the review included a sampling based review of system piping configuration, instrumentation and control setpoints and operating logic, system operating parameters and limits, and electrical controls design. The circuits and logic functions of the ECCS Actuation Instrumentation were included in the review; a specific review of reactor vessel level trips, LPCS actuation signals, individual pumps and valve actuation logics, and system time response was performed.

Operating Procedures, Surveillance and Inservice Tests, and Preoperational Tests listed in Appendix 2.12 were reviewed on a sampling basis to determine that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the requirements of the proposed TS.

The test methods and results of the preoperational tests were used on a sampling basis to establish that the system functioned as portrayed by the design drawings and requirements.

Specifically, the system features and operations involving the

following were reviewed:

Normal system alignments and operations
Emergency system alignments and operations
ECCS Injection Phase Operations
ECCS Recirculation Phase Operations
System testing alignments and methods
System Functional Tests
Flow Path Valve Lineups and Operability Testing
Pump and Valve Inservice and Operability Testing

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

2.12.3 - Observations

Minor inconsistencies were identified. All inspector questions were resolved by the licensee during the inspection except as noted below.

1. IOP-32, LPCS Interim Operating Procedure, Revision 0, Section E.3.1, indicates a LPCS Injection Valve MOV-104 interlock setpoint of 725 psig vs. the current TS 4.3.3.1 value of 88-93 psid. The licensee stated that the discrepancy would be corrected during the next revision of the IOP.

2. See Section 2.11.3 of this report for additional discussion of a similar setpoint discrepancy in Procedure ISP-ISC-M003, LPCI/LPCS Valve Permissive Functional Test.

2.12.4 Conclusions

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

2.13 - STANDBY LIQUID CONTROL SYSTEM

2.13.1 - Evaluation Criteria and Scope

The Standby Liquid Control (SBLC) System provides the means to manually (or automatically in conjunction with the Redundant Reactivity Control System) inject borated water into the reactor core to terminate critical reactor operation.

The system consists of two pump trains, a storage tank, and test/flushing tank and accessories.

This system and its related equipment were reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. See Appendix 2.13 for a listing of documents reviewed.

Proposed TS 3/4.1.5 was compared to the documents listed in Appendix 2.13 to verify that the proposed TS accurately represented the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER.

2.13.2 - Discussion

The features ~~of this~~ system reviewed included normal, abnormal, and emergency operations described by the FSAR, Section 15, Accident Analysis, and the licensee's draft and approved procedures.

The as-built configuration portion of the review included a sampling based review of system piping configuration, instrumentation and control setpoints and operating logic, system operating parameters and limits.

Operating Procedures, Surveillance and Inservice Tests were reviewed determine that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the requirements of the proposed TS. Preoperational tests were not reviewed.

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

- Normal system alignments and operations
- Emergency system alignments and operations
- System testing alignments and methods
- Flow Path Valve Lineups and Operability Testing
- System Operational Readiness Testing
- Pump and Valve Inservice and Operability Testing

pagency

2.13.3 - Observations

1. IOP-36, SBLC Interim Operating Procedure, Revision 0, requires updating to current TS 3/4.1.5 values for minimum tank levels.

2. OSP-SLS-0001, SBLC Pump, Check Valve and Relief Valve Test, Revision 0, did not include a list of "laters" (data to be incorporated when available) in accordance with licensee administrative procedures. "Laters" exist in sections 7.2.4, 7.2.11, 7.3.4, etc.

3. TS 4.1.5.d.4, SBLC Storage Tank Heater Surveillance Requirement, does not include numerical values for minimum heater performance (temperature rise vs. time) as is included in Standard TS. The absence of such criteria permits the licensee to unilaterally determine the acceptability of heater performance.

Items 1 and 2 above were acknowledged by the licensee and will be reviewed and resolved during the next procedure revisions.

Item 3 was provided to NRC:RI for review with NRC:NRR.

2.13.4 Conclusions

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

2.14 - RADIATION MONITORING SYSTEM

2.14.1 - Evaluation Criteria and Scope

The Radiation Monitoring System collects and processes data from radiation monitoring sensors throughout the plant. It incorporates the functions of an area radiation monitoring system and a process radiation monitoring system. With the exception of the Main Steam Line Process Radiatin Monitors and the Gaseous Effluent Monitoring System, these two functional groups are brought together ~~under~~ in the digital radiation monitoring system, a computer controlled and operated system.

The Radiation Monitoring System and associated equipment were reviewed with respect to the criteria and methods of Sections 1.3 and 1.4 of this report. The review performed was limited to a general review of the system operating procedure (IOP-79, Radiation Monitoring System Interim Operating Procedure) and FSAR and SER Sections 11.5.

Proof and review TS 3/4.3.7 was reviewed for the systems and equipment listed above and compared to the FSAR, SER, and operating procedure to verify that the TS accurately represent the as-built plant configuration and operating characteristics and were in agreement with the information in the FSAR and SER.

2.14.2 Discussion

The review of the systems and equipment included the normal, abnormal and emergency operations described by the FSAR and the licensee's procedures.

The system configuration drawings, operating and alarm logic diagrams, circuit breaker schematic diagrams, system operating parameters and limits, and operating procedures were reviewed on a sampling basis to ensure that the design features were accurately reflected by the test and operating methods and that these methods were consistent with the requirements of the proposed TS.

A very general review was performed. Visual inspections were performed in conjunction with other process system reviews discussed herein.

2.14.3 Observations

No discrepancies were identified in the areas of general review.

2.14.4 Conclusions

No inconsistencies were noted during the general review of the system. The documents reviewed were in agreement with the TS.

3.0 - GENERAL CONCLUSIONS

The inspection found that the proof and review Technical Specifications (TS) were compatible with the Final Safety Analysis Report (FSAR), Safety Evaluation Report (SER), the facility's procedures, and the as-built plant as reflected by the engineering drawings, data and in situ hardware.

The TS and FSAR are reasonably complete and in agreement for the project status (Operating License projected for early 1986). The licensee's production of operating phase TS implementing procedures was in progress during the inspection. All operating procedures ~~requested~~ reviewed were available in "interim" form (see below)

Procedure Status

The licensee has implemented an administrative procedure program of "interim" procedures for operating and surveillance activities. Under this program the initial versions of each procedure are issued for verification, validation, and revision during the preoperational phase activities.

Prior to licensed operations, the interim procedures will be updgraded to meet current license requirements and lessons learned during the test program. This program appeared to be functioning satisfactorily.

At the time of inspection, the licensee had identified needs for 494 surveillance procedures. About 196 of these had been issued in approved "interim" form. Another 185 were reported as drafted but not yet approved, leaving about 110 procedures to be drafted.

About 180 surveillance procedures are required to support Operational Conditions 4 (Cold Shutdown) and 5 (Refueling). Of these 60 had been approved with another 88 in unapproved draft, leaving about 30 procedures to be prepared.

The licensee has also adopted a system to identify and track information unavailable or missing from the procedures using "later" identifications. Only one discrepancies was identified in this program involving a missing summary sheet in a surveillance procedure; all "laters" within the procedure were correct.

Although not reviewed during this inspection, the licensee advised that a computer based program has been developed to track surveillance procedure reference and input documents. This program will permit identification of impact on the procedures resulting from changes in the input documents.

The licensee's programs for TS development and implementation appear to be functioning satisfactorily.

As-Built Verification

The licensee has implemented an as-built verification program aimed at confirming the "as-tested" configuration of the systems following preoperational testing. The program is intended to ensure that the plant drawings accurately reflect the as tested status and that design changes are properly coordinated with the system test status, drawing status, and license commitments.

The verification of electrical, instrument and control system features involves use of the preliminary test and preoperational test drawing ("yellow lined") markups to establish as-tested system configuration. The mechanical portions of the systems are visually inspected vs. design drawings.

The program was reviewed only briefly during this inspection but, in principle, appears to provide additional assurance that the as-built plant is consistent with the design drawings and test procedure results.

FSAR Verification and Commitments

The licensee has also implemented a program for identification and verification of FSAR requirements and commitments. The program identifies FSAR content which warrants confirmation of implmentation, assigns written action items to, and requires written response and response verification from the cognizant action parties.

This program was not specifically inspected during this site visit but several examples of its output were encountered and appeared satisfactory.

Inspection Findings

The findings from this inspection are discussed in detail in the respective report sections. In general, the licensee's programs for development and implmentation of TS appear to be functioning. The TS were definitively measureable and, although still under development, were found compatible with the FSAR, SER, and the as-built plant.

No significant plant configuration problems were identified. One frequent problem encountered during the plant visual

inspections was the absence, accuracy or presentation of equipment labelling and identification.

The licensee has completed a human factors design review of the control room, resulting in ongoing correction of identification deficiencies therein. In other plant areas, much equipment was yet to be labelled, bore erroneous or damaged labels, or was inconsistently labelled with respect to the color code conventions applied to engineered safety feature ~~trains~~ divisions (green, purple, yellow). Additional review of this matter by NRC:RI once construction activities decrease is recommended.

In depth review of the TS applicable to this inspection found the need for editorial and technical improvement. In a number of cases, inappropriate or incorrect footnote references, tables, and text required editorial correction, e.g. containment isolation system TS table legends, instrumentation TS applicability and frequency footnotes, diesel generator TS footnotes and text, etc. (Section 2.7) (Section 2.1) (Section 2.2)

In several areas, the specificity of the TSs required improvement. See comments herein regarding RCIC manual initiation inoperability (Section 2.6), Standby Liquid Control Storage Tank Heater Surveillance criteria (Section 2.13), handling of preoperational test confirmation of TS criteria (Section 2.10).

Few cases of inappropriate TS provisions were identified. Most of these involved a need for additional specificity or consistency with other TS provisions or the Standard TS. Examples include: action on high reactor pressure (Section 2.10), increased surveillance actions with an inoperable containment vacuum breaker (Section 2.2), etc.

Only one case was identified involving a disagreement between TS and a plant modification. Revisions to TS and the FSAR are necessary to reflect changes in containment isolation valve and penetration assignments as described in Section 2.2.b.

In most cases, the licensee's interim operating and surveillance procedures agree favorably with the FSAR and TS. The principal area of disagreement involved the revision of procedures to incorporate recent changes in TS and IST program requirements, parameters and acceptance criteria. Although numerous discrepancies were identified, the licensee's management controls appear adequate based on the program for a full procedure review and update prior to licensed operation.

Similarly, recent TS changes are not reflected in the preoperational test procedures. This can result in two problems. First, affected equipment may require adjustment of setpoints or operating ranges to be consistent with TS. Second, a meticulous review of preoperational test methods and results

appears necessary prior to permitting a preoperational test to be "creditted" toward TS Sureillance Requirement satisfaction.

This was discussed with and acknowledged by licensee personnel who indicated that plans in the above regard are under development but incomplete at the time of inspection.

None of the specific discrepancies identified would have had a material negative impact on safety of operation and did not indicate programmatic nor systemic problems.

SECTION 4.0

APPENDICES

APPENDIX 1.0

NINE MILE POINT UNIT 2 - INSPECTION PLAN

VERIFICATION OF AS-BUILT CONDITIONS

TO

TECHNICAL SPECIFICATIONS AND FSAR/SER

OBJECTIVES:

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

determine whether the Technical Specifications and FSAR/SER are compatible with the NMP-2 as-built plant, and

to determine whether Technical Specification requirements are definitively measurable.

General Scope

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

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

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

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

High Pressure Core Spray
Associated Systems
Dedicated Diesel

Low Pressure Core Spray
Residual Heat Removal
Containment Spray
Emergency Service Water
Containment Isolation Systems & Valves
Standby Liquid Control System
Reactor Protection System
Vital AC Power & Emergency Diesel Generators
Vital DC Power
Reactor Core Isolation Cooling
Automatic Depressurization System
Standby Gas Treatment System (or equiv.)
Radiation Monitoring
General Instrumentation & Controls

Inspection Items

Documents:

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

Inspection Tasks:

1. Identify the TS applicable to the subject systems and select a sample of requirements (Limiting Conditions for Operation, Surveillance Requirements, etc.) for inspection. Review the corresponding sections of the FSAR and SER.

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

3. Verify for selected portions of each system that:

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

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

SER, and

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

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

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

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

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

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

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

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

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

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

2) the installed hardware is adequately addressed in the procedures and TS,

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

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

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

Technical Review Report Outline

Cover Sheet

Table of Contents

Executive Summary

Introduction
- Purpose of Inspection
- Background and General Scope
- General Evaluation Criteria
- General Evaluation Methods

Evaluation - By System for Each System Reviewed
- Scope & Evaluation Criteria
- References (Listed in Appendices)
- Discussion
- Findings and Observations
- Conclusions

General Conclusions

Appendices
- Licensee Personnel Contacted
- Documents Reviewed (By System)

APPENDIX 1.1

REVIEW OF NINE MILE POINT, UNIT 2 TECHNNICAL SPECIFICATIONS

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.

NAME	TITLE
R. ABBOT	STATION SUPERINTENDENT
P. ALLEN	TEST ENGINEER (SWEC)
W. BAKER	NMPC SPECIAL PROJECTS
P. BEERS	TEST ENGINEER (SWEC)
T. BUMGARTNER	SITE QA SUPERVISOR (SWEC)
J. BUNYAN	LEAD ELECTRICAL ENGINEER
R. CRANDALL	TEST ENGINEER
J. DEMINEY	NMPC SPECIAL PROJECTS
G. DOYLE	QE SUPVR NQA OPERATIONS
J. DRAKE	STARTUP - SPECIAL PROJECTS
W. DREWS	TECHNIAL SUPERINTENDENT
P. EDDY	NY PUBLIC SERVICE COMMISSION
D. FADEL	ASST. PROJECT ADVISORY ENGR.
M. FALISE	SUPT.- MECHANICAL MAINTENANCE
D. FREYE	STARTUP ENGINEER
J. GALLAGHER	SITE LICENSING ENGINEER (SWEC)
J. GATES	STARTUP SUPERVISOR - ECCS
G. GILMER	STARTUP ENGINEER
D. GRIMSBO	TEST GROUP SUPEVISOR
D. HELMS	NSSS OPERATIONS SUPT. (GE)
C. HICKS	TEST GROUP SUPERVISOR
M. JONES	STATION OPERATIONS SUPT.
L. KASSAKATIS	STARTUP MANAGER
E. KLEIN	MANAGER OF PROJECT ENGINEERING
K. KOPCZ	NMPC LICENSING
R. MATLOCK	DEPUTY PROJECT DIRECTOR
P. MATURSE	PRINCIPAL I&C ENGINEER
R. MAWHINNEY	STARTUP ENGINEER (SWEC)
J. McCARTHY	STARTUP ENGINEER
K. McDERMOTT	TEST ENGINEER (SWEC)
T. McMAHON	TEST ENGINEER
G. MOYER	STATION SHIFT SUPERVISOR
R. RAO	PROJECT ENGINEER
M. RAY	MGR. SPECIAL PROJECTS
E. SCHROEDER	SPECIAL PROJECTS SUPVR. (SWEC)
B. SCOTT	SYSTEM ENGINEER
W. STECKER	TEST ENGINEER (SWEC)
A. VERLING	ENGINEER
R. WARREN	SURVEILLANCE COORDINATOR
W. YEAGER	MANAGER OF ENGINEERING

APPENDIX 2.0

GENERAL REFERENCES

In addition to the specific inspection and review items discussed elsewhere herein the administrative procedures and Emergency Operating Procedures listed below were reviewed and used throughout the inspection for the evaluation of the licensee's various programs for TS implementation:

GE STARTUP TEST SPECIFICATIONS, REVISION 0

GE PREOPERATIONAL TEST SPECIFICATIONS, REVISION 0

INSERVICE TESTING PLAN FOR PUMPS AND VALVES, NMP 2

ADMINSTRATIVE PROCEDURES (APs):

AP-3.0	ASSURANCE OF SAFETY, REVISION 0
AP-3.3.1	CONTROL OF EQUIPMENT MARKUPS, REVISION 1
AP-3.3.2	PLACEMENT OF JUMPERS OR BLOCKS OR LIFTING LEADS, REVISION 1
AP-8.2	SURVEILLANCE TESTING AND INSPECTION PROGRAM, REVISION 0
AP-8.3	INSERVICE INSPECTION AND TESTING PROGRAM, REVISION 0

STARTUP ADMINISTRATIVE PROCEDURES (SAPs)

SAP-124	INTERIM OPERATING PROCEDURES, REVISION 2
SAP-125	INTERIM SURVEILLANCE PROCEDURES, REVISION 0

EMERGENCY OPERATING PROCEDURES (EOPs), REVISION 0:

EOP-1	EOP DEVELOPMENT
2	EOP VERIFICATION
3	EOP VALIDATION
4	EOP WRITER'S GUIDE
RL	RPV WATER LEVEL CONTROL
RP	RPV PRESSURE CONTROL
RQ	RPV REACTIVITY CONTROL
SPT	SUPPRESSION POOL TEMPERATURE CONTROL
DWT	DRYWELL TEMPERATURE CONTROL
PCP	PRIMARY CONTAINMENT PRESSURE CONTROL
SPL	SUPPRESSION POOL LEVEL CONTROL
SCT	REACTOR BUILDING TEMPERATURE CONTROL
SCR	REACTOR BUILDING RADIATION CONTROL
SCL	REACTOR BUILDING LEVEL CONTROL
RR	RADIOACTIVITY RELEASE CONTROL
C1	LEVEL RESTORATION
C2	EMERGENCY RPV DEPRESSURIZATION
C3	STEAM COOLING
C4	COOLING WITHOUT LEVEL
C5	ALTERNATE SHUTDOWN COOLING
C6	RPV FLOODING
C7	LEVEL/POWER CONTROL

APPENDIX 2.1

INSPECTION REPORT DATA SHEET

REACTOR PROTECTION SYSTEM

TECHNICAL SPECIFICATIONS:

2.2.1	REACTOR PROTECTION SYSTEM INSTRUMENTATION SETPOINTS
3/4.3.1	REACTOR PROTECTION SYSTEM INSTRUMENTATION
3/4.8.4.4.1	REACTOR PROTECTION SYSTEM ELECTRICAL POWER MONITORING (RPS LOGIC)
3/4.8.4.4.2	REACTOR PROTECTION SYSTEM ELECTRICAL POWER MONITORING (SCRAM SOLENOID VALVES)

FSAR REFERENCES: 7.2

NRC SER REFERENCES: 7.2

DOCUMENTS REVIEWED:

NUMBER	TITLE	REVISION
807E168TY	RPS ELEMENTARY DIAGRAMS, SH . - 24	24
733E170A	RPS - IED, SH 2	6
POT-97	RPS PRECPERATIONAL TEST	0
POT-28	NUCLEAR BOILER INSTRUMENT PREOP TEST	0
IOP-97	RPS INTERIM OPERATING PROCEDURE	0
ISP-ISC-R202	INSTRUMENT RESPOSNE TIME TEST OF RX SCRAM (VESSEL WATER LEVEL)	DRAFT
ISP-RPS-R203	TURBINE CONTROL VALVE FAST CLOSURE SCRAM RESPONSE TIME	0
ISP-ISC-R101	REACTOR STEAM DOME PRESSURE HIGH CALIBRN	0
ISP-ISC-M001	REACTOR STEAM DOME PRESSURE MONTHLY FUNCT TEST	0

APPENDIX 2.2

INSPECTION REPORT DATA SHEET

PRIMARY CONTAINMENT & SUPPORT SYSTEMS

TECHNICAL SPECIFICATIONS:

3/4.6.1.1	PRIMARY CONTAINMENT INTEGRITY
3/4.6.1.2	PRIMARY CONTAINMENT LEAKAGE
3/4.6.1.3	PRIMARY CONTAINMENT AIRLOCKS
3/4.6.1.5	SUPPRESSION CHAMBER
3/4.6.1.6	D/W & S/C INTERNAL PRESSURE
3/4.6.1.7	DRYWELL AVERAGE AIR PRESSURE
3/4.6.1.8	D/W & S/C PURGE SYSTEM
4.0.5	INSERVICE INSPECTION & TESTING
3/4.6.2	DEPRESSURIZATION SYSTEMS
3/4.4.7	MAIN STEAM ISOLATION VALVES
3/4.6.3	PRIMARY CONTAINMENT ISOLATION VALES
3/4.3.1	REACTOR PROTECTION SYSTEM INSTRUMENTATION

FSAR REFERENCES: 6.2.4, 6.2.6

NRC SER REFERENCES: 6.2

DOCUMENTS REVIEWED:

NUMBER	TITLE	REVISION
OSP-CNT-SA003	AIRLOCK OPERABILITY TEST	DRAFT
ISI-012 ISSUE	INSERVICE INSPECTION PROGRAM	11/25/85
OPS-CNT-M001	PRIMARY CONTAINMENT PENETRATION VERIF.	DRAFT
IOP-50	DRYWELL COOLING INTERIM OPERATING PROC.	0
IOP-99	PRIMARAY CONTAINMENT INTERIM OPER. PROC.	1
OSP-ISC-M002	DRYWELL VACUUM BREAKER OPERABILITY TEST	DRAFT
OPS-CPS-R001	PRIMARY CONTAINMENT PURGE VALVE POSITION INDICATOR VERIFICATION	0
FSK-33-1	FLOW DIAGRAM - CONTAINMENT LKG MONITORING	6
LSK-33-1A&B	CONTAINMENT LKG MONITORING LOGIC DIAGRAM	5
FSK-22 & 23	PRIMARY CONTAINMENT PURGE FLOW DIAGRAM	5
LSK-22-23B	PRIMARY CONTAINMENT PURGE LOGIC DIAGRAM	7
FSK-27-15A&B	GAS TREATMENT SYSTEM FLOW DIAGRAM	5
FSK-22-1M	REACTOR BLDG VENTLN SYSTEM FLOW DIAGRAM	6
ESK-7HVR12	REACTOR BLDG VENTLN SYSTEM ELEMENTARY DIAGR.	2
OSP-HVR-Q001	REACTOR BLDG VENTLN SYSTEM VALVE OPERABILITY TEST	0
OSP-CNT-M003	REACTOR BLDG INTEGRITY VERIFICATION	DRAFT
IOP-81	CONTAINMENT LKG MONITORING INTERIM OPERATING PROCEDURE	1
P303R	PRIMARY CONTAINMENT VACUUM RELIEF VALVES	1

	SPECIFICATION	
ESP-RPS-R102	OPERATING CYCLE RPS VITAL BUS POWER MONITOR CHANNEL CALIBRATION	DRAFT
OSP-CHT-002	PRIMARY CONTAINMENT AIRLOCK SEAL LEAKAGE RATE	DRAFT
TM 32132-3	W.J. WOOLEY CO. - OPERATION & MAINTENANCE INSTRUCTIONS - AIRLOCK	0
ESK-7PS-03 & -06	PRIMARY CONTAINMENT PURGE ELEMENTARY DIAGRAM	7
POT-35	RCIC PREOPERATIONAL TEST	0
OSP-CPS-Q001	PRIMARY CONTAINMENT PURGE VALVE OPERABILITY TEST	DRAFT
IOP-83	PRIMARY CONTAINMENT ISOLATION SYSTEM INTERIM OPERATING PROCEDURE	0
POT-83	PRIMARY CONTAINMENT ISOLATION SYSTEM PREOP TEST	0
FSK-3-1A-1C	MAIN STEAM FLOW DIAGRAM	VARIOUS
2538-E-1101	MSIV ELEMENTARY DIAGRAM	K
2538-E-1100	MSIV GENL NOTES, LEGEND, DETAILS	E
2540-E-1101	MSIV ELEMENTARY DIAGRAM	G
2540-E-1100	MSIV GENL NOTES, LEGEND, DETAILS	D
807E177TY	RPS ELEMENTARY DIAGRAM, SH 9	-
OSP-MSS-N001	MSIV PARTIAL EXERCISE TEST & FUNCTIN TEST OF RPS MSIV CLOSURE	DRAFT
ISP-RPS-R107	OPERATING CYCLE CALIBR OF RX SCRAM ON MSIV CLOSURE INSTR. CHANNELS	DRAFT

APPENDIX 2.3

INSPECTION REPORT DATA SHEET

PRIMARY CONTAINMENT ISOLATION SYSTEM

TECHNICAL SPECIFICATIONS:

3/4.6.3	PRIMARY CONTAINMENT ISOLATION VALVES
TABLE 3.6.3-1	PRIMARY CONTAINMENT ISOLATION VALVES
3/4.6.1.4	MSIV SEALING SYSTEM

FSAR REFERENCES: 5.4.5, 6.2.3

NRC SER REFERENCES: 6.2.4

DOCUMENTS REVIEWED:

NUMBER	TITLE	REVISION
807E152TY	NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM ELEMENTARY DIAGRAM, SH 1-15	VARIOUS
ESK-11ISC001-4	CONTAINMENT ISOLATION LOGIC DIAGRAMS	VARIOUS
OSP-ISC-CS001	RCIC VALVE OPERABILITY TEST	0
FSK-15-1	FIRE PROTECTION FLOW DIAGRAM, SH C-N	3
LSK-15-1.4	FIRE PROTECTION LOGIC DIAGRAM, SH J-H	2
IOP-23	PRIMARY CONTAINMENT ISOLATION INTERIM OPERATING PROCEDURE	0
POT-23	PRIMARY CONTAINMENT ISOLATION PREOP TEST	0

APPENDIX 2.4

INSPECTION REPORT DATA SHEET

SECONDARY CONTAINMENT & SUPPORT SYSTEMS

TECHNICAL SPECIFICATIONS:

3/4.6.5.1	SECONDARY CONTAINMENT INTEGRITY
3/4.6.5.2	AUTOMATIC ISOLATION DAMPERS
3/4.6.4.3	STANDBY GAS TREATMENT SYSTEM

FSAR REFERENCES: 6.2.3, 9.4.2

NRC SER REFERENCES: 6.2.3, 6.5.12

DOCUMENTS REVIEWED:

NUMBER	TITLE	REVISION
P ID 61A & B	PRIMARY CONTAINMENT PURGE & STANDBY GAS TREATMENT (SBGTS)	0
IOP-11	SERVICE WATER INTERIM OPERATING PROCEDURE	0
IOP-19	INSTRUMENT AIR INTERIM OPERATING PROCEDURE	0
IOP-61B	SBGTS INTERIM OPERATING PROCEDURE	0
FSK-22.1.0	REACTOR BUILDING VENTLN FLOW DIAGRAM, SH A-B	VARIOUS
POT 61-1	CONTAINMENT PURGE SYSTEM PREOPERATIONAL TEST	0
OSP-GTS-P0001	SBGTS FUNCTIONAL TEST	DRAFT
OSP-GTS-R001	SBGTS OPERABILITY TEST	DRAFT
OSP-GTS-M001	SBGTS FUNCTIONAL TEST	0
OSP-GTS-R002	SBGTS POSITION INDICATION VERIFICATION	0
FSK-27-15	SBGTS FLOW DIAGRAM, SH A-H	2
LSK-27-15	SBGTS LOGIC DIAGRAMS, SH A-H	2
ESK-7GT9	SBGTS ELEMENTARY DIAGRAMS, SH 1-5	7
ESK-7HVR12	REACTOR BUILDING VENTLN ELEMENTARY DIAGRAM	9
IOP-52	REACTOR BUILDING VENTLN INTERIM OPERATING PROC.	0
OSP-CNT-M003	REACTOR BUILIDING INTEGRIUT VERIFICATION	DRAFT
OPS-GTS-0001	SBGTS VALVE OPERABILITY TEST	0
POT-200	SECONDARY CONTAINMENT LEAK TEST	0
POT-61-2	SBGTS PREOPERATIONAL TEST	0
OSP-HVR-0001	RX BLDG VENTLN SYSTEM VALVE OPERABILITY TESTT	0

APPENDIX 2.5

INSPECTION REPORT DATA SHEET

PLANT SERVICE WATER SYSTEMS

TECHNICAL SPECIFICATIONS:

3/4.7.1	PLANT SERVICE WATER SYSTEMS
3/4.3.9	PLANT SYSTEMS ACTUATION INSTRUMENTATION

FSAR REFERENCES: 9.2

NRC SEP REFERENCES: 9.2.1

DOCUMENTS REVIEWED:

NUMBER	TITLE	REVISION
LSK-9-10	SWP LOGIC DIAGRAMS, SH A-AB	4
ESK-5SWP	SWP DC ELEMENTARY DIAGRAMS, SH 1-12	4
ESK-6SWP	SWP AC ELEMENTARY DIAGRAMS, SH 1-12	2
FSK-9-10	SWP FLOW DIAGRAM, SH A-AL	4
OSP-SWP-M001	SERVICE WATER VALVE POSITION VERIFICATION	0
IOP-11	SWP INTERIM OPERATING PROCEDURE	0
POT-11	SWP PREOPERATIONAL TEST PROCEDURE	0
PID-11-A	SWP P&ID, SH A-1 THRU Q-1	0
OSP-SWP-R002	SWP VALVE POSITION INDICATOR VERIFICATION	DRAFT
OSP-SWP-Q002	SWP PUMP OPERABILITY TEST	DRAFT
OSP-SWP-Q001	SWP VALVE OPERABILITY TEST	DRAFT

APPENDIX 2.6

INSPECTION REPORT DATA SHEET

REACTOR CORE ISOLATION COOLING SYSTEM

TECHNICAL SPECIFICATIONS:

3/4.7.4	REACTOR CORE ISOLATION COOLING (RCIC)
3/4.3.2	RCIC ISOLATION ACUTATION INSTRUMENTATION
3/4.3.5	RCIC ACTUATION INSTRUMENTATION

FSAR REFERENCES: 5.4.6, 6.2.[illegible] 15

NRC SER REFERENCES: 5.4.6

DOCUMENTS REVIEWED:

NUMBER	TITLE	REVISION
FSK-27.6	RCIC FLOW DIAGRAM	7
807E173TY	RCIC ELEMENTARY DIAGRAM, SH 1-13	24
PID-13A & B	RCIC P&ID	0
IOP-13	RCIC INTERIM OPERATING PROCEDURE	0
POT-13	RCIC PREOPERATIONAL TEST	0
OSP-ICS-R001	RCIC SYSTEM FUNCTIONAL TEST	0
OSP-ICS-C5001	RCIC VALVE OPERABILITY TEST	0
OSP-ICS-Q001	RCIC PUMP AND VALVE OPERABILITY TEST AND SYSTEM INTEGRITY TEST	0
ISP-ISC-M004	MONTHLY FUNCTIONAL TEST AND TRIP CAL OF ECCS/RCIC ACTUATION OF RX VESSEL LEVELS 1,2, AND 8	0
LCR-IL2ICS026	LOOP CALIBRATION REPORT - CST LOW LVL INTERLK	0

APPENDIX 2.7

INSPECTION REPORT DATA SHEET

AC SOURCES INCLUDING HPCS STANDBY DIESEL GENERATOR

TECHNICAL SPECIFICATIONS:
3/4.8.1 AC SOURCES

FSAR REFERENCES: 8.3

NRC SER REFERENCES: 8.3.1

DOCUMENTS REVIEWED:

NUMBER	TITLE	REVISION
OPS-EGS-M001	DG OPERABILITY TEST, DIVISION 1/2	0
OSP-EGS-M002	DE OPERABILITY TEST, DIVISION 3	0
POT-100B	HPCS DIESEL GENERATOR PREOPERATIONAL TEST	0
POT-100A-1	DIVISION 1 DIESEL GENERATOR PREOPERATIONAL TEST	1
IOP-72	STANDBY AND EMERGENCY AC DISTRIBUTION SYSTEM INTERIM OPERATING PROCEDURE	0
OSP-EGS-R001	DG ECCS START TEST DIVISION 1/2	0
OSP-EGF-M001	DG FUEL OIL STORAGE TANK WATER ACCUMULATION CH	0
OSP-EGA-Q001	DG AIR START SYSTEM VALVE OPERABILITY TEST	0
OSP-EGF-Q001	DG FO TRANSFER PUMP AND VALVE OPERABILITY TEST	0
OSP-EGS-R002	DG 24 HOUR RUN AND LOAD REJECTION TEST DIV 1/2	DRAFT
IOP-71	13.8 KV/4.16 KV/600V AC POWER DISTRIBUTION	0
OSP-EGS-R003	DG LOSS OF OFFSITE POWER WITH NO ECCS TEST DIVISION 1/2	DRAFT
OSP-EGS-R005	DG ECCS START TEST DIVISION 3	DRAFT
EE-1R-8	4160 VAC ONE LINE DIAGRAM, EMERGENCY BUS 2ENS*SWG103(-Y)	8
EE-1BH-3	ONE LINE DIAGRAM, LOW VOLTAGE POWER DISTRIBUTION	3
EE-1Q-9	4160 VAC ONE LINE DIAGRAM, EMERGENCY BUS 2ENS*SWG101(-G)	9
EE-1CA-6	ONE LINE DIAGRAM, EMERGENCY AND VITAL BUS POWER DISTRIBUTION	6
EE-1Z-9	600 VAC ONE LINE DIAGRAM, EMERGENCY BUS 2EJS*US1 & US3, CONTROL BLDG RM A & B	9
EE-1C-10	MAIN ONE LINE DIAGRAM, 4.16 KV AUX XFMR NORM 4.16 KV & 600 V SYS	10
EE-M01A-2	PLANT MASTER ONE LINE DIAGRAM, NORMAL POWER DISTRIBUTION, SH 1	2
EE-1D-10	MAIN ONE LINE DIAGRAM, EMERGENCY 4.16 KV & 600V SYS	10
EE-1A-7	MAIN ONE LINE DIAGRAM, GENERATOR & MAIN XFMR	7

APPENDIX 2.8

INSPECTION REPORT DATA SHEET

DC POWER SYSTEMS

TECHNICAL SPECIFICATIONS:
3/4.8.2 DC SOURCES

FSAR REFERENCES: 8.3.2

NRC SER REFERENCES: 8.3.2

DOCUMENTS REVIEWED:

NUMBER	TITLE	REVISION
IOP-74A	EMERGENCY DC DISTRIBUTION INTERIM OPERATING PROCEDURE	0
IOP-73A	NORMAL DC DISTRIBUTION INTERIM OPERATING PROCEDURE	0
IOP-74B	HPCS 125 VDC SYSTEM INTERIM OPERATING PROC.	0
POT-74-1	125 VDC EMERGENCY DISTRN PRFOR TEST	3
OPS-BYS-0021	DIV I/II/III BATTERY PERFORMANCE DISCHARGE TEST	DRAFT
ESP-BYS-00002	QUARTERLY BATTERY SURVEILLANCE TEST	0
ESP-BYS-W001	125 VDC WEEKLY BATTERY SURVEILLANCE TEST	0
EE-CN-9	125 VDC ONE LINE DIAGRAM EMERGENCY SWGR	9
EE-1CM-9	SAME AS ABOVE	9
EE-1BR-7	125 VDC ONE LINE DIAGRAM NORMAL SWGR	7
EE-1BH-3	ONE LINE DIAGRAM, LOW VOLTAGE POWER DISTRN	3
EE-1CA-6	ONE LINE DIAGRAM, EMER & VITAL BUS, POWER DISTRN	6

APPENDIX 2.9

INSPECTION REPORT DATA SHEET

ONSITE POWER DISTRIBUTION

TECHNICAL SPECIFICATIONS:
3/4.8.3 ONSITE POWER DISTRIBUTION

FSAR REFERENCES: 8.3

NRC SER REFERENCES: 8.3

DOCUMENTS REVIEWED:

NUMBER	TITLE	REVISION
EE-1A-7	MAIN ONE LINE DIAGRAM, GENERATOR & MAIN XFMR	7
EE-1D-10	MAIN ONE LINE DIAGRAM, EMER. 4.16 KV & 600V	10
EE-M01A-2	PLANT MASTER ONE LINE DIAGRAM, NORMAL POWER DISTRIBUTION, SH 1	2
EE-1C-10	MAIN ONE LINE DIAGRAM, 4.16 KV AUX XFMR, NORM 4.16 KV & 600 V SYS	10
EE-1Z-9	600 V ONE LINE DIAG. EMER BUS 2EJS*US1 & US3 CONTROL BLDG RM A & B, EL 261'-0"	9
POT-100A	DIV 1 DG PREOPERATIONAL TEST	1
IOP-71	13.8 KV/4160 V/600 V AC POWER DISTRIBUTION INTERIM OPERATING PROCEDURE	0
EE-1R-8	4160 V ONE LINE DIAG EMER BUS 2NS*SWGR10?(-Y)	8
EE-1BH-3	ONE LINE DIAGRAM, LOW VOLTAGE POWER DISTR	3
EE-1Q-9	4160 V ONE LINE DIAG EMER BUS 2ENS*SWGR101(-G)	9
EE-1CA-6	ONE LINE DIAGRAM, EMERGENCY AND VITAL BUS POWER DISTRIBUTION	6

APPENDIX 2.10

INSPECTION REPORT DATA SHEET

HIGH PRESSURE CORE SPRAY SYSTEM
AUTOMATIC DEPRESSURIZATION SYSTEM

TECHNICAL SPECIFICATIONS:

3/4.5.1	ECCS SYSTEMS - OPERATING
3/4.5.2	ECCS SYSTEMS - SHUTDOWN
3/4.3.2	ISOLATION ACTUATION INSTRUMENTATION
3/4.3.3	ECCS ACTUATION INSTRUMENTATION
3/4.4.2	SAFETY RELIEF VALVES

FSAR REFERENCES: 5.2, 6.3 (ALL), 7.3.1.1.1, 15

NRC SER REFERENCES: 6.3, 7.3

DOCUMENTS REVIEWED:

NUMBER	TITLE	REVISION
FSK-87-4	HPCS FLOW DIAGRAM, SH A-C	7
807E127QTY	HPCS ELEMENTARY DIAGRAM, SH 1-7 (GE)	21
TECH MANUAL	BORG WARNER, BYRON JACKSON DIV. HPCS PUMP	-
ESK-6C	HPCS ELEMENTARY DIAGRAM, SH 1-5 (SWEC)	5
IOP-33	HPCS INTERIM OPERATING PROCEDURES	2
IOP-100.1	HPCS DIESEL GENERATOR INTERIM OPER. PROC.	0
POT-33-1	HPCS PREOPERATIONAL TEST	1
7I31E392AF	HPCS PROCESS DIAGRAM	4
OPS-CSH-Q002	HPCS PUMP AND VALVE OPERABILITY TEST	0
OPS-CSH-Q001	HPCS VALVE OPERABILITY TEST	0
LRC-IL2CHS004	LOOP CALIBRATION REPORT - SUPPRESSION POOL HIGH LEVEL	0
ISP-CSH-R201	ECCS INSTRUMENT RESPONSE TIME - DW HIGH PRESS	DRAFT
ISP-CNS-R103	REMOTE SD PANEL CHANNEL CAL - CST LEVEL	DRAFT
ISP-USC-R104	ECCS/RCIC ACTUATION ON RX VESSEL LO-LO-LO LEVEL 2 AND HIGH LEVEL 8	DRAFT
FSK-32-8.0	SRV FLOW DIAGRAM, SH A-D	3
807E155TY	ADS ELEMENTARY DIAGRAM, SH 1-5 (GE)	21
B22-1030	NUCLEAR BOILER SYSTEM FUNCTIONAL CONTROL DIAGRAM, SH 1-5	VARIOUS
IOP-34	ADS AND SRV INTERIM OPERATING PROCEDURE	0
POT-34	ADS PREOPERATIONAL TEST	DRAFT
ISP-ADS-M005	MONTHLY FUNCTIONAL TEST OF ACCUMULATOR BACKUP COMPRESSED GAS SYSTEM LP ALARM	DRAFT

APPENDIX 2.11

INSPECTION REPORT DATA SHEET

RESIDUAL HEAT REMOVAL SYSTEM

TECHNICAL SPECIFICATIONS:

3/4.5.1	ECCS SYSTEMS - OPERATING
3/4.5.2	ECCS SYSTEMS - SHUTDOWN
3/4.3.2	ISOLATION ACTUATION INSTRUMENTATION
3/4.3.3	ECCS ACTUATION INSTRUMENTATION
3/4.4.9.1	RHR - HOT SHUTDOWN
3/4.4.9.2	RHR - COLD SHUTDOWN
3/4.6.2.1	SUPPRESSION POOL
3/4.6.2.2	SUPPRESSION POOL AND DRYWELL SPRAY
3/4.6.2.3	SUPPRESSION POOL COOLING

FSAR REFERENCES: 5.4.6.1.1, 5.4.7, 6.2.2, 6.3.2 2.4 7.3.1.1, 7.4.1.2, 15.2.9

NRC SER REFERENCES: 5.4.7, 6.2.1, 6.2.2, 6.3

DOCUMENTS REVIEWED:

NUMBER	TITLE	REVISION
731E999AF	RHR FUNCTIONAL CONTROL DIAGRAM, SH1-5	6
FSK-27-7.0	RHR FLOW DIAGRAM, SH A-N	VARIOUS
IOP-31	RHR INTERIM OPERATING PROCEDURE	0
POT-31	RHR PREOPERATIONAL TEST	0
807E170TY	RHR ELEMENTARY DIAGRAM, SH1-23	25
OSP-RHS-0004	RHR LOOP A PUMP AND VALVE OPERABILITY & SYSTEM INTEGRITY TEST	0
OPS-RHS-0005	SAME AS ABOVE - LOOP B	0
ISP-RHS-R112	CHANNEL CALIBRATION - SUPPRESSION POOL TEMP	0
OSP-RHS-CS002	RHR LOOPS B & C COL SHUTDOWN VALVE TEST	0
OSP-RHS-M001	RHR DISCH PIPING FILL (LPCI) AND VALVE LINEUP VERIFICATION AND CHK VALVE OPERABILITY TEST	0
ISP-ISC-R101	CALIBRATION - STEAM DOME PRSSURE HIGH & RHR ISOLATION INSTRUMENT CHANNELS	0
ISP-ISC-M001	MONTHLY FUNCT TEST & TRIP UNIT CAL OF STEAM DOME PRESSURE	0
OPS-RHS-0002	RHR LOOP B VALVE OPERABILITY TEST	0
ISP-RHS-M014	MONTHLY FUNCT TEST & TRIP UNIT CAL OF LPCI PUMP DISCH PRESS HIGH PERMISSIVE	0
ISP-RHS-R116	CALIBRATION OF ADS, LPCI & LPCS ACTUATION ON DW PRESSURE HIGH	0
LCR-IL2RHS020	INJECTION VALVE MOV-24A DIFF PRESS INTERLOCK LOOP CALIBRATION REPORT	1

LCR-IL2RHS035	RHR HX (STEAM CONDENSING MODE) STEAM SUPPLY PRESSURE CONTROL LOOP CALIBRATION REPORT	1
LCR-IL2CMS002	SUPPRESSION POOL LEVEL LOOP CALIBRN REPORT	0
OPS-RHS-0021	QTRLY FUNCTIONAL TEST OF HIGH/LOW PRESSURE INTERLOCK FOR STEAM CONDENSING MODE BYPASS	DRAFT
ISP-RHS-M007	MONTHLY FUNCTIONAL TEST OF RHS SDC SUCTION PRESSURE INSTRUMENTS	DRAFT
OPS-RHS-R001	D1 / 2 ECCS FUNCTIONAL TEST	DRAFT

APPENDIX 2.12

INSPECTION REPORT DATA SHEET

LOW PRESSURE CORE SPRAY SYSTEM

TECHNICAL SPECIFICATIONS:

3/4.5.1	ECCS SYSTEMS - OPERATING
3/4.5.2	ECCS SYSTEMS - SHUTDOWN
3/4.3.2	ISOLATION ACTUATION INSTRUMENTATION
3/4.3.3	ECCS ACTUATION INSTRUMENTATION
3/4.5.3	ECCS - SUPPRESSION POOL

FSAR REFERENCES: 6.3, 7.3, 15

NRC SER REFERENCES: 6.3, 7.3, 15

DOCUMENTS REVIEWED:

NUMBER	TITLE	REVISION
FSK-27-5	LPCS FLOW DIAGRAM, SH A-B	9
B07E171TY	LPCS ELEMENTARY DIAGRAM, SH 1-7	24
PID-32-0	LPCS P&ID	2
IOP-32	LPCS INTERIM OPERATING PROCEDURE	0
POT-32	LPCS PREOPERATIONAL TEST	1
ESP-RHS-M015	MONTHLY FUNCTIONAL TEST - LPCI AND LPCS PUMP AUTO START TIME DELAY RELAY	DRAFT
ISP-CSL-R201	INSTRUMENT RESPONSE TIME OF LPCI/LPCS INIT ON RX . DW WATER LEVEL	DRAFT
ISP-RHS-M006	MONTHLY FUNCTIONAL TEST AND TRIP UNIT CAL OF LPCI AND LPCS ACTUATION ON DW PRESS HI	DRAFT
-ISC-M002	MONTHLY FUNCTIONAL TEST OF LPCI/LPCS VALVE PERMISSIVE INSTRUMENT CHANNELS	DRAFT
-CSL-R001	DIV 1 ECCS FUNCTIONAL TEST	DRAFT
OSP-CSL-Q001	LPCS VALVE OPERABILITY TEST	0
OSP-CSL-M001	LPCS DISCHARGE FILL AND VALVE LINEUP VERIF AND CHECK VALVE OPERABILITY TEST	0
OSP-CSL-CS001	LPCS COLD SHUTDOWN VALVE OPERABILITY TEST	0
OSP-CSL-Q002	LPCS PUMP AND VALVE OPERABILITY AND SYSTEM INTEGRITY TEST	0

APPENDIX 2.13

INSPECTION REPORT DATA SHEET

STANDBY LIQUID CONTROL SYSTEM

TECHNICAL SPECIFICATIONS:
3/4.1.5 STANDBY LIQUID CONTROL SYSTEM

FSAR REFERENCES: 7.4.1.2, 9.3.5

NRC SER REFERENCES: 9.3.5, 7.6.1.7

DOCUMENTS REVIEWED:

NUMBER	TITLE	REVISION
FSK-[illegible]-16	SBLC FLOW DIAGRAM, SH A-B	4
807E[illegible]17	SBLC ELEMENTARY DIAGRAM, SH 1-4	20
PID-36A-1	SBLC P&ID	1
914E359	SBLC FUNCTIONAL CONTROL DIAGRAM	1
IOP-36	SBLC INTERIM OPERATING PROCEDURE	0
IOP-36B	REDUNDNAT REACTIVITY CONTROL IOP	0
POT-36	SBLC PREOPERATIONAL TEST	0
OSP-SLS-Q002	SBLC MOV OPERABILITY TEST	0
OSP-SLS-M001	SBLC EXPLOSIVE VALVE CONTINUITY CHECK AND	0