



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY AND PERFORMANCE IMPROVEMENT PROGRAM IMPLEMENTATION AUDIT

DUKE POWER COMPANY

OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3

DOCKET NOS. 50-269, 50-270, 50-287

1.0 SAFETY AND PERFORMANCE IMPROVEMENT PROGRAM AUDIT

1.1 Introduction

From February 12 to 16, 1990, the Nuclear Regulatory Commission (NRC) staff conducted an implementation audit of the Safety and Performance Improvement Program (SPIP) at the Duke Power Company's (DPCO) Oconee Nuclear Station (ONS) site. The SPIP was developed by the Babcock and Wilcox Owners Group (BWO) in order to reduce both the number of reactor trips and the complexity of post-trip response. The purpose of this audit was to evaluate the implementation of BWO's SPIP Technical Recommendation (TR) at ONS, Units 1, 2, & 3.

1.2 Background

After the accident at Three Mile Island, Unit 2 (TMI-2), nuclear power plant owners made a number of improvements to their facilities. Despite these improvements, the NRC staff was concerned that the number and complexity of events at B&W nuclear plants had not decreased as expected. This concern was reinforced by the total-loss-of-feedwater event at Davis-Besse Nuclear Power Station on June 9, 1985, and the overcooling transient at Rancho Seco Nuclear Generating Station on December 26, 1985.

By letter dated January 24, 1986, the NRC Executive Director for Operations (EDO) informed the Chairman of the BWO that a number of recent events at B&W-designed reactors should be reexamined. In its February 13, 1986 response to the EDO's letter, the BWO committed to lead an effort to define concerns relative to reducing the frequency of reactor trips and the complexity of post-trip response in B&W plants. The BWO submitted a description of the B&W

9011210009 901115
PDR ADOCK 05000269
P PNU

program entitled "Safety and Performance Improvement Program" (BAW-1919) to the NRC staff on May 15, 1986. Five revisions to BAW-1919 have also been submitted. Included in BAW-1919 were specific tasks identified as TRs to be completed by each utility under a SPIP program.

The NRC staff reviewed BAW-1919 and its five revisions and presented its evaluation in NUREG-1231, dated November 1987, and in Supplement 1 to NUREG-1231 dated March 1988. The NRC staff has previously performed an audit of the BWO's disposition of the TRs that were developed by various BWO committees and task groups. The results of that audit, which were favorable, were reported in NRC Inspection Report 99900400/87/01. However, the staff determined that an NRC audit program to ensure the quality of each utility's program used to control the disposition and implementation of TRs is necessary since the majority of the recommendations developed by the BWO did not provide specific design details.

Initially, a programmatic audit was conducted that evaluated the adequacy of the SPIP programmatic process and TR disposition. This was followed by an implementation audit that evaluated the adequacy of TR implementation.

1.3 BWO Recommendation Categories

All BWO recommendations are to be tracked through closure. The following categories have been selected as "bins" to be used by the utility when assigning tracking status. These categories, as well as explanatory notes, are addressed in the BWO Recommendation Tracking System (RTS), in BAW-1919, and in NUREG-1231.

Evaluating for Applicability (E/A)

The recommendation is being evaluated by the utility for applicability to their particular plant. The evaluation may conclude that the recommendation (a) is not applicable, (b) was implemented previously and is operable, or (c) if applicable, requires further evaluation to determine if it should be implemented.

Evaluating for Implementation (E/I)

An evaluation of the recommendation for applicability has been completed, and the recommendation is now being evaluated to determine if it should be implemented.

Implementing (I)

Utility evaluation is complete and the need for software/hardware changes to meet the intent of the recommendations has been identified.

Software changes have been assigned to the appropriate organization and are scheduled and budgeted. Hardware changes have been assigned to the appropriate organization for implementation, funding is approved, and the changes are included in a corporate plan for implementation.

Additional comments on implementation status or method of implementation are appropriate.

Closed/Operable (C/O)

Utility meets the intent of the recommendation, and implementation is complete.

Review of existing plant software or hardware results in a conclusion that intent of recommendation is already met. If software changes were required, new/revised training procedures, training plans, etc. are approved and issued. Personnel are trained and procedures issued.

Closed/Not Applicable (C/NA)

Utility evaluation determines that the recommendation does not apply to plant-specific configuration; no past experience of underlying problems has occurred.

Software/Hardware of concern does not exist, and existing software/hardware is such that a similar problem could not develop at their plant.

Additional comments on why it is not applicable are required.

Closed/Rejected (C/R)

Utility evaluation determines software/hardware changes meeting the intent of the recommendation are unacceptable and will not be implemented.

Recommendations may be unacceptable because:

- (1) Implementation would not result in an overall improvement in plant safety or performance.
- (2) Implementation of recommendation as described would not effectively resolve problem of concern.
- (3) Resources required for implementation are excessive for expected plant improvement or benefit.

Additional comments on why it is rejected are required.

1.4 Programmatic Audit - Scope and Summary

The NRC staff has performed the SPIP Programmatic Audits at five utilities having the B&W-designed reactors. The Programmatic Audit included an evaluation of (1) the process used to control BWO G SPIP TR disposition, (2) the adequacy of TR file documentation, (3) corporate and site organizational involvement in the SPIP process, (4) the disposition of approximately 34 selected TRs, and (5) the disposition and implementation status of the approximately 222 BWO G SPIP TRs. The staff found that in most cases (1) the B&W utilities had established a formal process that adequately controlled the disposition of TRs from identification on the BWO G RTS through final disposition, (2) the documentation presented in the TR files was complete, auditable, and adequately supported decisions regarding TR disposition, (3) corporate and site organizations were adequately involved in the SPIP process, (4) the

disposition of selected TRs was acceptable, and (5) the SPIP TRs were being implemented in a timely manner.

The staff programmatic audit of Oconee Nuclear Station Units 1, 2 and 3 in March 1989 identified certain concerns, which were documented in detail in the Letter, L. Wiens to H. B. Tucker, "Programmatic Audit of the Safety and Performance Improvement Program at Oconee" dated August 28, 1989. These staff concerns can be summarized as: (1) a lack of formal, proceduralized process to control TR disposition; (2) failure to establish and maintain adequate TR files in all cases; and (3) an evidence of inadequate and/or limited review scope during the E/A and E/I reviews which led to improper TR disposition in some cases, and an excessive number of TRs were categorized as Closed/Rejected; and (4) lack of a specific date by which all TRs currently identified on the BWOG RTS would be implemented.

1.5 Implementation Audit - Scope

The SPIP implementation audit included an evaluation of selected TR files to determine if (1) plant modification met the intent of the TR, (2) the operating, training and/or maintenance procedures met the intent of the TR, (3) the engineering analysis used to verify that the existing plant design and/or procedures met the intent of the TR was adequate, (4) the basis to reject a TR was adequate, and (5) communication channels and interfaces between the corporate and site management, operations, training, and maintenance were adequate. The results of the implementation audit at ONS Units 1, 2 and 3 are documented in Section 3.2 of this report.

2.0 DPCO AND ONS TR IMPLEMENTATION

Though DPCO did not establish a formal, procedurized disposition process, the TRs were disposed of in a systematic manner. In accordance with the informal guidelines of the TR disposition process, and once the determination to implement a TR is approved by the Nuclear Relations Manager, the TR is either implemented in accordance with the DPCO General Office procedures for those TRs that require software changes for closure, or in accordance with ONS Nuclear

Station Modification (NSM) procedures for those TRs which require a hardware change for closure.

Following TR implementation, the Nuclear Relations Manager reviews the implementation package and approves implementation if found to be satisfactory, and updates the RTS TR status to C/O. TRs can also be categorized as closed operable following engineering reviews that determined the intent of the TRs were met by existing plant design, or existing plant training, operations, or maintenance procedures, etc. The Nuclear Relations Manager has final approval authority for these methods of TR implementation as well as rejections and determinations of non-applicability.

3.0 REVIEW OF SELECTED RECOMMENDATIONS

3.1 Audited TR Selection Criteria

The staff reviewed 18 TR files and associated documentation and evaluated the timeliness and acceptability of TR implementation. These TRs were selected based on NUREG-1231, "Safety Evaluation Report Related to Babcock and Wilcox Owners Group Plant Reassessment Program," the most recent Recommendation Tracking System (RTS) report, and the "Programmatic Audit Report - Safety and Performance Improvement Program at Oconee Nuclear Station, Units 1, 2, & 3." A broad selection of TRs were selected so that representative samples from the following categories were reviewed: (1) TRs that required further attention based on the concerns identified during the programmatic audit, (2) TRs designated "key" by the BWOOG and TRs designated high priority by the NRC staff, (3) TRs associated with safety and non-safety systems that have a bearing on the SPIP goal to reduce the number of reactor trips and the complexity of post trip response, (4) TRs that required a plant software change (operations, training and maintenance procedures, etc.) for closure, (5) TRs that required a plant hardware change for closure, (6) TRs of major importance based on individual plant operating experience, and (7) TRs that were rejected by the individual utilities. A listing of TRs reviewed and TR status at the conclusion of the SPIP Implementation Audit is contained in Appendix A.

3.2 Results of Staff Review

During the course of the SPIP implementation audit, the staff reviewed the TR files, plant drawings, station modification packages, training documents, operating procedures, and maintenance procedures associated with the selected TRs. In addition the staff conducted interviews with ONS and DPCO personnel to obtain supplemental information and resolve concerns found during the audit. The staff also performed in-plant-walk-downs to verify the accuracy of the above reviewed paperwork and interviews.

As a result of this audit, the staff found evidence that the TRs reviewed had been satisfactorily implemented or were in the process of being satisfactorily implemented at ONS Units 1, 2 and 3, had acceptable analysis that verified existing plant procedures or design met TR intent, had acceptable justification basis for rejection, and had acceptable analysis to support non-applicability. The staff also found that good communication channels existed between DPCO and ONS personnel and that the TRs were being implemented in a timely manner. A brief discussion of the TR documentation reviewed as well as any exceptions to the above are discussed below.

TR-099-OPS, Categorized C/O

This TR recommended that the utility ensure that guidance from Chapter IV of the Abnormal Transient Operator Guideline (ATOG) Technical Basis Document concerning "Excessive Main Feedwater (MFW)," "Throttling Emergency Feedwater (EFW)," and "Throttling High Pressure Injection (HPI) flow" is reflected in plant specific procedures as this would reduce the severity of overcooling transients and limit RCS repressurization which would also reduce challenges to the Power Operated Relief Valves (PORVs)/Safety Valves (SVs). This TR was reopened following the January 1989 overcooling event at ONS and was identified in the SPIP programmatic audit report as a TR that may require follow-up action as there was evidence of inadequate or limited scope during the initial TR disposition review. The staff reviewed DPCO's response to the programmatic audit concerns and the associated implementation documentation and

plant operating procedures, found them acceptable, and therefore, concluded that TR-099-OPS was satisfactorily implemented.

TR-159-OPS, Categorized E/I

This TR recommended that the utility evaluate secondary system controls and consider the necessary modifications to achieve the following capabilities: remote manual control in the Main Control Room (MCR) of all post-trip steam flow paths, remote manual control in the MCR of all pumps and valves for both MFW and EFW sufficient to control flow and isolate all paths, sufficiently redundant capabilities in the MCR to provide a high reliability of isolating a failed path to terminate excessive steam or feed flow as this would reduce operator burden and improve transient mitigation. This TR was reopened following the January 1989 overcooling event at ONS and was identified in the SPIP programmatic audit report as a TR that may require follow-up action as there was evidence of inadequate or limited scope during the initial TR disposition review. The staff reviewed DPCO's response to the programmatic audit concerns, reviewed the implementation documentation, reviewed applicable plant procedures and drawings, and conducted an in plant inspection of the numerous remote manual controls in the MCR. The staff found the above to be acceptable, and therefore, concluded that TR-159-OPS has been satisfactorily implemented for all steam and feed flow paths with the exception of Startup FDW Control Valves. Efforts are on-going to remove or modify the "pseudo" (automatically open to 40% for accident mitigation) mode of operation of these valves. Options have been identified by ONS and are being evaluated as a means to resolve this concern and close-out this TR. Therefore, ONS should ensure that an acceptable means for remote manual control in the MCR for the Startup FDW Control Valves is chosen and implemented to close out this TR.

TR-119-PES, Categorized C/O

This TR recommended that preventative maintenance procedures be implemented for the maintenance of electrical buses as this would significantly reduce the likelihood of catastrophic bus failure which could create both a plant operational problem as well as a personnel safety hazard. The staff reviewed the

in-place maintenance procedures, scheduling and tracking systems, found them acceptable, and therefore, concluded that TR-119-PES was satisfactorily implemented.

TR-201-MTS, Categorized C/O

This TR recommended that each utility review the electro-hydraulic control (EHC) overspeed and fast control and intercept valve circuits to determine why they are inadvertently actuated and how this could be corrected to prevent recurrence as this would reduce the number of turbine trips/reactor trips. This TR was identified in the SPIP programmatic audit report as a TR that may require follow-up action as there was evidence of inadequate or limited scope during the initial TR disposition review. The staff reviewed DPCO's response to the programmatic audit concerns, reviewed the associated file documentation including applicable Nuclear Station Modifications (NSMs) and engineering studies, found them acceptable, and therefore, concluded that TR-201-MTS was satisfactorily implemented.

TR-046-MOV, Categorized I

This TR recommended that to the extent practicable, all safety related motor operated valves should be challenged to open and close under differential pressures which simulate worst case operational and accident conditions as this would provide assurance that these valves would perform as required under emergency or plant upset conditions. This TR is currently addressed in the DPCO response to Generic Letter 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance," which is under review by the NRC technical staff. The staff determined that following resolution of GL 89-10, DPCO and ONS should take appropriate actions to implement and close-out this TR.

TR-163-EFW, Categorized C/O

This TR recommended that each utility review the EFW test and surveillance procedures to ensure that components used in the Emergency Operating Procedures (EOPs) are included in the facilities test program as this would enhance system

reliability. The staff reviewed the applicable documentation and found that there is some doubt as to the categorization of this TR as C/O. The staff found that DPCO had not committed to testing components under conditions in which they are required to operate. This type of testing is currently addressed in the DPCO response to GL 89-10 which is under review by the NRC technical staff. The staff determined that following resolution of GL 89-10, DPCO and ONS should take appropriate actions to implement and close-out this TR.

TR-135-IAS, Categorized C/R

This TR recommended that each utility install automatic isolation valves to limit leaks in the instrument air system as this would enhance system reliability. The licensee rejected this recommendation based on 1) a new auxiliary air system was being installed to supply instrument air to the important valves and instruments, 2) the air supply can be maintained to the important valves and instruments with a concurrent line break, 3) additional air capacity was being added to the existing system, and 4) check valves had been added to the instrument air system to aid in the isolation of air leaks. The staff reviewed the basis for the rejection, found it acceptable, and therefore, concluded that TR-135-IAS was justifiably rejected.

TR-136-IAS, Categorized C/R

This TR recommended that each utility install dew point monitors downstream of the instrument air system dryers to monitor dryer performance as this would enhance system reliability. The licensee rejected this recommendation based on the fact that a new compressor with desiccant dryers was being added to the instrument air system. The staff reviewed the basis for the rejection, found that the licensee had initiated a maintenance program that monitors the instrument air supply dew point twice a year and the oil and particulate contamination once a year. The staff also found that dew point monitors were being installed along with the new air system equipment which put the licensee's actions in compliance with the intent of the TR. Therefore, the staff concluded that TR-136-IAS was being satisfactorily implemented and should be categorized C/O when the implementation is complete.

TR-139-IAS, Categorized C/R

This TR recommended that each utility install in the main control room on/off status and remote start capability for the instrument air system compressors as this would provide the operator with indication of compressor operational status thus increasing the operators' ability to take timely action when necessary. The licensee rejected this recommendation based on the fact that the new compressor being installed at Oconee is easily accessible from the control rooms and that on/off status would be provided in the control rooms. The staff reviewed the basis for the rejection and found that 1) the three backup compressors have on/off status via the "alarm typer" located in the control room, 2) the new primary compressor will have on/off status via a "low oil pressure" alarm on the control room annunciator panel, 3) the start/stop function of the compressors is automatic, and 4) the compressors are located in close proximity to the main control rooms. The staff found the basis for the rejection acceptable, and therefore, concluded that TR-139-IAS was justifiably rejected.

TR-140-IAS, Categorized C/O

This TR recommended that Oconee assign a high maintenance priority to an out-of-service air compressor (Worthington compressor) and maintain sufficient spare parts to repair the compressor within a week as this would enhance system reliability. The licensee claimed to be in compliance with this TR based on 1) the Worthington compressors are now the backup compressors, 2) yearly maintenance, on a staggered basis, is performed on all three Worthington compressors, and 3) once a repair to a Worthington compressor is started it is worked on a 3-shift basis until the repair is completed, usually less than three days. The staff reviewed the above, found it acceptable, and therefore, concluded that TR-140-IAS was satisfactorily implemented.

TR-123-IAS, Categorized C/NA

This TR recommended that each utility implement a means to protect against a possible failure of desiccant type dryers as this would reduce the likelihood

of particulate entering the instrument air system. The licensee stated that this TR was not applicable as the instrument air system at Oconee does not use desiccant type dryers. The staff reviewed the basis for the C/NA status and noted that at the time the licensee made this determination, there were no desiccant dryers at Oconee. However, the upgrades and modifications being made to the instrument air system now include desiccant type dryers. In view of this, the staff feels that the licensee should reopen and reevaluate the applicability of this TR. The licensee agreed, and stated that the TR implementation status would be changed to C/O when the implementation is completed. The staff found this to be acceptable, and therefore, concluded that TR-123-IAS was satisfactorily implemented.

TR-178-ICS, Categorized C/O

This TR recommended that each utility ensure that the plant goes to a known safe state on loss of power to the ICS/NNI systems as this would reduce the number of inadvertent transients caused by unexpected plant responses and reduce the demands placed on operators during transient conditions. The licensee claimed to be in compliance with this TR based on 1) the MFW pumps are tripped and the EFW system started, 2) all controls and instrumentation necessary to maintain the known safe state are either already on a power source independent of the ICS/NNI power sources or are transferred to an independent power source, and 3) all actions required to maintain the known safe state (within the first fifteen minutes) can be performed from the main control room. The staff reviewed the basis for the C/O status, found it acceptable, and therefore, concluded that TR-178-ICS was satisfactorily implemented with two exceptions: 1) the ICS/NNI controls and instrumentation necessary to maintain the known safe state were not labeled to identify the power source necessary for operation of that specific control or instrument, and 2) the document used by the licensee to close-out this TR listed instruments and controls not necessarily required for the known safe state. Therefore, to meet the full intent of the TR, DPCO and ONS should correct these two items by providing proper labeling of the known safe state instrumentation and updating the file to reflect the known safe state instrumentation.

TR-038-ICS, Categorized E/I

This TR recommended that each utility develop and implement a recommended preventative maintenance program for the ICS/NNI as this would reduce failure of the ICS and NNI and thus reduce the potential for plant trips. This TR was identified in the SPIP programmatic audit report as a TR that may require follow-up action as the intent of this TR was not fully met.

During the implementation audit, the staff found that this TR was still in the E/I category and all required information concerning its implementation was not available. However, in a January 25, 1990 memorandum summarizing the ONS SPIP TR status, it was stated that by March 1990, a formal evaluation will be prepared for this TR including the comments addressed in the last NRC audit as well as a new source document PM table.

In discussion with the staff, ONS personnel stated that all the recommendations in TR-038 do not necessarily apply to the 721 system plants and will be evaluated as such, with any exceptions being justified. They also stated that ICS and NNI calibration and testing procedures have been in existence for sometime, and that these procedures will be evaluated to determine what information, calibration, testing, and preventive maintenance procedures, as well as any additional training requirements, will be included in ONS ICS/NNI PM program. Therefore, the staff concludes that these evaluation and implementation plans, if properly implemented, would meet the intent of TR-038-ICS.

TR-107-ICS, Categorized I

This TR recommended that system and/or subsystem tuning shall be performed in accordance with vendor recommendations or at least every other refueling outage and that each utility investigate improved ICS maintenance and tuning methods to correct post-trip MFW system control problems and develop a periodic surveillance/tuning program as this would provide better post-trip response i.e., fewer category "B" and "C" events. The staff found that ONS had developed a procedure (ICS Tuning During Plant Operation) to address the intent of this TR. The procedure was for information only as it had not been

finalized and approved in accordance with DPCO and ONS processes. The staff reviewed the draft procedure and proposed testing frequency and found both to be acceptable. Therefore, the staff concluded that when the identified procedure is approved and implemented that TR-107-ICS would be satisfactorily implemented.

TR-105-ICS, Categorized I

This TR recommended that each utility perform a field verification of ICS/NNI drawings and update them accordingly as this would enable plant staffs to have complete and accurate drawings of the ICS/NNI to work with. The staff reviewed documentation associated with this TR and found that a Nuclear Station Modification (NSM), a plant modification of the Transient Monitor System, affects approximately 90% of the drawings identified in this TR. Thus, completion of the as built drawing verification cannot be finalized until the NSM is completed. The staff also found that a systematic field verification and drawing update was in progress and the plant walk-down inspection verified that the drawing update actions taken to date were acceptable, and therefore, concluded that TR-105-ICS was being satisfactorily implemented.

TR-071-MFW, Categorized I

This TR recommended that each utility installs valve position indication for the startup and main feedwater regulating valves (and load control valves at applicable plants) as this would eliminate confusion and allow faster operator response during plant upsets. Duke has decided to install valve full-open or full-close position limit switch lights on the main control board during the next refueling outage, which does not meet the full intent of the TR requiring a full stroke position indication. DPCO is also evaluating a potential possibility of implementing an advanced control system in the future. Efforts associated with the ACS control algorithm requirements will be made to evaluate the control valve position requirements. If found necessary as a result of the ACS strategy review, a full valve position indicator may be installed.

The staff reviewed DPCO's engineering evaluation and associated proposal to install the limits switches instead of full stroke valve position indication as recommended by the TR. In view of its intended ACS strategy regarding the valve position indicator, and the fact that this TR is not a "Key" TR, we found the installation of the limit switches to partially meet the intent of the TR to be a viable alternative compared to the existing design with no available indication. However, since the installation of the limit switches does not fully meet the TR recommendation, the TR should be recategorized as C/R.

TR-066-MFW and TR-179-MFW, both Categorized C/R

TR-066-MFW recommended that each utility (1) check all main feedwater and condensate system protective circuits, interlocks, motors, and other necessary electrical equipment for system operation to ensure that a single electrical failure would not cause a loss of both main feedwater trains; and (2) whenever possible, eliminate a single electrical failure from causing a loss of both feedwater trains. TR-179-MFW recommended that each utility perform an evaluation to identify areas for enhancing the reliability of the MFW and Condensate system controls with attention given to preventing the failure of an active component from causing a loss of all feedwater as this would reduce the frequency of main feedwater trips and condensate upsets which may lead to reactor trips. TR-179-MFW also recommended that changes identified in this evaluation be made as practical.

The staff reviewed the bases for rejection, for both TR-066-MFW and TR-179-MFW jointly, as this concurs with the DPCO/ONS evaluation process. These TRs were evaluated by the DPCO under Design Study 172 (DS-172) which identified 9 specific areas in which the feedwater and condensate systems could be upgraded to meet the intent of the TRs.

The design study also indicated that no clear economic benefit of trip prevention could be identified based on the ONS relatively trouble free operating experiences of the feedwater/condensate systems. Indeed, many of these recommendations were opposed by the ONS because they were not problems in the past. DPCO/ONS determined that the DS-172 recommendations were not cost effective and

would not be implemented unless suitable new justifications developed. However, one of the DS-172 recommendations to develop a regular maintenance program for the feedwater and condensate system had been implemented. One additional DS-172 recommendation to increase the time delay for condensate booster pump trip suction header pressure trip to 30 seconds is tentatively scheduled for implementation during the next refueling outage.

Since only a few DS-172 recommendations are implemented, these TRs are categorized as closed/reject based on economic infeasibility. However, documentation to support this conclusion was not available during the programmatic audit. During the implementation audit DPCO/ONS provided a qualitative cost benefit assessment addressing rejection of these TRs in which ONS management concluded that the cost of performing the DS-172 enhancements was not economically justified. However, one of the cost-benefit justifications was that because there were several hundred outstanding Nuclear Station Modifications (NSMs) and station problem reports for Oconee which were more than could be placed on a realistic processing and implementation schedule, implementation of the DS-172 NSMs would displace other modifications. Though the staff review of the DS-172 studies and cost benefit assessment concluded that TR-066-MFW and TR-179-MFW were justifiably rejected, it appeared that DPCO/ONS did not place proper priority for the SPIP TR implementation relative to other NSMs. In addition, past experiences at B&W plants indicated that the MFW system was the dominant plant trip producer. Therefore, the staff recommends that DPCO/ONS reevaluate the priority of the SPIP TRs relative to other outstanding NSMs and implement those DS-172 recommendations that will enhance the reliability of the feedwater and condensate system.

4.0 CONCLUSIONS - SPIP IMPLEMENTATION AUDIT

During the implementation audit, the staff reviewed the implementation of 18 TRs. Several of these TRs were identified during the programmatic audit as having Inadequate TR Package Documentation and/or, Inadequate or Limited Review Scope during the E/A and E/I reviews.

As a result of the implementation audit, we found a few TRs which required additional effort to fully meet the intents of the TRs. For example, proper labeling of the known-safe-state ICS/NNI instrument was needed to meet the full intent of TR-178. The staff also recommended that ONS reevaluate the priority of the SPIP TRs relative to other outstanding Nuclear Station Modifications and implement the DS-172 recommendations that could enhance the reliability of the feedwater and condensate systems to meet the intent of TR-066-MFW and TR-179-MFW.

Overall, the staff found that DPCO and ONS had satisfactorily reopened, reevaluated, or provided additional information for those TRs identified at the programmatic audit as having inadequate documentation, or inadequate or limited review scope during the evaluation for applicability and evaluation for implementation. The staff also found evidence that the majority of the TRs had been satisfactorily implemented or were in the process of being satisfactorily implemented, had acceptable analyses that verified existing plant procedures or designs met TR intents, had acceptable justification bases for rejection, and had acceptable analyses to support non-applicability. Therefore, the staff concluded that DPCO and ONS had adequately strengthened the areas of concerns identified in the programmatic audit report regarding TR disposition process and file deficiencies, and timeliness of TR implementation. In addition, the staff also found that good communication channels existed between DPCO and ONS personnel.

Therefore, the staff concluded that DPCO and its ONS Units 1, 2, and 3 had satisfactorily controlled the disposition of and satisfactorily implemented the majority of the BWOG SPIP TRs.

APPENDIX A

IDENTIFICATION OF TRs REVIEWED, TR STATUS, AND CONCLUSION STATEMENT

Instrumentation and Control System (ICS)

Instrument Air System (IAS)

Motor Operated Valves (MOV)

Emergency Feedwater (EFW)

Operations (OPS)

Plant Electrical Systems (PES)

Main Turbine System (MTS)

Main Feedwater System (MFW)

<u>TR</u>	<u>Status</u> 2/12/90	<u>Comments on Implementation/Recommendations</u>
099-OPS	C/O	Satisfactorily implemented
159-OPS	E/I	Satisfactory implementation to date
119-PES	C/O	Satisfactorily implemented
201-MTS	C/O	Satisfactorily implemented
046-MOV	I	To be implemented per GL 89-10
163-EFW	C/O	Improper categorization/further implementation needed per GL-89-10
135-IAS	C/R	Justifiably rejected
136-IAS	C/R	Should be recategorized as C/O Satisfactorily implemented

139-IAS	C/R	Justifiably rejected
140-IAS	C/O	Satisfactorily implemented
123-IAS	C/NA	Satisfactorily implemented
178-ICS	C/O	Satisfactory implementation to date
038-ICS	E/I	Satisfactory implementation to date
105-ICS	I	Satisfactory implementation to date
107-ICS	I	Satisfactory implementation to date
071-MFW	I	Meet partial TR intent, recategorized C/R
066-MFW	C/R	Justifiably rejected but recommended further consideration for implementation
179-MFW	C/R	Justifiably rejected but recommended further consideration for implementation