July 22, 2002

Mr. Michael A. Balduzzi
Senior Vice President
and Chief Nuclear Officer
Vermont Yankee Nuclear Power Corporation
185 Old Ferry Road
P.O. Box 7002
Brattleboro, Vermont 05302-7002

SUBJECT: VERMONT YANKEE - NRC INSPECTION REPORT 50-271/02-03

Dear Mr. Balduzzi:

On June 7, 2002, the NRC completed an inspection at the Vermont Yankee Nuclear Power Station. The enclosed report documents the inspection findings which were discussed on June 7, 2002, with Mr. Kevin Bronson and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety system design and performance capability of the residual heat removal service water (RHRSW) and automatic depressurization systems and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of a selected examination of calculations, drawings, procedures and records, observations of activities and interviews with personnel.

Based on the results of this inspection, the team identified one finding of very low safety significance (Green) regarding the chemistry control program, which was not effective at minimizing the buildup of microbiologically influenced corrosion in the RHRSW and service water systems and has resulted in repeated RHRSW pump performance problems since 1999.

In accordance with 10 CFR 2.790 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,

/RA/

Lawrence T. Doerflein, Chief
Systems Branch
Division of Reactor Safety

Docket No. 50-271
License No. DPR-28

Enclosure: Inspection Report 50-271/02-03

Attachment: Supplemental Information

cc w/encl:
M. Hamer, Operating Experience Coordinator - Vermont Yankee
G. Sen, Licensing Manager, Vermont Yankee Nuclear Power Corporation
D. Tefft, Administrator, Bureau of Radiological Health, State of New Hampshire
Chief, Safety Unit, Office of the Attorney General, Commonwealth of Massachusetts
D. Lewis, Esquire
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T. Rapone, Massachusetts Executive Office of Public Safety
D. Katz, Citizens Awareness Network (CAN)
M. Daley, New England Coalition on Nuclear Pollution, Inc. (NECNP)
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REGION I

Docket No.	50-271
Licensee No.	DPR-28
Report No.	50-271/02-03
Licensee:	Vermont Yankee Nuclear Power Corporation
Facility:	Vermont Yankee Nuclear Power Station
Location:	Vernon, Vermont
Dates:	May 20 - 24 and June 3 - 7, 2002
Inspectors:	L. Prividy, Senior Reactor Inspector G. Cranston, Reactor Inspector K. Kolaczyk, Reactor Inspector A. Lohmeier, Reactor Inspector K. Mangan, Reactor Inspector R. Taylor, Reactor Intern, NRR R. Cooney, Contractor
Approved by:	Lawrence T. Doerflein, Chief Systems Branch Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000271/02-03, on 05/20-06/07/2002; Vermont Yankee Nuclear Power Station; Vermont Yankee Nuclear Power Corporation; Safety System Design and Capability Performance Inspection Report.

The inspection was conducted by five region-based inspectors and a contractor. One Green finding was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609 "Significance Determination Process" (SDP). Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at http://www.nrc.gov/reactors/operating/oversight.html

A. Inspector Identified Findings

Mitigating Systems

(Green) The inspectors found that the licensee's chemistry control program was not effective at minimizing the buildup of microbiologically influenced corrosion (MIC) in the residual heat removal service water (RHRSW) and service water (SW) systems. Even though the licensee was chemically treating the RHRSW and SW systems to control biofouling, the performance of the RHRSW pumps had degraded on numerous occasions into the alert range during in service testing. Additionally, the SW and RHRSW piping has developed more than 20 documented pinhole leaks that were caused by MIC.

This finding was considered greater than minor since an ineffective chemistry control program could be reasonably viewed as a precursor to a significant event or, if left uncorrected, could become a more significant safety concern. However, the inspectors considered this issue to be of very low safety significance (Green) in accordance with Phase 1 of the mitigating systems SDP screening criteria because the ineffective chemistry control program has not rendered the RHRSW or SW system inoperable and because of RHRSW and SW system redundancy.

B. Licensee Identified Findings

None

Report Details

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R21 Safety System Design and Performance Capability (71111.21)

a. Inspection Scope

The team reviewed the design and performance capability of the residual heat removal service water (RHRSW) system, RHRSW system performance capability when operating in the alternate cooling system (ACS) mode, and the chemistry control program associated with the RHRSW and service water (SW) systems as related to known microbiologically influenced corrosion (MIC) problems. The team also reviewed the design and performance capability of the automatic depressurization system (ADS).

The RHRSW system, consisting of four pumps and two heat exchangers, provides a dynamic heat sink for the residual heat removal (RHR) system to achieve core and containment cooling during normal and accident conditions. The RHRSW system receives water from either the SW system or from the cooling tower deep basin when operating in the ACS mode should the SW pumps be unavailable. When the high pressure coolant injection system is unavailable, the ADS, consisting of four pneumatically operated relief valves (one on each main steam line), provides automatic nuclear system depressurization which allows the RHR and core spray systems to inject water and meet core cooling requirements.

The team verified that the system design bases were in accordance with the licensing commitments and regulatory requirements and that selected design documents, such as drawings and design calculations, were correct. The documents reviewed included system diagrams, engineering analyses, engineering department self assessments, surveillance tests, work orders, procedures (including emergency operating procedures), calculations, event reports, piping and instrumentation drawings (PI&D), electrical schematics, and instrument setpoint documentation.

For selected calculations and analyses, the team reviewed the assumptions to verify that they were appropriate and agreed with current plant configurations, that proper engineering methods and models were used, and that there were adequate technical bases to support the conclusions. When appropriate, the team performed independent calculations to evaluate the document adequacy.

The team reviewed the capability of the ADS to perform its design function. Specifically, the team reviewed: the control of the safety relief valve solenoid-operated valves; the manual and automatic logic circuitry; the nitrogen accumulator capacity and testing; and the set pressure testing of the safety relief valves.

The team reviewed RHRSW system and ADS electrical single line diagrams, logic and elementary schematic and wiring diagrams to confirm the redundancy of the power supplies for pumps, valves, instrumentation and control equipment within the inspection scope. Additionally, the team evaluated the size and setting of over-current protective

devices to ensure that adequate power was provided to the systems and components reviewed and that their independence was maintained under faulted conditions.

Concerning the RHRSW system mechanical design, the team reviewed: (1) the capability to supply sufficient cooling water to the RHR and emergency diesel heat exchangers under design and transient conditions; (2) the structural integrity of the RHRSW pump suction barrels since chemical treatments and physical cleaning (scraping) of the internal barrel walls had also removed base metal; (3) the inspection results of the RHRSW heat exchangers for evidence of fouling from MIC or other debris; (4) the RHRSW pump performance curves from recent surveillance tests; (5) the adequacy of the net positive suction head (NPSH) for the RHRSW pumps when the system was operating in the ACS mode; and (6) the employment and effectiveness of a chemistry control program, since ongoing pump performance problems were primarily attributed to MIC. The chemistry control procedures used for monitoring and controlling MIC were reviewed.

The team also reviewed the current performance and test acceptance criteria for the RHRSW system and ADS to ensure consistency between allowable component performance and minimum allowable capabilities assumed in the accident analyses and associated design basis calculations. Preventive maintenance activities were reviewed to verify that maintenance was performed as scheduled using controlled procedures and that the system met its design basis function during the maintenance evolution. The team reviewed the implementation of the Maintenance Rule for the RHRSW system and ADS to verify proper identification and resolution of maintenance rule-related issues. Additionally, the team evaluated a sample of surveillance and post-maintenance test results to confirm system capability. Available trend and performance reports and graphs, such as system health reports and in service testing (IST) data, were also reviewed to evaluate historical system performance and trends.

The team conducted a detailed walkdown of accessible portions of the selected and supporting systems to verify that the installed configuration will support the system functions under accident and abnormal event conditions, including safe shutdown of the plant with the control room inaccessible. The team also interviewed personnel responsible for certain aspects of system performance. Lastly, the team selected a sample of event reports associated with the selected systems and an additional sample of event reports issued by engineering (over the past year) to verify the licensee was identifying design issues at an appropriate threshold, entering them in the corrective action program, and taking appropriate corrective actions.

b. Findings

(Green). The team found that the licensee's chemistry control program was not effective at minimizing the buildup of MIC in the RHRSW and SW systems. The finding was determined to be of very low safety significance (Green) because the ineffective chemistry control program has not rendered the RHRSW or SW system inoperable.

While chemistry control procedures existed, such as OP 4630, Rev. 4, “Sampling and Treatment of the Service Water System,” the chemistry control program for the RHRSW and SW systems lacked clear goals for eliminating the MIC that was causing pinhole leaks, preventing further MIC growth, or removing MIC growth from the piping. The licensee had implemented a chemistry control program for the RHRSW and SW systems as a corrective action for a number of MIC and/or corrosion related component degradations. However, the team found that the existing program did not address the requirements for inspections to determine the extent of the MIC problem, chemical addition requirements, and trending to assess effectiveness.

Several examples illustrated the weak performance of the chemistry control program. Even though the RHRSW and SW systems were being chemically treated to control biofouling, the performance of the RHRSW pumps had degraded on numerous occasions into the alert range during inservice testing, caused by fouling of the pump suction barrel (worst degradation in the “D” pump) and the piping due to MIC. This has resulted in increased pipe losses and flow turbulence at the suction of the pump, causing reduced impeller efficiencies. Additionally, the SW and RHRSW piping had developed more than 20 documented pinhole leaks that were caused by MIC. Other observations regarding the weak performance of the chemistry control program were as follows:

- The team noted that the SW sample line was out of service due to a potential MIC induced leak. Since sampling could not be done, chlorine was not being added to the SW system. Though the sample line had been removed from service for a month and was not scheduled to be repaired and returned to service for several more weeks, the impact of not adding chlorine had not been evaluated.

- The team observed that the licensee’s practices concerning piping and component visual inspection and sampling for MIC were random, they did not take into account where MIC was most susceptible, and they were limited to observing the internals of valves and pumps (including adjacent, visible pipe walls) during maintenance.

This issue was considered greater than minor since an ineffective chemistry control program could be reasonably viewed as a precursor to a significant event or, if left uncorrected, could become a more significant safety concern. In this regard, the team was concerned about the recurrence of a heat exchanger macrofouling event similar to a past event, as documented in SYSENG 97-123 Memorandum (September 23, 1997), for which the root cause was not determined. Twenty tubes (almost 5%) of the scavenging air cooler for the “B” emergency diesel generator were completely plugged with tubercles formed by MIC which apparently broke loose from the piping during this past event. The team confirmed that no such events have occurred since 1997. Nonetheless, the team considered this issue to be of very low safety significance (Green) in accordance with Phase 1 of the mitigating systems Significance Determination Process screening criteria because the ineffective chemistry control program has not rendered the RHRSW or SW system inoperable and because of RHRSW and SW system redundancy. No violation of regulatory requirements occurred.

The licensee responded to the team's finding on the chemistry control program by stating at the exit meeting that this issue was a significant concern with their senior management, especially going forward in their long range planning for plant power uprate and life extension processes. The chemistry control program issue was being added to the plant Key Issues List which includes issues that receive ongoing, focused attention every 2 weeks with the plant manager as part of the licensee's corrective action program. The licensee entered this issue in its corrective action program as ER 2002-1412. **(FIN 50-271/02-03-01**)

4. OTHER ACTIVITIES (OA)

4OA6 Meetings, Including Exit

Management Meeting

The team presented the inspection results to Mr. Kevin Bronson and other members of the licensee's staff at an exit meeting on June 7, 2002. In addition, the team discussed the final characterization of the Green finding with Messrs. G. Wierzbowski and J. Callaghan in a telephone conversation on July 17, 2002. The team verified that the inspection report does not contain proprietary information.

ATTACHMENT 1

SUPPLEMENTARY INFORMATION

a. Key Points of Contact

Vermont Yankee Nuclear Power Corporation

H. Breite	System Engineer
K. Bronson	Plant Manager
J. Callaghan	Lead Design Engineer, Fluid Systems
P. Corbett	Maintenance Superintendent
J. DeVincentis	Licensing Engineer
J. Dreyfuss	Acting Director, Engineering
C. Edwards	Fluid Systems Engineer
J. Garozzo	Electrical and I&C Engineer
R. Gerdus	Plant Chemist
E. Harms	Assistant Operations Superintendent
J. Hoffman	Superintendent, Design Engineering
R. January	Lead Design Engineer, Electrical and I&C
D. Jeffries	System Engineer
S. Jonasch	System Engineer
P. Johnson	Design Engineer, Electrical and I&C
M. Metell	Design Engineer, Fluid Systems
P. Rainey	Contractor
J. Stasolla	System Engineer
J. Thayer	Entergy
R. Wanczyk	Director, Safety and Regulatory Affairs
S. Wender	Chemistry Manager
G. Wierzbowski	Acting Superintendent, System Engineering
D. Yasi	Contractor

b. List of Items Opened, Closed and Discussed

Opened and Closed

FIN 50-271/02-03-01	Ineffective chemistry control program for RHRSW and SW systems.

c. Documents Reviewed

CALCULATIONS, ANALYSES, and REPORTS

VYC-125	Ventilation Changes for Diesel and HVAC Equipment Room, Rev. 2
VYC-684	RHR Service Water Pump Full Flow Test Acceptance Values
VYC-686H	Service Water Header- Low Pressure Isolation Uncertainty & Setpoint-PS 104 120A/B/C/D, Rev. 0
VYC-714A	Set Point and Uncertainty Calculation, ADS Actuation Time Delay Relay, Rev. 0

VYC-722B	Residual Heat Removal Service Water System Flow Instrument Loop Accuracy Evaluation, Rev. 1
VYC-730	125 VDC Battery AS-2, Rev. 2
VYC-830	Voltage Drop Calculation for DC Distribution Panels DC-1 & DC-2, Rev. 9
VYC-886	Station Blackout Analysis
VYC-1088	VY 4160/480 Volt Short Circuit and Voltage Drop Study, Rev. 2
VYC-1096	Hydrogen Generation for Main Station Batteries, Rev. 1
VYC-1188	125 VDC Relay and Circuit Breaker Coordination, dated October 5, 1999
VYC-1240	Alternate Cooling Pressure Loss Analysis
VYC-1279	Determine Maximum Allowable RHRSW Pump Degradation and Maximum Cooling Tower Flows, Rev. 4
VYC-1284	Service Water to Emergency Diesel Generator, Flow Indicator Loop Accuracy Review, Rev. 0
VYC-1290	Vermont Yankee Post-LOCA Torus Temperature and RHR Heat Exchanger Evaluation
VYC-1349	125 VDC Control Voltage Drop Study, Battery A-1 and B-1, Rev. 2
VYC-1604	Drift Calculation for ADS Time Delay Relay, Rev. 0
VYC-1803A	Thermal Performance of Alternate Cooling System Using Cooling Tower Test Data, Rev. 2
VYC-2045	Residual Heat Removal Heat Exchangers Fouling Factors and Projected Heat Rates for Cycle 21, dated December 1, 1999
VYC-2053	Residual Heat Removal Heat Exchangers E-14-1A and E-14-1B Thermal Performance Test Data Evaluation and Uncertainty Analysis, Rev. 0
VYC-2086	Service Water System Hydraulic Model Trending Analysis, Rev. 1
VYC-2153	125 VDC Battery A-1 Electrical System, Rev. 0
VYC-2154	125 VDC Battery B-1 Electrical System, Rev. 0
PGT-98-1118	Validation of PROTO-HX Version 3.00 Model Inputs for the VY Nuclear Plant RHR Heat Exchangers E-14-1 A(B)

PROCEDURES

OP 2124	Residual Heat Removal System, Rev. 49
OP 2181	Service Water/Alternate Cooling Operating Procedure, Rev. 52
OP 3126	Shutdown using Alternate Shutdown Methods, Rev. 16
OP 4122	Automatic Blowdown System Surveillance, Rev. 20
OP 4124	Residual Heat Removal and RHR Service Water System Surveillance, Rev. 54
OP 4126	Diesel Generators Surveillance, Rev. 46
OP 4181	Service Water/Alternate Cooling System Surveillance, Rev. 33
OP 4192	HVAC Surveillance, Rev. 13
OP 4210	Maintenance and Surveillance of Lead Acid Batteries, Rev 30
OP 4215	Main Station Battery Performance/Service Test, Rev. 11
OP 4216	Main Steam Safety Relief Valve Discharge Line Vacuum Breaker Testing
OP 4343	ADS System Logic Test, Rev. 21
OP 4345	Automatic Depressurization System Power Monitor Functional Test, Rev. 19
OP 4630	Sampling and Treatment of the Service Water System, Rev. 4
OP 4655	Chemical Soak Treatment of the RHRSW Pumps, Rev. 1

OP 5202	Maintenance/Inspection of Safety Related Heat Exchangers, Pressure Vessels and Tanks, Rev. 13
OP 5265	Service Water Component Inspection and Acceptance Criteria, Rev. 4
PP 7204	Safety & Relief Valve Program, Rev. 2
PP 7601	Service Water Chemical Treatment and Monitoring Program
NE 8046	Visual Examination Procedure for VT-2, Rev. 1
PP 7007	Vermont Yankee Setpoint Program
STP 98-003	VY RHR Heat Exchanger Thermal Performance Procedure and Evaluation, dated April 1998
STP 95-02	Hydraulic Performance Testing of the Alternate Cooling System, dated September 1995

DRAWINGS

H-82215	SWECO Residual Heat Exchanger General Arrangement Sectional Assembly
5920-FS-I12B	Service Water Piping in Reactor Building
G-200357	Circulating Water System Cooling Tower Number 2- Foundation
5920-10449	ISI Pressure Test Diagram - Service Water
5920-12712	RHRSW Pump Curve
G-191299	4KV Auxiliary One Line Diagram, Rev. 23
G-199300	480 Volt Auxiliary One Line Diagram, Switchgear Bus8, MCC8A,8C, sh1, Rev. 17
G-199300	480 Volt Auxiliary One Line Diagram MCC8B,8E,89B, sh2, Rev. 21
G-199301	480 Volt Auxiliary One Line Diagram, Switchgear Bus9,MCC 9A,9C, sh1, Rev. 17
G-199301	480 Volt Auxiliary One Line Diagram MCC 9B,9D,89A, sh2, Rev. 17
G-191372	125V DC One Line Diagram, sh 1, Rev. 60
G-191372	125V DC One Line Diagram, sh2, Rev. 21
G-191372	125V DC One Line Diagram, sh3, Rev. 21
B-191301	4KV Auxiliary Relay Circuit, sh317, Rev. 9
B-191301	Station Service Water Pumps P7-1A,1B,1C,1D, sh423,424,425A,426,427, Rev. 7
B-191301	Auto Blowdown System Logic A, sh750, Rev. 12
B-191301	Auto Blowdown System Logic B, sh751, Rev. 17
B-191301	Auto Blowdown System RV2-71A, sh752, Rev. 15
B-191301	Auto Blowdown System RV2-71B, sh753, Rev. 16
B-191301	Auto Blowdown System RV2-71C, sh754, Rev. 9
B-191301	Auto Blowdown System RV2-71D, sh755, Rev. 11
B-191301	Auto Blowdown System Temperature Display, sh756, Rev. 12
B-191301	SRV Position Indication, sh756A, Rev. 7
B-191301	RHRSW Discharge Valve V10-89B, sh1286, Rev. 14
B-191301	RHRSW Discharge Valve V10-89A, sh1287, Rev. 15
B-191301	RHRSW Pump P8-1A,P8-1B,P8-1C,P8-1D, sh1304,1305,1306,1307, Rev. 15

EVENT REPORTS

19960007, 19960707, 19970504, 19981696, 19982007, 19982029, 19982048, 19982223, 19982224, 19990025, 20000427, 19990025, 19990205, 20000427, 20000825, 20000844, 20000956, 20001200, 20001064, 20001113, 20001197, 20001282, 20001828, 20010021, 20010032, 20010913, 20011023, 20011066, 20011116, 20011173, 20011437, 20011468, 20011512, 20011572, 20011658, 20011680, 20011751, 20011897, 20011971, 20012125, 20012151, 20012225, 20012230, 20011663, 20011971, 20012074, 20012225, 20012230, 20012299, 20012413, 20012588, 20020083, 20020168, 20020329, 20020347, 20020480, 20020583, 20020637, 20020663, 20020698, 20020760, 20020765, 20020806, 20020815, 20020828, 20020852, 20020857, 20020875, 20020925, 20020945, 20021025, 20021107, 20021153, 20021185, 20021192, 20021223, 20021323, 20021351, 20022230

WORK ORDERS

WO949153, WO 960900, WO 975818, WO 987256, WO 004672, WO 004943, 00-001039-010, 00-001935-000, 00-001943-000, 00-004554-000, 00-007021-001, 00-007021-002, 00-007021-003, 00-007021-004, 01-002576-000, 01-002894-000, 01-004572-000, 02-000472-000, 02-000473-000, 02-000474-000, 02-000475-000, 02-000476-000, 02-000477-000

MODIFICATIONS

MM 2002-001	Replacement of RRU-8 Cooling Coil
MM 2002-022	“B” RHRSW Subsystem Motor Bearing Cooling Line Modification
EDCR 93-403	Diesel Generator Service Water Piping Modification
VYDC 2000-028	Main Station Battery Cell Replacement
VYDC 2000-029	Battery Charger Modification

SAFETY EVALUATIONS

SE-2001-003	Cross-tie between Alternate Cooling and SFPC System
SE-98-055	50.59 (a)(2) Safety Evaluation for BMO 98-44, Rev. 2
2000-022	50.59 Screening of “B” RHRSW Subsystem Motor Bearing Cooling Line Modification, Rev. 0
98-013	50.59(a)(2) Safety Evaluation for STP 98-003, dated March 18, 1998

OPERABILITY EVALUATIONS

BMO 98-24R	ADS Solenoid Operated Pilot Valve
BMO 98-44	Significant Degradation of RHRSW Pumps Hydraulic Performance
BMO 2002-06	RHRSW Pump Motor Operation with Potentially DegradedCooling, Rev. 0
NEDE	Analysis of Generic BWR Safety/Relief Valve Operability Test 24988-P Results

DESIGN BASIS DOCUMENTS

Automatic Depressurization System, dated April 3, 1998
125 VDC System, dated December 7, 1999

Main Steam System, dated January 22, 1999
Service Water Systems - Service Water, Residual Heat Removal Service Water, and Alternate Cooling Systems, dated November 17, 1997

MISCELLANEOUS DOCUMENTS

GL 89-04	Guidance on Developing Acceptable Inservice Testing Programs
GL 89-13	Service Water System Problems Affecting Safety-Related Equipment
IN 85-30	Microbiologically Induced Corrosion of Containment Service Water System
IN 86-96	Heat Exchanger Fouling Can Cause Inadequate Operability of Service Water Systems
IN 94-03	Deficiencies Identified During Service Water System Operational Performance Inspections
LER 93-14	Inoperable Alternate Cooling System due to Inadequate Inspection/Acceptance Criteria
LER-97-012	Residual Heat Removal Service Water Flow Could be Less than the Design Basis Flow due to Instrument Inaccuracies
LER 99-001	Inadequate Communication Between Licensee and Equipment Manufacturer Results in the Incorrect Application of a Manufacturer Supplied Pump Curve and an Unanalyzed Condition
NUREG-1482	Guidance for In service Testing at Nuclear Power Plants
BVY 90-007	Response to Generic Letter 89-13, Letter dated January 22, 1990
BVY 91-46	NRC Response to Second VY Response to GL 89-13, Letter dated March 4, 1991
Self-Assessment Report, Service Water Operational Performance Inspection, dated March 11, 1994	
NMRC 93-01	NEI Industry Guideline of Monitoring The Effectiveness of Maintenance at Nuclear Power Plants, Rev. 2
SMRC 2001-042	RHRSW Pump Suction Can Replacement, Evaluation of Options for Improving RHRSW Pump Performance, dated October 25, 2001
QDR-35.3	ASCO 3 Way Solenoid Valve, Rev. 3
Photographs of MIC Corroded Pump Blading and Suction Barrels, dated June 3-6, 2002	
Residual Heat Removal Heat Exchanger Specification Sheet	
VYS-027	Separation Criteria for Reactor Protection, Engineered Safety Feature and Auxiliary Support Systems, Rev. 1
VYS-040	Guidelines for Protection and Coordination of Electrical Systems, Rev1
WS 1040	Equivalency Evaluation, ASCO Solenoid Valve, Rev. 0
Mapping of UT Wall Thicknesses of Pump Suction Barrel for RHRSW Pump 1A	

d. List of Acronyms

ACS	Alternate Cooling System
ADS	Automatic Depressurization System
BMO	Basis for Maintaining Operability
ER	Event Report
GL	Generic Letter
IN	Information Notice
ISI	In service Inspection

IST	In service Testing
MIC	Microbiologically Influenced Corrosion
NPSH	Net Positive Suction Head
NRC	Nuclear Regulatory Commission
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
SDP	Significance Determination Process
SFPC	Spent Fuel Pool Cooling
STP	Special Test Procedure
SW	Service Water
WO	Work Order