

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

DOCKET/REPORT NO. 50-309/94-20
LICENSEE: Maine Yankee Atomic Power Company
FACILITY: Maine Yankee
Brunswick, Maine
DATES: September 19 - 27; December 21, 1994

INSPECTOR: *for* Leonard J. Pinsky 1/18/95
Harold Gregg, Sr. Reactor Engineer Date
Systems Section
Division of Reactor Safety

APPROVED BY: Eugene M. Kelly 1/13/95
Eugene Kelly, Chief Date
Systems Section
Division of Reactor Safety

Inspection Summary

The inspector observed the Maine Yankee service water system operational performance inspection (SWSOPI) self-assessment and concluded the following:

- All elements of temporary inspection (TI) 2515/118 were satisfactorily accomplished.
- The team was fully staffed, members were technically competent, and were committed full-time to the inspection.
- The team's scope and depth were appropriately focused.
- The team maintained objectivity and independence throughout the inspection.
- The final SWSOPI report findings were substantive and developed in-depth.
- The Maine Yankee line organization's response to the team's findings was aggressive, and operability/reportability considerations were promptly addressed.
- The Vice President of Engineering and the Engineering Manager were kept fully apprised of the SWSOPI team's progress, and provided effective support and oversight for the self-assessment.

DETAILS

1.0 INTRODUCTION

On July 22, 1994, the NRC informed Maine Yankee Atomic Power Company (MYAPCo) that their self-assessment plan was conditionally acceptable for meeting the requirements to perform their own Service Water Operational Performance Inspection (SWSOPI) in accordance with TI 2515/118, "Service Water System Operational Performance Inspection." A significant amount of advance preparation by the inspection team was accomplished prior to the inspection and included team assignments, an orientation meeting with participants, and an onsite briefing with site management. The SWSOPI team and a dedicated MYAPCo (line organization) response team began their inspection with an entrance meeting on September 19, 1994. This was followed by 2 full weeks of onsite inspection. The team conducted an exit meeting on October 6, 1994. The inspection onsite was monitored by a senior inspector from Region I to evaluate MY's assessment effort that was performed as an alternative to an extensive NRC team inspection. The inspector observed the scope and depth of the self-assessment including: the team's objectivity and independence, the commitment of personnel to the effort, the process for operability determinations, the corrective action approach, management meetings, and an evaluation of the final SWSOPI report.

2.0 SCOPE AND DEPTH

The scope and depth of the inspection were clearly defined prior to the inspection. Internal licensee guidance contained instructions on how to conduct the inspection, including the assignments for each inspector. Tasks were broken down into areas of inspection that corresponded to TI 2515/118 requirements. These areas were then assigned to specific responsible team members for execution.

The team was able to address all the required inspection areas of TI 2515/118 in detail to assure themselves of adequate assessment in each area (operations, maintenance, engineering, etc.) and to enable full determination of compliance with GL 89-13. By attending the daily team meetings (both the inspection team and the response team), listening to their dialog, and reviewing their findings, the inspector confirmed the team's execution of TI 2515/118.

The team originated over two hundred requests for information, of which 44 were considered "concerns." These concerns varied from minor, such as procedure corrections, to more significant findings such as the determination of an appropriate primary component cooling safety class/non-nuclear safety (NNS) boundary classification because several portions of presently defined NSS piping must maintain pressure boundary. Seventeen of the concerns were closed, and of the remaining twenty-seven concerns, the planned actions of the response team were accepted, but not yet fully implemented as of the inspection exit on October 6, 1994. Two of the twenty-seven, the primary component cooling safety class/NNS boundary, and the turbine hall flooding

protection documentation (both determined not operability issues) require additional evaluations or other actions. At the December 21, 1994, presentation, the licensee confirmed that the concerns were tasked for resolution.

3.0 OBJECTIVITY AND INDEPENDENCE

The inspector observed the SWSOPI team to evaluate their objectivity and independence in their dealings with the MYAPCo staff. The following paragraphs delineate the results of the observations.

- ◆ Objectivity Each individual finding was reviewed by the entire team during a meeting in the morning each working day. The findings were discussed in detail, then accepted by the team and the team leader. In all cases observed by the inspector, the team members maintained the objectivity they had agreed to prior to the inspection. Although two of the members of the team were MYAPCo employees, it was evident that they were part of the team and contributed to the findings from an objective point of view.
- ◆ Independence The team leader insisted that the personnel assigned would be divorced from ties to their normal (permanent) assignment; this included the two inspectors from the MYAPCo organization. The inspector observed professionalism and independence equivalent to an NRC team inspection. The response team was also fully staffed with a senior engineering manager team leader and staff personnel that were separated from their normal duty assignments.

The inspector concluded that the team maintained a high degree of objectivity and independence throughout the observed period.

4.0 OPERABILITY/REPORTABILITY

Each of the issues identified by the team required assessment for operability/reportability. Each issue was documented on an information request and each response team resolution was also documented, including a review for operability. The inspector sampled several of these issues and concluded that operability/reportability considerations were appropriate and prompt, and in accordance with written procedures.

5.0 CORRECTIVE ACTIONS

The inspector observed prompt corrective actions from MYAPCo personnel, in conjunction with the response team, in addressing concerns raised by the SWSOPI team. Of the 44 concerns identified, 17 had been completed and 27 planned actions were found acceptable and were tasked for implementation prior to December 21st. The two concerns described in Section 2.0, as requiring additional evaluations, were committed to be completed, and the inspector concluded that more time would be required to complete the engineering and other strategies necessary for their resolution.

6.0 FINAL SWSOPI REPORT

The inspector reviewed the team's final report, issued on December 12, 1994, and compared the contents to his previous observations at the site. The report was found to be comprehensive and complete. The more significant findings included: 1) an inconsistency in safety class boundaries in the primary component cooling (PCC) safety class/non-nuclear safety (NNS) boundaries, and several portions of presently defined NSS piping have to maintain pressure boundary in the injection phase of an accident; 2) turbine hall flooding protection was not adequately documented with supporting engineering analysis; and 3) need for administrative controls to assure adherence to Generic Letter 89-13 commitments. The final report also recommended actions related to heat exchanger fouling and performance monitoring that have been items of ongoing concern.

The NRC Region I Chief for DRS Systems Section attended the SWSOPI exit held onsite on October 6, and a management meeting was subsequently held at the NRC Region I office on December 21st to discuss the final SWSOPI report and the corrective actions underway. The slides from the licensee's presentation are attached, and the following personnel attended the meeting:

Maine Yankee Atomic Power Company

J. Connell, Licensing Manager
 B. Hinkley, Director of Engineering Services, YAEC
 G. Leitch, Sr. Vice President
 L. McCabe, System Engineer
 S. Nichols, Engineering Manager
 A. Parker, QA Department Audit Supervisor
 S. Smith, Maintenance Manager
 M. Veilleux, Plant Engineering Manager
 J. Weast, Licensing Engineer
 G. Whittier, Vice President, Licensing & Engineering

U.S. Nuclear Regulatory Commission

H. Gregg, Reactor Engineer
 E. Kelly, Chief, Systems Section
 W. Lazarus, Chief, Reactor Projects Section 3A
 J. Linville, Chief, Projects Branch No. 3
 M. Modes, Chief, Materials Section
 J. Stewart, Project Engineer
 E. Trottier, Project Manager, NRR
 J. Wiggins, Director, Division of Reactor Safety

ATTACHMENT

MAINE YANKEE PRESENTATION OF DECEMBER 21, 1994

Team Members

Executive Sponsor - G. D. Whittier, VP Licensing & Engineering

Team Manager - Bruce Hinkley

Team Leader - Al Parker

Engineering Reviewers - Bob Shone/Bob Benson

Maintenance Reviewer - Russ Prouty

Operations Reviewer - John Mathieson

Surveillance/Testing - Bruce Hinkley

QA/Corrective Actions - Al Parker

Additional Engineering Support

Electrical - Dave Berkland

I&C - Joe Tedeschi

PURPOSE/SCOPE

(Based on NRC Inspection Manual
Temporary Instruction 2515/118)

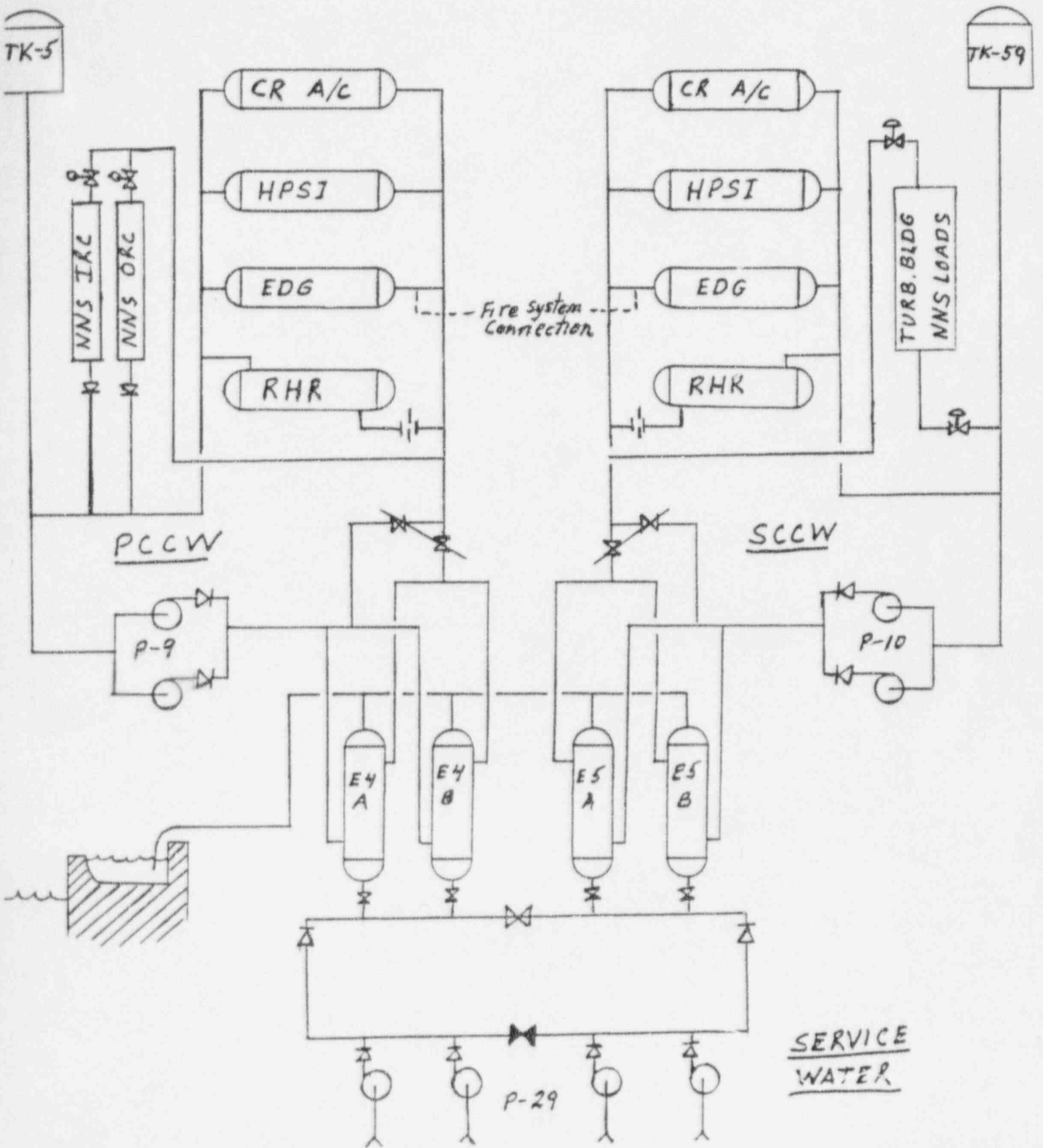
- Assess the licensee's planned or completed actions in response to Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment," July 18, 1989
- Verify that the service water system (SWS) is capable of fulfilling its thermal and hydraulic performance requirements and is operated consistent with its design basis.
- Assess the SWS operational controls, maintenance, surveillance, and other testing, and personnel training to ensure the SWS is operated and maintained so as to perform its safety-related functions.
- System Design and Configuration Control
- System Operations/Maintenance
- System Surveillance and Testing
- Quality Assurance and Corrective Action

Scope

- o Consistent with NRC TI 2515/118 Revision 1
- o Complementary to NRC CCW SSFI (January 1989)
- o Addressed Service Water System and Critical PCC/SCC Interfaces and Components

TRAIN A

TRAIN B



STRENGTHS

- Thermal/Hydraulic Analysis
- Comprehensive single failure analysis
- IST program records complete
- Strong Operations/Engineering interface
- Low corrective maintenance backlog

AREAS FOR IMPROVEMENT

- Safety classification of PCC piping
- Flooding design & licensing basis
- Personnel use of Heat Exchanger Test Programs
- Inspection of SW discharge piping
- Flow balance & leak testing (PCC/SCC)
- Maintenance procedures/documentation
- Administrative controls (GL 89-13)

Summary

- o Over 150 formal questions/issues documented
- o 44 concerns issued
- o 17 concerns closed
- o 27 concern responses accepted

- o Two (2) issues required Design Basis Screening Evaluations
 - no issues identified with immediate operability concerns

- o All areas of NRC TI 2515/118 Revision 1 were evaluated

- o Response to and implementation of commitments made to GL 89-13 were found acceptable

RESPONSE TEAM

TEAM MANAGER	STEVE NICHOLS
TEAM LEADER/LICENSING	JIM WEAST
SYSTEMS ENGINEER	LEE MCCABE
OPERATIONS	BILL BALL
MAINTENANCE	BOB ARSENAULT
PERFORMANCE ENG./ SURVEILLANCE TESTING	BILL SCHUBERT & CLAYTON GIGGEY
MECHANICAL/STRUCTURAL ENG.	BILL HENRIES
ELECTRICAL/I&C ENG.	JOHN BONNER

RESPONSE PROCESS

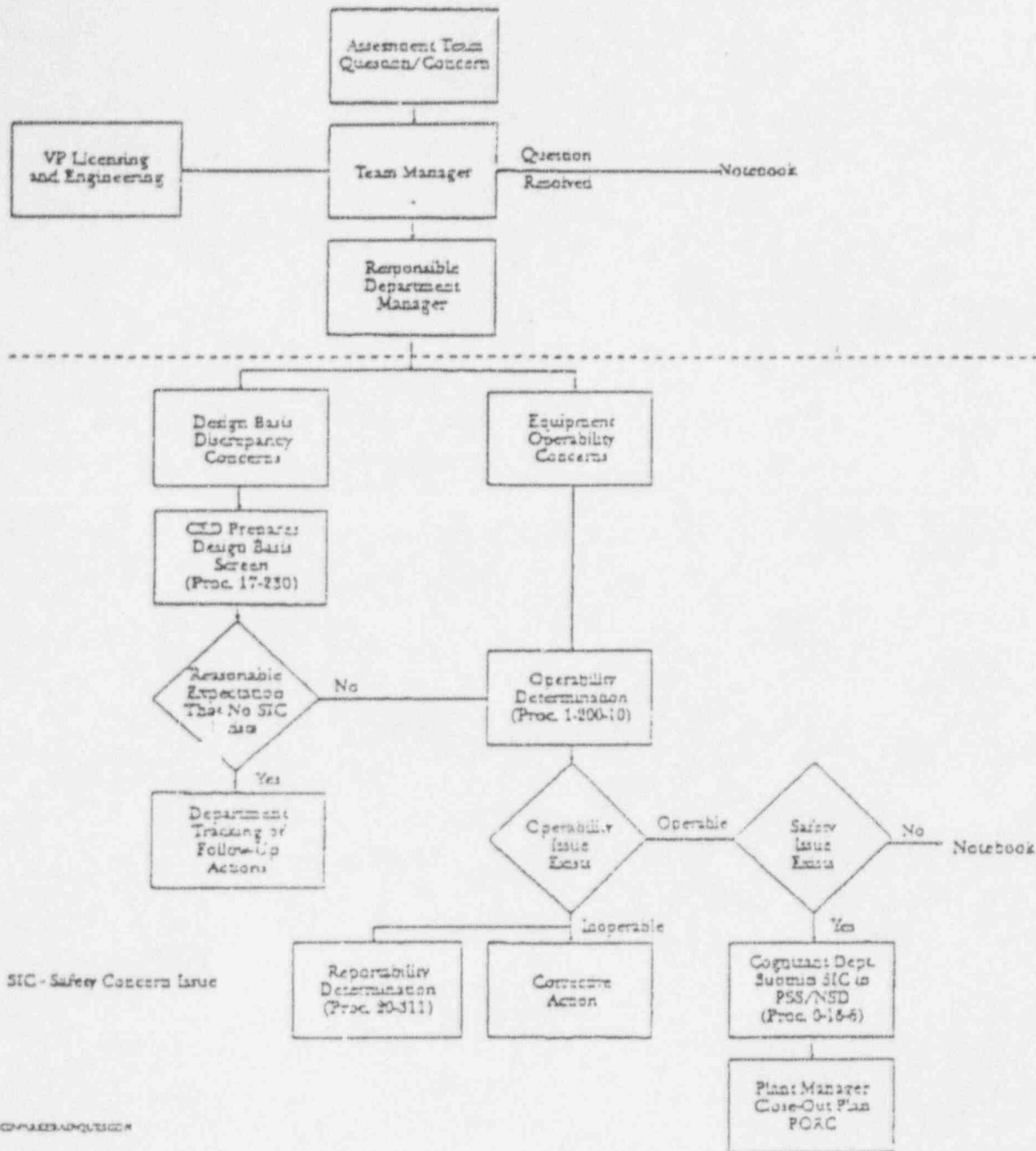
DAILY TECHNICAL BRIEFINGS AND RESPONSE TEAM MEETINGS.

EACH ISSUE DOCUMENTED AND RESOLUTION ASSIGNED.

TRACKING MATRIX CREATED.

POTENTIAL OPERATIONAL CONCERNS ADDRESSED VIA DESIGN BASIS SCREEN AND SAFETY ISSUE CONCERN PROCESSES.

QUESTION/CONCERN PROCESS



ISSUE RESOLUTION

◆ PRIMARY COMPONENT COOLING QUALIFICATION

- PRELIMINARY WALKDOWN COMPLETE
- DETAILED SYSTEM WALKDOWN '95 REFUEL.
- SPARE PARTS & PROGRAM UPGRADES '96 REFUEL.

◆ TURBINE HALL FLOODING EVALUATION UPGRADE

- PRELIMINARY EVALUATION COMPLETE
- DETAILED EVALUATION '96 REFUEL.

◆ REMAINING SWOPI AREAS FOR IMPROVEMENT AND MATRIX ITEMS

- 44 CONCERNS RAISED
- 17 CLOSED
- REMAINING TASKED AND TRACKED VIA MYTTS, WOs, OR DEPARTMENT TRACKING SYSTEMS

ISSUE RESOLUTION (continued)

◆ PERSONNEL USE OF HEAT EXCHANGER TEST PROGRAMS

- COUNCEL PERSONNEL COMPLETE
- IMPROVE TEMPERATURE MONITORING CAPABILITY COMPLETE

◆ INSPECTION OF SW DISCHARGE PIPING

- PREVIOUS INSPECTIONS CONDUCTED BUT RESULTS NOT DOCUMENTED
- REINSPECT SW DISCHARGE PIPE '95 REFUEL.
- CREATE INSPECTION PM COMPLETE

◆ FLOW BALANCE & LEAK TESTING (PCC/SCC)

- TEST SYSTEMS '95 REFUEL.
- DEVELOP PERIODIC TEST PROGRAM '96 REFUEL.

◆ MAINTENANCE PROCEDURES/DOCUMENTATION

- IMPROVE PROCEDURAL REQUIREMENTS FOR DOCUMENTING AS-FOUND CONDITIONS '96 REFUEL.

◆ ADMINISTRATIVE CONTROLS (GL 89-10)

- REVISE MAINTENANCE & ENGINEERING PROCEDURES/PROGRAMS TO INCLUDE GL 89-13 SOURCE REFERENCE '96 REFUEL.

CLOSE

- ◆ MAINE YANKEE SERVICE WATER & ASSOCIATED SYSTEMS FUNCTION AS DESIGNED
- ◆ SWOPI FOLLOW UP ITEMS BEING TRACKED FOR RESOLUTION
- ◆ NO OPERABILITY CONCERNS EXIST
- ◆ INSPECTION PROCESS PROVED BENEFICIAL