UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

April 13, 2005

Tennessee Valley Authority
ATTN: Mr. K. W. Singer
Chief Nuclear Officer and
Executive Vice President
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: SEQUOYAH NUCLEAR PLANT - NRC SAFETY SYSTEM DESIGN AND PERFORMANCE CAPABILITY INSPECTION REPORT NOS. 05000327/2005006 AND 05000328/2005006

Dear Mr. Singer:

On March 4, 2005, the U.S. Nuclear Regulatory Commission (NRC) completed a safety system design and performance capability team inspection at your Sequoyah Nuclear Plant. The enclosed report documents the inspection findings which were discussed on March 4, 2005, with Mr. Kulisek and other members of your staff.

The inspection examined activities conducted under your licenses as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your licenses. The inspection team reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of the inspection, no findings of significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

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Charles R. Ogle, Chief
Engineering Branch 1
Division of Reactor Safety

Docket Nos.: 50-327, 50-328
License Nos.: DPR-77, DPR-79

Enclosure: NRC Inspection Report 05000327/2005006 and 05000328/2005006
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.:	50-327, 50-328
License Nos.:	DPR-77, DPR-79
Report Nos.:	05000327/2005006 and 05000328/2005006
Licensee:	Tennessee Valley Authority
Facility:	Sequoyah Nuclear Plant, Units 1 and 2
Location:	Sequoyah Access Road Soddy-Daisy, TN 37379
Dates:	February 14-18 and February 28-March 4, 2005
Inspectors:	L. Mellen, Senior Reactor Inspector (Team Lead) M. Scott, Senior Reactor Inspector R. Cortes, Reactor Inspector K. Maxey, Reactor Inspector J. Rivera-Ortiz, Reactor Inspector F. Jape, Senior Project Inspector (1st Week Only)
Accompanied by:	K. Harper, Reactor Inspector (Trainee)
Approved by:	Charles R. Ogle, Chief

Enclosure

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Engineering Branch 1
Division of Reactor Safety

Enclosure

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SUMMARY OF FINDINGS

IR 05000327/2005006, 05000328/2005006; 02/14-02/18/2005 and 02/28-03/04/2005; Sequoyah Nuclear Plant, Units 1 and 2; Safety System Design and Performance Capability Inspection.

This inspection was conducted by a team of inspectors from the NRC's Region II office. No findings of significance were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee-Identified Violations

None.

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REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events and Mitigating Systems

1R21 Safety System Design and Performance Capability (71111.21)

The team evaluated the risk significant systems, support systems, and components required to ensure successful operation of the component cooling system (CCS). The team reviewed CCS operations, maintenance, and surveillance testing. The team also reviewed electrical and mechanical components. The review was to verify the CCS was capable of performing its design functions. The CCS removes residual and sensible heat from the reactor coolant system (RCS), the spent fuel pit (SFP) water, the letdown flow, and provides cooling for safeguards loads associated with a postulated accident.

.1 System Needs

.11 Process Medium

a. Inspection Scope

The team reviewed the availability and reliability of the CCS to transfer heat to the Essential Raw Cooling Water (ERCW) via the CCS heat exchangers (HXs). The review included design documentation, drawings, Updated Final Safety Analysis Report (UFSAR), Technical Specifications (TS), corrective actions history, foreign material exclusion (FME) history, calculations of system capacity, and the CCS pumps' available and required net positive suction head (NPSH).

The team reviewed the CCS NPSH and water source calculations, licensing and design basis information, operating/lineup procedures, spool pieces fit tests, drawings, surveillance procedures, and vendor manuals. The review included the surge tanks and the alternate CCS water supply from the demineralizer system. The team walked down the CCS and compared the installed configuration with approved plant drawings and procedures. The reviews and CCS walkdowns were to verify the system design, TS, and UFSAR assumptions were consistent with the actual capability of the CCS. A specific list of documents reviewed is included in the Attachment to this report.

b. Findings

No findings of significance were identified.

.12 Energy Sources

a. Inspection Scope

The team walked down the energy sources of selected components to verify selected system alignments were consistent with the design basis assumptions, performance requirements, and system operating procedures. The team reviewed test and design documents to verify the 480 volt alternating current (VAC) and 125 volt direct current (VDC) power sources were adequate to meet minimum voltage specifications for CCS electrical equipment. Among the reviewed components were the CCS pump motors and the thermal barrier booster (TBB) pump motors. The team also reviewed the power supplies for the thermal barrier cooling isolation valves and the SFP train realignment valves.

The team reviewed the air quality controls in the instrument air system including the surveillance tests and air compressors' maintenance history to verify an adequate supply of air to the surge tank make-up valve 1-LCV-70-63 and vent valve 1-FCV-70-66. The review also included the vendor recommendations for the valve controllers to verify that the system surveillance has adequate acceptance criteria. A specific list of documents reviewed is included in the Attachment to this report.

b. Findings

No findings of significance were identified.

.13 Instrumentation and Controls

a. Inspection Scope

The team reviewed completed calibration and functional test procedures for the degraded voltage relays associated with the 480VAC shutdown boards. The completed calibration procedures were reviewed to verify the relays had been calibrated and tested in accordance with TS limits.

The team reviewed instrumentation availability and usability to support normal and accident missions. The team performed this review to verfy CCS controls were as described in the UFSAR, and that operation's training material, scaling documents, set points, and loop calibration documents were both accurate and consistent. The team also reviewed the controls in the simulator to verify they matched those in the main control rooms (MCRs) and to verify any differences in CCS control between units were addressed in training material.

The team selected a sample of the process instruments including temperature indications, pressure indication, and the interlock for the TBB HXs. The last two completed instrument calibration records were reviewed for the selected instruments to verify the instrumentation had been calibrated in accordance with the setpoint

documents and calibration procedures. The calibration records were also reviewed to verify any test deficiencies such as “out-of-tolerance conditions” were entered into the corrective action program.

The team reviewed the instrumentation used to detect CCS surge tank level and assessed CCS make-up capabilities to verify features were provided for the timely detection and recovery of abnormalities in either level or flow. The team reviewed the set points for alarms and actuations to ensure they were consistent with the design basis and assumptions. The team conducted a CCS walkdown to review the CCS surge tank, supply lines, and valve configuration for consistency with design drawings and to assess CCS material condition. Additionally, the team reviewed the CCS make-up water capacity. The team reviewed CCS water quality maintenance and corrosion inhibition chemistry procedures. A specific list of documents reviewed is included in the Attachment to this report.

b. Findings

No findings of significance were identified.

.14 Operator Actions

a. Inspection Scope

The team reviewed plant operating instructions, including emergency operating instructions (EOIs), abnormal operating instructions (AOIs), and alarm response procedures (ARPs) that would be used to identify and mitigate a loss of CCS. The team also reviewed the operating instructions (OIs) used to initiate or verify initiation of CCS flow. The team focused on installed equipment and operator actions that could be used to mitigate a loss of CCS. The review was to verify the instructions were consistent with the UFSAR description of the CCS and the accident analysis. Additionally, the team compared the CCS actions in the EOIs with the Westinghouse Owners’ Group Emergency Procedure Guidelines (EPGs), to verify any step deviations were justified and reasonable, the instructions were written clearly and followed the EOI writer’s guide. The team held discussions with licensed operators and training instructors, reviewed job performance measures and training lesson plans pertaining to CCS normal and abnormal operation to confirm that training was consistent with the applicable OIs.

In addition, the team observed the installed instrumentation on the plant simulator and walked down portions of MCRs and applicable instructions to verify that operator training and instrumentation were adequate to identify CCS response during an accident or normal operation. The team reviewed manual operator actions for abnormal CCS operations to verify consistency with accident analyses, EPGs, and operator training. A specific list of documents reviewed is included in the Attachment to this report.

b. Findings

No findings of significance were identified.

.15 Heat Removal

a. Inspection Scope

The team reviewed the heat load calculations, vendor manuals, drawings, DBDs, maintenance history, and surveillance test documentation to assess the design and performance capability of the CCS HXs to remove the required load during normal operation and accident conditions. The team reviewed the manufacturer's specifications for the CCS pump motors and HXs to verify plant procedures were adequate, proper maintenance had been provided, and operability limits had not been exceeded.

The team also reviewed heat load calculations, surveillance records, maintenance history, and performance history of the CCS pump room fan coolers. The team reviewed the the fan coolers to verify they were capable of removing the required heat loads during normal conditions and all postulated accidents. The team also reviewed the calculated peak temperature during high-energy line breaks (HELB) in the RHR rooms to verify CCS room area fan coolers are properly sized and have adequate ERCW cooling medium flow. A specific list of documents reviewed is included in the Attachment to this report.

b. Findings

No findings of significance were identified.

.2 System Condition and Capability

.21 Installed Configuration

a. Inspection Scope

The team performed field walkdowns of the mechanical and electrical portions of CCS equipment to observe the current condition and configuration. During this walkdown, the team compared valve positions with the expected system configuration and with the configuration listed on the approved system drawings. The team performed this review to verify the material condition of the CCS would be adequate to support all required operator actions.

The team reviewed portions of available CCS operating logs, and instrument operation history to determine reliability, readability, and adequacy of temperature and flow monitoring instruments. The team performed this review to verify the environmental conditions, assumed under accident conditions, such as expected room temperatures and required emergency lighting, were adequate for remote equipment operation.

The team performed field walkdowns of accessible portions of the CCS and the associated support systems. Equipment examined included the CCS pumps, CCS HXs, CCS pump room fan coolers, surge tanks, TBB pumps, CCS pump seal leakage collection tank and pumps, valves, and piping. The walkdowns also included several components cooled by CCS; these included the RHR pump seal coolers, safety injection (SI) pump seal coolers, charging pump seal coolers, and containment spray pump oil and seal coolers. The field inspections were performed to verfy equipment alignment and labeling were consistent with design drawings and operating procedures.

The team reviewed the surveillance test results for the CCS pump motors emergency power loading during a Loss of Offsite Power (LOOP). The team walked down portions of the 125VDC and 480VAC systems to verify the installed configuration was consistent with design basis information. Also, the team reviewed the 125VDC vital batteries, along with their respective chargers, inverters and DC distribution panels to evaluate material condition. The team also reviewed surveillances and plant procedures to verify they were consistent with actual breaker alignment. A specific list of documents reviewed is included in the Attachment to this report.

b. Findings

No findings of significance were identified.

.22 Operation

a. Inspection Scope

The team walked down selected portions of CCS OIs, EOIs, and AOIs to verify inclusion of appropriate human factor engineering practices in the procedures and in the installed plant equipment. This review included labeling accuracy, lighting, noise level, communications, and accessibility. The team also reviewed CCS alignments to verify consistency with design and licensing basis assumptions, approved drawings and the TS. These reviews included the walkdown of the surveillance procedures, selected ARPs, and operator rounds procedures. The team performed this review to verify the equipment needed for emergency operations was labeled and accessible. A specific list of documents reviewed is included in the Attachment to this report.

b. Findings

No findings of significance were identified.

.23 Design

a. Inspection Scope

Mechanical Design Review

The team reviewed design calculations, specifications, and the UFSAR to verify system and equipment design functions were appropriately maintained. Surveillance test procedures and equipment monitoring activities were reviewed to verify the design criteria was appropriately translated into the acceptance criteria on the tests. The team reviewed DBDs, selected TSs, PERs, and corrective maintenance history for the CCS to assess the CCS design basis implementation and maintenance.

The team reviewed the flow balancing procedures to verify proper throttle valve positioning to achieve adequate CCS flow throughout all CCS components. The review included a field walkdown of throttle valve positions and to verify the valves were in the as-left positions as recorded in the last completed flow balance. The team also conducted an independent verification of the actual heat removal capability of the CCS. The team compared existing CCS parameters indicated in the MCRs with values established in the design documents.

The team reviewed calculations that assessed the NPSH available from the surge tanks to the CCS pumps to verify the capability of the system to meet the minimum specified flow and head requirements. A specific list of documents reviewed is included in the Attachment to this report.

Electrical, Instrumentation, and Controls Design Review

The team reviewed CCS flow diagrams, mechanical control drawings, electrical elementary and schematic diagrams, instrument setpoint calculations, instrument scaling documents, as well as calibration procedures and calibration test records. The reviews were performed to verify the installed CCS instrumentation and controls were in accordance with the DBDs. Specifically, the team reviewed setpoint calculations for selected process instruments including the surge tank, reactor coolant pump thermal barrier cooling, and SI pump cooling parameters to verify the calculations included appropriate instrument uncertainties. The last two completed calibration test records were reviewed to confirm that instrument setpoints were established consistent with setpoint calculations. Modifications and component replacements were reviewed to assess potential impact on CCS design function and capability.

In addition, the team reviewed MOVATs test results for selected CCS valves to verify that motor in-rush currents were consistent with those used in the calculations. The team also reviewed a selected sample of calculations for sizing of thermal overloads and compared the methodology to industry standards to prevent an inadvertent trip that would defeat the design basis function of the MOV.

The team reviewed electrical elementary and schematic diagrams, calibration procedures, and calibration test records to verify that the controls for the pumps were in accordance with design basis documents. Also, the team reviewed voltage analysis calculations to verify the CCS pump motors and valves would have adequate voltage during an event. A specific list of documents reviewed is included in the Attachment to this report.

b. Findings

No findings of significance were identified.

.24 Testing and Inspection

a. Inspection Scope

The team reviewed performance and post-maintenance testing of CCS pumps and valves to verify the tests and inspections were appropriately validating the licensing and design bases assumptions. The team performed this review to verify the tests would identify any performance degradation. The team reviewed service and performance testing and electrical preventive maintenance procedures for the DC batteries. The review was performed in order to verify that specified acceptance criteria were met and that the equipment operation was consistent with the CCS design bases.

The team reviewed selected full-flow surveillance test data to ensure system injection flow rates remained within system design calculation assumptions. The team reviewed documentation of completed surveillance tests, and pump head curves to verify equipment performance was appropriately monitored and remained consistent with the design and licensing bases. The component tests reviewed included the TBB pumps, CCS pumps, select instrumentation, and the HXs serviced by the CCS.

The team reviewed valve stroke time testing, thrust and torque testing, differential pressure testing, and corrective maintenance records for selected CCS risk-significant MOVs, including the SFP train realignment valves, RHR HXs supply, and thermal barrier supply isolation valves. The team performed this review to verify the availability of the selected valves, adequacy of surveillance testing acceptance criteria, and the monitoring of these valves for degradation. The team reviewed test records to verify that permissives and interlocks not normally tested during pump testing were verified during periodic surveillance testing.

The team reviewed the 125VDC vital batteries surveillance test records to verify that the batteries were capable of meeting design basis load requirements. The team also reviewed calibrations for the CCS TBB pump protective relays.

The team reviewed surveillance instructions which verified the operability of diesel generator 1A-A, 1B-B, 2A-A, and 2B-B start logic, SI signals, and proper operation of Engineered Safety Features (ESF) equipment during a LOOP. A specific list of

documents reviewed is included in the Attachment to this report.

b. Findings

No findings of significance were identified.

.3 Selected Components

.31 Component Degradation

a. Inspection Scope

The team reviewed maintenance records, testing documentation, modifications records, operator logs, performance trending data, and equipment history to verify the safety function, reliability and availability of selected components were maintained. In addition, the team reviewed the CCS maintenance rule performance criteria, selected CCS PERs, and system health reports to determine system reliability and availability. The team performed CCS field walkdowns to assess material condition and identify degraded equipment.

The team also reviewed three years of CCS pump and selected MOV's maintenance history data to determine whether adequate preventive maintenance activities were being performed and to verify corrective maintenance activities adequately corrected identified problems. Specifically, the team reviewed applicable motor vendor manuals, and completed work order packages in order to determine if preventive maintenance activities were adequate to prevent and/or identify pump performance problems. To determine if there were any negative trends, the team conducted interviews with the system engineer responsible for motor and pump performance monitoring, reviewed on-line vibrations tests, and verified oil sampling test results. Using the licensee's scaling documents, set point documents, and site instrument procedures, the team reviewed CCS instrument calibration, maintenance, and testing. The team also reviewed selected CCS instruments from the system drawings, master equipment list, operations training material, and UFSAR to verify technical consistency with design calculations and scaling documents.

In addition, the team performed a review to verify the CCS motors are replaced based on the number of motor cycles. The team also reviewed oil change work orders, vendor manual information, and maintenance procedures to identify any potential for common cause failures. Additionally, the team reviewed selected component's in-service trending data to verify the performance was within the limits specified by the manufacturer and design basis. A specific list of documents reviewed is included in the Attachment to this report.

b. Findings

No findings of significance were identified.

.32 Equipment/Environmental Qualification

a. Inspection Scope

The team reviewed work orders, corrective action documents, and interviewed licensee personnel to verify CCS instrumentation availability and usability for both normal and accident operations. The team also reviewed the guidance provided by Regulatory Guide 1.97, “Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident,” to verify the licensee incorporated the guidance into instrumentation design. Additionally, the team reviewed 10 CFR 50.49, “Environmental Qualification of Electric Equipment for Important to Safety for Nuclear Power Plants,” to verify requirements had been appropriately incorporated in CCS instrumentation.

The team reviewed environmental qualification test data associated with the components used to mitigate a postulated accident such as the CCS pump motors. The test data was reviewed to confirm these components were qualified for all postulated accident environmental conditions. The team also reviewed seismic test data on instruments to verify appropriate performance during and after a seismic event.

In addition, the team reviewed the environmental classification for several other instruments associated with the CCS to determine if the components had been properly evaluated for inclusion in the Environmental Qualification (EQ) Program. The team conducted walkdowns to verify that the observable portion of selected mechanical components were suitable for all expected environmental conditions, including HELBs.

The team reviewed calculations and data for environmental conditions of the CCS pump room. The team reviewed vendor environmental specifications for CCS pumps and CCS pump motors to verify that maximum temperatures during design basis accidents (DBAs) and HELB do not exceed the maximum operational temperature of the CCS components in that area. A specific list of documents reviewed is included in the Attachment to this report.

b. Findings

No findings of significance were identified.

.33 Equipment Protection

a. Inspection Scope

The team walked down the CCS and reviewed CCS environmental qualifications of the

CCS temperature switches to verify the equipment was adequately protected against external events and would be able to operate during a HELB. Additionally, the team performed this walkdown to verify there was no observable damage to installations designed to protect components from potential effects of flooding. Additionally, the team walked down areas containing major equipment in the 250 VDC systems to assess the potential for damage from flood, missiles, or HELB.

The team reviewed the licensee's chemical addition and sampling program to determine if the program provided adequate protection from both corrosion and bacterial attack. The team identified system dead legs and reviewed the licensee's program for maintaining chemical protection to prevent dead leg corrosion. A specific list of documents reviewed is included in the Attachment to this report.

b. Findings

No findings of significance were identified.

.34 Component Inputs/Outputs

a. Inspection Scope

The team reviewed selected MOV actuator requirements calculations and evaluated the capability of the MOVs to perform their design function under degraded voltage and differential pressure conditions. The team reviewed the calculated inputs to verify voltage and pressure drops were provided and properly translated to the torque and thrust MOV test critera. A specific list of documents reviewed is included in the Attachment to this report.

b. Findings

No findings of significance were identified.

.35 Operating Experience

a. Inspection Scope

The team reviewed the licensee's applicability evaluations, extent of condition reviews, and corrective actions for industry and station operating experience issues related to CCS equipment problems, such as oil cooler plugging, and check valve problems to verify that plant specific issues were appropriately dispositioned. Work orders, procedures, field observations and discussions with engineering staff provided verification that Operating Experience related corrective actions were accomplished.

The team evaluated the licensee's review of NRC Information Notice (IN) 04-07, "Plugging of Safety Injection Pump Lubrication Oil Coolers with Lakeweed", for applicability to their facility. Actions taken by the licensee in response to their review of

the IN were evaluated by the team to verify their responsiveness to industry experience. A specific list of documents reviewed is included in the Attachment to this report.

b. Findings

No findings of significance were identified.

.4 Identification and Resolution of Problems

a. Inspection Scope

The team reviewed selected system health reports, operator logs, work orders, maintenance records, surveillance test records, and PERs to verify that design and performance problems were identified and entered into the corrective action program. The team assessed the scope of the licensee's extent-of-condition reviews and the adequacy of the corrective actions. The team reviewed calibration test records to verify that "out-of-tolerance" conditions were properly entered into the corrective action program for evaluation and disposition. Additionally, the team reviewed a sample of corrective maintenance work orders on the selected pumps and valves. A specific list of documents reviewed is included in the Attachment to this report.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA6 Meetings, Including Exit

The lead inspector presented the inspection results on March 4, 2005, to Mr. Kulisek and other members of the licensee staff. The licensee acknowledged the findings presented. Proprietary information is not included in this inspection report.

TVA

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

*D. Kulisek, Plant Manager
L. Alexander, Inservice Testing Engineer
*R. Bruno, Training Manager
*M. Cooper, NSSS System Engineering Manager
*T. Cosby, Maintenance Support Manager
D. Dotson, CCS System Engineer
*R. Gladney, Electrical Design Manager
J. Hanevich, Mechanical Engineer
*K. Jones, Systems Engineering Manager
*K. Korth, Operations Support Manager
*T. Neissen, Nuclear Assurance Manager
*D. Osborne, Design Engineering Manager
*P. Pace, Licensing and Industry Affairs Manager
*R. Proffitt, Licensing Engineer
*R. Rogers, Engineering Manager
*J. Smith, Licensing Supervisor
J. Thomas, Mechanical Engineer
*J. Thomas, Mechanical Design Manager

NRC

*S. Freeman, Senior Resident Inspector, Sequoyah Nuclear Station
*C. Ogle, Branch Chief, Division of Reactor Safety, Region II

*attended exit meeting

List of Items Opened, Closed and Discussed

None

Attachment

LIST OF DOCUMENTS AND EQUIPMENT REVIEWED

Report Sections

1R21.11a Process Medium

Calculations:

SQN-70-D053-HCG-BCY-080586, CCS Relief Valve Pressure Settings, Rev. 1
SQN-KC-D053-0-HCG-PLJ-061686, CCS Relief Valve Sizing, Rev. 1
SQN-67-D053-0-HCG-KBO-082587, Flood Mode Operation - SFP and RHR HX, Rev. 1
SQN-70-D053-EPM-KSR-072787, Acceptable CCS Pump Seal Leakage Rate Analysis During LOCA, Rev. 1
SQN-70-D053-HCG-HHC-120386, CCS Pump Flow Capability, Rev. 1
SQN-70-D053-HCG-MJV-092786, CCS User Design Flow Rates, Rev. 3

Drawings:

1,2-47W859-1, Mechanical Flow Diagram Component Cooling System, Rev. 49
1-47W859-2, Mechanical Flow Diagram Component Cooling System, Rev. 30
2-47W859-3, Mechanical Flow Diagram Component Cooling System, Rev. 30
1,2-47W859-4, Mechanical Flow Diagram Component Cooling System, Rev. 20
47W611-70-2, Mechanical Logic Diagram Component Cooling System, Rev. 11
1,2-47W600-122, Mechanical Instruments and Controls, Rev. 12

Procedures

0-SI-OPS-070-032.B, CCS Valves Position Verification Train B Appendix C and D, Rev. 0
1-SI-OPS-070-032.A, CCS Valves Position Verification Train A, Rev. 20
0-FP-MXX-000-010.0, Flood Preparation Maintenance Instruction, Rev. 4
0-PI-OPS-510-001.0, Flood Preparation Equipment Inventory, Rev. 3
1-SO-70-1, CCS “A” Train, Rev. 33

PERs

SQ951576PER, Flood Mode Spool Pieces Did Not Meet Fit-up Requirements, 10/16/95
33672, Flood Mode Spool Piece Does Not Fit, 07/30/04

Miscellaneous

C95154, Vacuum Relief Valve, Rev. A
SQN-DC-V-13.9.9, Component Cooling Water Systems, Rev. 21
SQN-DC-V-12.1, Flood Protection Provisions, Rev. 9

PMT-110, CCS Flow Balance After HX 0B1 and 0B2 Installation, Rev. 0
OPL271, License Training Component Cooling Systems, Rev. 1
DCN-Q-11452-A, Review of the Consequences of a Complete Loss of CCS on the Safety-related Components Sheet 2, 11/22/94
A-2106, D-10 and D20 Series-Relief Valves, Rev. A

Components Reviewed

Surge Tank Vent Valve 1-FCV-70-66

1R21.12a Energy Sources

Calculations

SQN-VD-VAC-2, 120V AC Vital Control Power System Design Verification-Preliminary, Rev. 36
SQNETAPAC, Auxiliary Power System, Rev. 20

Drawings

1,2-45N779-2, 480V Shutdown Auxiliary Power Schematic Diagrams Sh-2, Rev. 15
1,2-45N779-19, 480V Shutdown Auxiliary Power Schematic Diagrams Sh-19, Rev. 21
1,2-45N751-3, 480V Reactor MOV BD 1A2-A Single Line Sh-1, Rev. 59
1,2-45N751-5, 480V Reactor MOV BD 1B1-B Single Line Sh-1, Rev. 58
1-D-3060K13-513-19, Elementary Diagram, Rev. 1
1-45W1671, Wiring Diagrams Balance of Plant Instrument Racks, Train A Connection Diagrams, Rev. 10
1-45W1673-7, Wiring Diagrams Balance of Plant Isolation Rack Train A Connection Diagram Sheet 7, Rev. 4
1,2-45N706-1, Wiring Diagram 120V AC Vital Instrument Power Boards 1-I & 2-I Connection Diagram Sheet 1, Rev. 43
1-D3060K13-513-18, Elementary Diagram, Rev. 2
1-D3060K13-513-20, Elementary Diagram, Rev. 2
1-D3060K13-513-24, Elementary Diagram, Rev. 2
1-D3060K13-513-33, Elementary Diagram, Rev. 2

Procedures

0-PI-CEM-032-002.0, Auxiliary Building Control Air Quality Test, Rev. 3

Miscellaneous

TVA-83577, Specification 1643 for Special Nuclear Valves and Controls
ANSI/ISA-S7.0.01-1996, Quality Standard for Instrument Air, Approved 12/11/1996
336E, Masoneilan 70000 Series Angle Valves, Rev. 0
SQN-DC-V-32, Auxiliary Control Air System section 1.2, Rev. 8

Components Reviewed

Surge Tank Vent Valve 1-FCV-70-66
Surge Tank Make-up Valve from Demineralizer System 1-LCV-70-63
Instrument Air Compressors 0-CMP-25, -26, -27, -136

1R21.13a Instrumentation & Controls

Drawings

1,2-45N779-2, 480V Shutdown Auxiliary Power Schematic Diagrams Sh-2, Rev. 15
1,2-45N779-19, 480V Shutdown Auxiliary Power Schematic Diagrams Sh-19, Rev. 21

Completed Work Orders

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98-008115-000, 480V Shutdown Board 1B1-A Indicating Meter and Relay Calibration, 9/14/98
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98-008657-000, 480V Shutdown Board 2B2-B Indicating Meter and Relay, 4/14/99
00-002324-000, 480V Shutdown Board 1A2-A Indicating Meter and Relay Calibration, 7/9/04
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1-47W859-2, Mechanical Flow Diagram Component Cooling System, Rev. 30
2-47W859-3, Mechanical Flow Diagram Component Cooling System, Rev. 30
1,2-47W859-4, Mechanical Flow Diagram Component Cooling System, Rev. 20

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03-015644-000, CCS HX 1A1 Clam and Mic Inspection
04-778029-000, CCS HX 1A1
02-010453-000, Component Cooling HX 1A2 Clam and Mic Inspection
03-015645-000, Component Cooling HX 1A2 Clam and Mic Inspection
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02-011450-000, Component Cooling HX 2A1 Clam and Mic Inspection
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03-004305-000, CCS and Auxiliary Feedwater Pump Cooler A-A
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04-776489-000, CCS and Auxiliary Feedwater Pump Cooler B-B
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1-PI-SFT-070-001.0, Performance Testing of Component Cooling Heat Exchangers 1A1, 1A2, 04/27/04
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1-PI-SFT-070-001.0, Performance Testing of Component Cooling Heat Exchangers 1A1, 1A2, 10/26/04
1-PI-SFT-070-001.0, Performance Testing of Component Cooling Heat Exchangers 1A1, 1A2, 01/06/05
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2-PI-SFT-070-001.0, Performance Testing of Component Cooling Heat Exchangers 2A1, 2A2, 04/26/04
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2-PI-SFT-070-001.0, Performance Testing of Component Cooling Heat Exchangers 2A1, 2A2, 11/02/04
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CCS Heat Exchangers 1A1, 1A2, 2A1, 2A2, 0B1, and 0B2
CCS and Auxiliary Feedwater Pump Fan Coolers A-A, and B-B

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1-PI-SFT-070-139.0, Component Cooling System Unit 1 A-train Flow Balance, Rev. 3
2-PI-SFT-070-139.0, Component Cooling System Unit 2 A-train Flow Balance, Rev. 0
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1-47W859-2, Mechanical Flow Diagram Component Cooling System, Rev. 30
2-47W859-3, Mechanical Flow Diagram Component Cooling System, Rev. 30
1,2-47W859-4, Mechanical Flow Diagram Component Cooling System, Rev. 20
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1,2-45N751-5, 480V Reactor MOV BD 1B1-B Single Line Sh-1, Rev. 58
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1,2-47W855-1, Mechanical - Flow Diagram Fuel Pool Cooling and Cleaning system, Rev. 41
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98-009502, Re-manufacture Spool Piece Between Valves 67-687 and 70-662 by 3/29/05
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2-SI-OPS-082-026.A, Loss of Offsite Power with Safety Injection D/G 2A-A Test, 11/12/03
1-SI-OPS-082-026.B, Loss of Offsite Power with Safety Injection D/G 1B-B Test, 11/6/03
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CCS HX 1A1, 1A2, 2A1, 2A2, 0B1, and 0B2
CCS and Auxiliary Feedwater Pumps Fan Coolers A-A, and B-B
Surge Tank Vent Valve 1-FCV-70-66
Surge Tank Make-up Valve 1-LCV-70-63
TBB Pumps 1A-A, 1B-B, 2A-A, and 2B-B
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2-47W610-67-2, Mechanical Control Diagram ERCW System, Rev. 2
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1,2-47W610-70-1, Mechanical Control Diagram Component Cooling Water System, Rev. 17
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1-SI-SXP-070-201.B, Component Cooling Pump 1B-B Performance Test, Rev. 4
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01-009279-000, Inspection of SFPCS HX Supply Header Valve 0-FCV-70-198, 03/14/03

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02-001104-000, Periodic Inspection with Preventive and Corrective Maintenance on SFPCS HX Supply Header Valve 0-FCV-70-194, 10/25/02
02-001105-001, Periodic Inspection with Preventive and Corrective Maintenance on SFPCS HX Supply Header Valve 0-FCV-70-197, 03/14/03
03-014217-000, EQ Maintenance and Inspection of Excess Letdown HX Containment Isolation Valve 1-FCV-70-143, 11/04/04
03-018269-000, Sample Oil, Inspect/clean Oil Screen, Inspect Oil Cooler Tubes, Replace Final Stage Panel Filter, 03/11/04
04-775466, 1-FT-070-0165C has 1500 to 2400 g.p.m. Swing
04-780158, 1-FT–070-0165A, has 1000 to 3000 g.p.m. Swing
04-773776, 1-FI-070-0165A has 0 to 900 Swing While RHR HX Outlet Flow Instrument Has Very Little Swing
04-775445, 1-FI-070-0165A has 1700 to 3100 g.p.m. Swing
04-780159, 1-FI-070-0155 Is Swing from 200 to 2400 g.p.m.
04-771257, 1-FI-070-0155 is Oscillating Several Hundred Gallons per Minute
03-006869, 1-FT-070-0147 Is Reading 0.4 g.p.m. with System in Service; Suspect Backfill of Sensing Line Is Required - Flush
04-776849, 0-FT-070-0020 Has Air in Sensing Line Due to 70-40 Valve Work
04-776882, 0-FI-070-0020 Is Upscale with System out of Service; Vent When Put in Service
04-777004, 1-FT-070-0096, Repair/replace Broken Terminal Lead (RCP 3 Upper Oil Cooler)
03-003334, 1-LI-070-0099A Dropped While LI-070-0063A Remained Constant
04-782964, 1-LI-070-0099A is 10 % off from LI-0063A
03-012025, Fitting Leak on Manifold to 1-FT-070-115
04-782259, Equalizing Valve Leaking on 1-FT-0700105

Drawings

1,2-47W859-1, Mechanical Flow Diagram Component Cooling System, Rev. 49
1-47W859-2, Mechanical Flow Diagram Component Cooling System, Rev. 30
2-47W859-3, Mechanical Flow Diagram Component Cooling System, Rev. 30
1,2-47W859-4, Mechanical Flow Diagram Component Cooling System, Rev. 20
0 C-71327, 350 HP Motor Driven Pump-Speed 1180 RPM, Rev. 901
71-300-116, Component Cooling Water Booster Pump, Rev. 0

Procedures

MI-11.2C, Limitorque Operators Corrective Maintenance Procedure for SMB-000 thru SMB-00 Actuators with HBC-0 Thru HBC-3 Actuators, Rev. 9
1-SO-70-1, CCS “A” Train, Rev. 33
1-PI-SFT-070-139.0, Component Cooling System Unit 1 A-train Flow Balance, Rev. 3
2-PI-SFT-070-139.0, Component Cooling System Unit 2 A-train Flow Balance, Rev. 0
TVA 10697 (DNE-OA-6-86), Design Basis Review, Required Torque Calc and Valve & Actuator Capability Assessment for 1-FCV-70-153, Rev. 0

TVA 10697 (DNE-OA-6-86), Design Basis Review, Required Torque Calc and Valve & Actuator Capability Assessment for 0-FCV-70-193, Rev. 0
TVA 10697 (DNE-OA-6-86), Design Basis Review, Required Torque Calc and Valve & Actuator Capability Assessment for 0-FCV-70-197, Rev. 0
TVA 10697 (DNE-OA-6-86), Design Basis Review, Required Torque Calc and Valve & Actuator Capability Assessment for 0-FCV-70-198, Rev. 0
TVA 10697 (DNE-OA-6-86), Design Basis Review, Required Torque Calc and Valve & Actuator Capability Assessment for 1-FCV-70-134, Rev. 3
TVA 10697 (DNE-OA-6-86), Design Basis Review, Required Torque Calc and Valve & Actuator Capability Assessment for 0-FCV-70-194, Rev. 0
TVA 10697 (DNE-OA-6-86), Design Basis Review, Required Torque Calc and Valve & Actuator Capability Assessment for 1-FCV-70-156, Rev. 0
TVA 10697 (DNE-OA-6-86), Design Basis Review, Required Torque Calc and Valve & Actuator Capability Assessment for 1-FCV-70-133, Rev. 3
TVA 10697 (DNE-OA-6-86), Design Basis Review, Required Torque Calc and Valve & Actuator Capability Assessment for 1-FCV-70-143, Rev. 0
1-SI-SXP-070-201.A, Component Cooling Pump 1A-A Performance Test, Rev. 6
1-SI-SXP-070-201.B, Component Cooling Pump 1B-B Performance Test, Rev. 4
2-SI-SXP-070-201.A, Component Cooling Pump 2A-A Performance Test, Rev. 8
2-SI-SXP-070-201.B, Component Cooling Pump 2B-B Performance Test, Rev. 4
0-SI-SXP-070-201.C, Component Cooling Pump C-S Performance Test, Rev. 6
MMDP-5, MOV Program Appendix C page 7 of 7 for selected valves, Rev. 0
N2-88-400, System Description Document Containment Isolation, Penetration X-50A, Rev. 13
TI-4, Maintenance Rule Performance Indicator Monitoring, Trending and Reporting - 10 CFR 50.65, Attachment 18 and 19, Rev. 17
0-MI-EPM-317-102.0, Insulation Resistance Test of Cables and Motors, Rev. 23
NADP-3, Managing the Operating Experience Program, Rev. 5
0-MI-MRR-070-072.0, Component Cooling Water Pump Maintenance, Rev. 8
0-PI-CEM-070-001.2, Periodic Chemistry Requirements for Component Cooling System, Rev. 5

Miscellaneous

SQNEQ-MOV-004, Limitorque Actuators Outside Containment with Class B Motors pages G-1 Thru G-10, Rev. 39
OPL271, License Training Component Cooling Systems, Rev. 1
SQN-VTD-D088-0020, Single Stage Centrifugal Pumps, Rev. 0
SQN-VTD-B015-0080, Vendor Technical Document B&W Pumps CCS Booster Pumps, Rev. 0
Computer File Oildata.rbm, Oil Sample Data Results for CCS Pumps, Motors, and TBB Pumps Since 2001
Computer File Auxbldg.rbm, Vibration Testing Data Results for CCS Pumps and TBB Pumps Since 1998
PMT-110, CCS Flow Balance After HX 0B1 and 0B2 Installation, Rev. 0

PERs

76181, Unplanned LCO entry, 02/09/05
SQ951576PER, Flood Mode Spool Pieces Did Not Meet Fit-up Requirements, 10/16/95
33672, Flood Mode Spool Piece Does Not Fit, 07/30/04
03-17135, Red Border on CCS Surge Tank Annunciator
04-72528, Routine Low Seal HX Flow Alarms for CCP, SI and RHR Pumps During SDC Operation
05-75617, Configuration Control of Instrument Valves

Components Reviewed

CCS Pumps 1A-A, 1B-B, C-S, 2A-A, and 2B-B
SFP Train Realignment 0-FCV-70-193, -194, -197, -198
RHR HX FCV 1-FCV-153, -156
CCS TB Supply Isolation 1-FCV-70-133
Containment Isolation 1-FCV-70-143

1R21.31a Component Degradation

Calculations

SQN-70-D053-EPM-KSR-072787, Acceptable CCS Pump Seal Leakage Rate Analysis During LOCA, Rev. 1
SQN-70-D053-HCG-BCY-080586, CCS Relief Valve Pressure Settings, Rev. 1
SQN-KC-D053-0-HCG-PLJ-061686, CCS Relief Valve Sizing, Rev. 1

Miscellaneous

SQNEQ-MOV-004, Limitorque Actuators Outside Containment with Class B Motors pages G-1 thru G-10, Rev. 39
Computer File Oildata.rbm, Oil Sample Data Results for CCS Pumps, Motors, and TBB Pumps Since 2001
Computer File Auxbldg.rbm, Vibration Testing Data Results for CCS Pumps and TBB Pumps Since 1998
SS-RPRT.SQN, System Status SQN Unit 1 and 2 Component Cooling System 070, From 3rd Quarter FY2002 to 2nd Quarter 2004
TVA-83577, Specification 1643 for Special Nuclear Valves and Controls
336E, Masoneilan 70000 Series Angle Valves, Rev. 0
SQN-VTD-D088-0020, Single Stage Centrifugal Pumps, Rev. 0
SQN-VTD-B015-0080, Vendor Technical Document B&W Pumps CCS Booster Pumps, Rev. 0
MMDP-5, MOV Program Appendix C page 7 of 7 for Selected Valves, Rev. 0

Drawings

CP 1-8-120, Control Valve 3" 20,000 Series-600LB ANSI Rated Butt Weld Ends No. 18 Reverse Actuator 6A3 Handwheel, Rev. A

CP 3-6-53, Control Valve 2" 20,000 Series-150LB ANSI Flanges No. 15 Reverse Actuator
1,2-47W859-1, Mechanical Flow Diagram Component Cooling System, Rev. 49
1-47W859-2, Mechanical Flow Diagram Component Cooling System, Rev. 30
2-47W859-3, Mechanical Flow Diagram Component Cooling System, Rev. 30
1,2-47W859-4, Mechanical Flow Diagram Component Cooling System, Rev. 20

PERs

76181, Unplanned LCO entry, 02/09/05
PER 64155, Vital Batter Bank IV Cell 55 Corrosion, 7/1/04
PER 16976, MOVAT Testing on 0-MVOP-070-0034 Showed Motor Running Current Was Higher Than Nameplate Data, 9/24/03

Work Orders

02-012317-000, Oil Sampling CCS 2B-B Pump and Motor Oils, 07/18/03
04-771609-000, Oil Sampling CCS 2B-B Pump and Motor Oils, 05/22/04
02-011915-000, Oil Sampling CCS 1B-B Pump and Motor Oils, 07/01/03
04-772132-000, Oil Sampling CCS 1B-B Pump and Motor Oils, 06/03/04
03-005063-000, Oil Sampling CCS 1A-A Pump and Motor Oils, 10/16/03
04-770145-000, Oil Sampling CCS 1A-A Pump and Motor Oils, 04/02/04
04-778007-000, Thermal Barrier Booster Pump 1B-B Oil Sample, 01/14/2005
02-012105-000, Thermal Barrier Booster Pump 1B-B Oil Sample, 03/12/03
03-016031-000, Thermal Barrier Booster Pump 1B-B Oil Sample, 02/09/04
02-006635-000, Inspection of RC Pump Thermal Barrier Containment Isolation Valve 1-FCV-70-133, 05/20/03
02-012279-000, Periodic Inspection with Preventive and Corrective Maintenance on RHR HX A outlet valve 1-FCV-70-156, 5/27/03
02-012280-000, Periodic Inspection with Preventive and Corrective Maintenance on RHR HX B outlet valve 1-FCV-70-153, 5/27/03
01-009279-000, Inspection of SFPCS HX Supply Header Valve 0-FCV-70-198, 03/14/03
02-001107-000, Periodic Inspection with Preventive and Corrective Maintenance on SFPCS HX Supply Header Valve 0-FCV-70-193, 02/21/03
02-001104-000, Periodic inspection with preventive and corrective maintenance on SFPCS HX Supply Header Valve 0-FCV-70-194, 10/25/02
02-001105-001, Periodic Inspection with Preventive and Corrective Maintenance on SFPCS HX Supply Header Valve 0-FCV-70-197, 03/14/03
03-014217-000, EQ Maintenance and Inspection of Excess Letdown HX Containment Isolation Valve 1-FCV-70-143, 11/04/04
03-006510-000, Replace Motor on CCS Pump C-S, 06/02/03
03-004444-000, Replace Oil Filter, Condensate Traps, Lube Motor Coupling for Station Compressor, 10/07/03
03-018269-000, Sample Oil, Inspect/clean Oil Screen, Inspect Oil Cooler Tubes, Replace Final Stage Panel Filter, 03/11/04
04-772438-000, Outboard Bearing Level Is Indicating Low
04-779473-000, Pump Temperature Is Hot; Much Warmer That Unit 2's, 10/01/05
03-001116-000, Ccs Booster Pump A-a Running Hot and Making Noise, Investigate and Repair, 02/10/03

04-780112-000, Ccs Thermal Barrier Booster Pump 2b-b Alignment, 1/12/05
04-772514-000, 125v Vital Battery IV Inspection and Cleaning, 6/16/04
04-777487-000, Cell #55 Has Corrosion on Connections, 6/29/04
04-777516-000, Disassemble and Clean Connections on Vital Battery IV,
04-777991-000, 125v Vital Battery IV Inspection and Cleaning, ½8/05
04-779411, Troubleshoot AOP Valve SQN-2-MVOP-070-76, 12/17/04
04-780112-000, CCS Thermal Barrier Booster Pump 2B-B Vibration, 1/12/05
04-783205-000, Inspect Junction Box Internals, 1/19/05
04-779651, Implement DCN 21766 to Change Bezels on Surge Tank Annunciator
98-009502, Re-manufacture Spool Piece Between Valves 67-687 and 70-662 by 3/29/05
04-779360, 2-FS-070-0147, “A” SI Pump Intermittent Flow Alarm
03-005996, 2-FS-070-0147, “A” SI Pump Intermittent Flow Alarm
03-005459, Unit 2 CCS “A” Thermal Barrier Pump Oil Low
04-783527, Unit 2 “A” Thermal Barrier Pump Oil Leak
03-012243, Unit 2 “A” Thermal Barrier Pump Oil Leak
02-008923-001, Thermal Barrier Pump Unit 2 “A” Casing to Impeller Wearing Clearance Out of Vendor Tolerance
03-010789, Instrument 2-FE-070-0116, Remove Piping for Metallurgical Testing
04-771694, 2"B” CCS Thermal Barrier Pump Oil Low
03-007250, 2"B” CCS Thermal Barrier Pump Oil Low
03-005571, Obtain an Oil Sample on the 2"B” Thermal Barrier Pump
03-005729, Realign the 2"B” Thermal Barrier Booster Pump to its Motor
03-000020, Instrument 2-fi-070-0096 Appears to Be Sticking Around Mid-scale
03-010427, 2"A” CCS Pump Is Low on Oil (Inboard Bearing)
03-008765, Perform Mt on Return CCS Lines from RCPs 2, 3, and 4
04-775466, 1-FT-070-0165C Has 1500 to 2400 g.p.m. Swing
04-780158, 1-FT–070-0165A Has 1000 to 3000 g.p.m. Swing
04-773776, 1-FI-070-0165A Has 0 to 900 Swing While RHR HX Outlet Flow Instrument Has Very Little Swing
04-775445, 1-FI-070-0165A Has 1700 to 3100 g.p.m. Swing
04-780159, 1-FI-070-0155 Is Swing from 200 to 2400 g.p.m.
04-771257, 1-FI-070-0155 Is Oscillating Several Hundred g.p.m.
03-006869, 1-FT-070-0147 Is Reading 0.4 g.p.m. with System in Service; Suspect Backfill of Sensing Line Is Required - Flush
03-008624, Valve 1-ZS-070-0085 Is Indicating Read and Green Lights with the Valve in Closed Position
04-772438, 1"B” CCS Pump Outboard Bearing Oil Is Low
03-008368, Inspect and Repair CCS Pump Motors’ Heaters
04-776849, 0-FT-070-0020 Has Air in Sensing Line Due to 70-40 Valve Work
04-776882, 0-FI-070-0020 Is Upscale With System Out of Service; Vent When Put in Service
04-777004, 1-FT-070-0096, Repair/replace Broken Terminal Lead (RCP 3 Upper Oil Cooler)
03-003334, 1-LI-070-0099A Dropped While LI-070-0063a Remained Constant
04-782964, 1-LI-070-0099A Is 10 % off from LI-0063a
03-012025, Fitting Leak on Manifold to 1-FT-070-115
04-782259, Equalizing Valve Leaking 0n 1-FT-0700105
03-001116, Unit 1 Thermal Barrier Pump Motor Runs Hot
03-006869, 1-FT-070-0147 Reading Low - Flush

02-014984, Flow Differential Switch Activated on 2-FDS-070-0081E
03-010790, 2-FE-070-0081a, Remove/replace Sensing Lines
03-006510, Replace CCS “C-s” Motor
97-008215, Rebuild and Modify CCS Pump C-s (Typical)
04-772414, Add Oil to Both CCS Pump Bearing

Components Reviewed

CCS Pumps and Motors 1A-A, 1B-B, C-S, 2A-A, and 2B-B
TBB Pumps and Motors 1A-A, 1B-B, 2A-A, and 2B-B
Surge Tank Vent Valve 1-FCV-70-66
Surge Tank Make-up Valve 1-LCV-70-63
SFP Train Realignment 0-FCV-70-193, -194, -197, -198
CCS TB Supply Isolation 1-FCV-70-133
Containment Isolation 1-FCV-70-143
Waste Evaporator Abandon Equipment Isolation 1-FCV-70-207, 0-70-601
RHR HX FCVs 1, 2-FCV-70-153
Relief Valves on RHR HX Section 551A, -B
Surge Tank Relief Valve 1-70-539
Check Valves on CCS Pump Discharge 1-70-504A, -B, Surge Tank Make-up 1-70-541, and TBB Pumps 1-70-676A, -B
125VDC vital batteries
CCS/AFW area coolers
CCS HXs 1A1, 1A2, 2A1, 2A2, 0B1, and 0B2

1R21.32a Equipment/Environmental Qualification

Drawings

1,2-47W200-5, Equipment Plan-EL 690.0 & 685.0, Rev. 6]

Calculation

SQNAPS2-121, Environmental Response of Auxiliary Building to HELBs, Rev. 3

Miscellaneous

SQN-DC-V-21.0, Sequoyah Nuclear Plant - Environmental Design, Rev. 19
SQN-VTM-D088-0010, Component Cooling Water System Pumps, Rev. 12
SQN-VTD-D088-0020, Single Stage Centrifugal Pumps, Rev. 0

1R21.34a Component Inputs/Outputs

Calculations

TVA 10697 (DNE-OA-6-86), Design Basis Review, Required Torque Calc and Valve & Actuator Capability Assessment for 1-FCV-70-153, Rev. 0
TVA 10697 (DNE-OA-6-86), Design Basis Review, Required Torque Calc and Valve & Actuator Capability Assessment for 0-FCV-70-193, Rev. 0

TVA 10697 (DNE-OA-6-86), Design Basis Review, Required Torque Calc and Valve & Actuator Capability Assessment for 0-FCV-70-197, Rev. 0
TVA 10697 (DNE-OA-6-86), Design Basis Review, Required Torque Calc and Valve & Actuator Capability Assessment for 0-FCV-70-198, Rev. 0
TVA 10697 (DNE-OA-6-86), Design Basis Review, Required Torque Calc and Valve & Actuator Capability Assessment for 1-FCV-70-134, Rev. 3
TVA 10697 (DNE-OA-6-86), Design Basis Review, Required Torque Calc and Valve & Actuator Capability Assessment for 0-FCV-70-194, Rev. 0
TVA 10697 (DNE-OA-6-86), Design Basis Review, Required Torque Calc and Valve & Actuator Capability Assessment for 1-FCV-70-156, Rev. 0
TVA 10697 (DNE-OA-6-86), Design Basis Review, Required Torque Calc and Valve & Actuator Capability Assessment for 1-FCV-70-133, Rev. 3
TVA 10697 (DNE-OA-6-86), Design Basis Review, Required Torque Calc and Valve & Actuator Capability Assessment for 1-FCV-70-143, Rev. 0

Work Orders

02-006635-000, Inspection of RC Pump Thermal Barrier Containment Isolation Valve 1-FCV-70-133, 05/20/03
02-012279-000, Periodic Inspection with Preventive and Corrective Maintenance on RHR HX A outlet valve 1-FCV-70-156, 5/27/03
02-012280-000, Periodic Inspection with Preventive and Corrective Maintenance on RHR HX B outlet valve 1-FCV-70-153, 5/27/03
01-009279-000, Inspection of SFPCS HX Supply Header Valve 0-FCV-70-198, 03/14/03
02-001107-000, Periodic Inspection with Preventive and Corrective Maintenance on SFPCS HX Supply Header Valve 0-FCV-70-193, 02/21/03
02-001104-000, Periodic Inspection with Preventive and Corrective Maintenance on SFPCS HX Supply Header Valve 0-FCV-70-194, 10/25/02
02-001105-001, Periodic Inspection with Preventive and Corrective Maintenance on SFPCS HX
Supply Header Valve 0-FCV-70-197, 03/14/03
03-014217-000, EQ Maintenance and Inspection of Excess Letdown HX Containment Isolation Valve 1-FCV-70-143, 11/04/04

1R21.35a Operator Experience

Miscellaneous

IN 04-07**,** Plugging of Safety Injection Pump Lubrication Oil Coolers with Lakeweed, 04/07/04
NADP-3, Managing the Operating Experience Program, Rev. 5

1R21.4a Identification and Resolution of Problems

PERs

16976, MOVAT Testing on 0-MVOP-070-0034 Showed Motor Running Current Was Higher Than Nameplate Data, 9/24/03
17382, The Square D Bucket Located on Rx MOV 1A1-A Compartment 13B Cannot Be Pulled, 8/19/2004

17602, RV 2-70-703 Failed the Acceptance Criteria During the Performance 0-SI-SXV-000, 11/25/03
64155, Vital Batter Bank IV Cell 55 Corrosion, 7/1/04
67226, Henry Platt Butterfly Valve Theramalled Out During Normal Use, 8/19/04
25107, WO # 03-015644-00, PM # 041431001, SQN-1-HEX-070-0008A, 0-MI-MRR-070-611.0 Component Cooling System HX
22799, CCS HX 1A1
22802, CCS HX 2A2
22798, CCS HX 1A2
25437, Trending of the Fouling Factor of the CCS HX 1A1/1A2
27578, OB1 CCS Heat Exchanger
27682, CCS HX 2A1
29812, 0B1/0B2 CCS HX
30736, CCS HX OB2
70857, CCS HX 1A1 and 1A2

PERs initiated due to this inspection

77709, Drawing Deviation on 1,2-47W611-70-1, 3/2/05
77778, IV on Relay and Cover Replacement Not Performed, 3/3/05
77801, Lack of documentation of Decision Basis, 3/3/05
77807, Calculation SQN-VD-VAC-2 Does Not Specifically Address Loop 1-F-70-81A, 3/3/05
77873, Flexible Conduit not Properly Attached to Valves, 3/4/05
77864, Simulator vs Plant Labeling Difference, 3/4/05
76227, CCS Instrument Line Obstructions due to Corrosion, 2/9/05
77724, Leak Rate Evaluation, 3/2/05
76857, Surveillances Identified with Errors, 2/18/05
77660, Labeling Inconsistencies Could Impact Actions During Accident, 3/2/05
75740, Procedure Change Needed 1-SO-70-1, 2/3/05
76654, Deficiencies in AOI-M.03 Loss of CCS, 2/18/05
76881, Procedural Inconsistency, 2/23/05
76976, NRC Identified Issue, 2/23/05
77189, CCS SSDPC Calculation Not Current, 2/28/05
76891, CCS SSDPC ERCW Temperature Average, 2/23/05
78007, Critical Thinking Not Documented Properly, 3/9/05

WOs Initiated Due to this Inspection

05-772187-000, Local Panel 1-L-341 Has Separated Middle Flexible Conduit Connection, 2/15/05
05-772707-000, Missing Stem Cap on the Valve Actuator, 3/1/05
05-772706-000, Flex Conduit is Broken and Needs to be Repaired on 2-FCV-070-0018-A, 3/1/05
05-772705-000, Spool Section Connecting to Valve 0-VLV-070-0530 is Missing One Seal, 3/1/05
05-772713-000, Flex Conduit is Broken and Needs to be Repaired on 2-FCV-070-0014-B, 3/1/05
05-772712-000, Flex Conduit is Broken and Needs to be Repaired on 2-FCV-070-0023-A, 3/1/05

05-772711-000, Valve Actuator Has Oil Leak on Valve 1-FCV-070-0023-B, 3/1/05
05-772709-000, Valve Actuator Has Oil Leak on Valve 2-FCV-070-0029-B, 3/1/05
05-772706-000, Valve Actuator Has Oil Leak on Valve 2-FCV-070-0016-A, 3/1/05

TRs initiated due to this inspection

TR 587485, Replace Missing J-Style Tag on Valve 1-VLV-070-504A, 3/2/05
TR 587486, Replace Missing J-Style Tag on Valve 2-VLV-070-504A, 3/2/05
TR 587484, Replace Missing J-Style Tag on Valve 0-VLV-070-504, 3/2/05