EMPLOYEE CONCERNS

SPECIAL PROGRAM

VOLUME 3
OPERATIONS CATEGORY

SUBCATEGORY REPORT 30300
INSTRUMENTATION AND RADIATION MONITORING

UPDATED

TVA

NUCLEAR POWER

TVA EMPLOYEE CONCERNS
SPECIAL PROGRAM

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REPORT TYPE: Watts Bar Nuclear Plant Subcategory

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TITLE: Instrumentation and Radiation Monitoring

PAGE 1 OF 30

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Reformat to conform with revision 4 of ECTG Program Manual and incorporation of SRP comments and inclusion of final corrective action plans.

PREPARATION

PREPARED BY:

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(NOTE: Evaluator listed in Attachment I)

REVIEWS

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CONCURRENCES

CEG-H: — 8-5-87

SRP: — 2-7-87
SIGNATURE* — DATE

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NA — DATE
MANAGER OF NUCLEAR POWER CONCURRENCE (FINAL REPORT ONLY)

*SRP Secretary's signature denotes SRP concurrences are in files.

4376T

HISTORY OF REVISION

REV NUMBER	PAGES REVISED	REASON FOR CURRENT REVISION
3	i	To clarify that one or more attachments will help the reader find where a particular concern is evaluated

Preface

This subcategory report is one of a series of reports prepared for the Employee Concerns Special Program (ECSP) of the Tennessee Valley Authority (TVA). The ECSP and the organization which carried out the program, the Employee Concerns Task Group (ECTG), were established by TVA's Manager of Nuclear Power to evaluate and report on those Office of Nuclear Power (ONP) employee concerns filed before February 1, 1986. Concerns filed after that date are handled by the ongoing ONP Employee Concerns Program (ECP).

The ECSP addressed over 5800 employee concerns. Each of the concerns was a formal, written description of a circumstance or circumstances that an employee thought was unsafe, unjust, inefficient, or inappropriate. The mission of the Employee Concerns Special Program was to thoroughly investigate all issues presented in the concerns and to report the results of those investigations in a form accessible to ONP employees, the NRC, and the general public. The results of these investigations are communicated by four levels of ECSP reports: element, subcategory, category, and final.

Element reports, the lowest reporting level, will be published only for those concerns directly affecting the restart of Sequoyah Nuclear Plant's reactor unit 2. An element consists of one or more closely related issues. An issue is a potential problem identified by ECTG during the evaluation process as having been raised in one or more concerns. For efficient handling, what appeared to be similar concerns were grouped into elements early in the program, but issue definitions emerged from the evaluation process itself. Consequently, some elements did include only one issue, but often the ECTG evaluation found more than one issue per element.

Subcategory reports summarize the evaluation of a number of elements. However, the subcategory report does more than collect element level evaluations. The subcategory level overview of element findings leads to an integration of information that cannot take place at the element level. This integration of information reveals the extent to which problems overlap more than one element and will therefore require corrective action for underlying causes not fully apparent at the element level.

To make the subcategory reports easier to understand, three items have been placed at the front of each report: a preface, a glossary of the terminology unique to ECSP reports, and a list of acronyms.

Additionally, at the end of each subcategory report will be a Subcategory Summary Table that includes the concern numbers; identifies other subcategories that share a concern; designates nuclear safety-related, safety significant, or non-safety related concerns; designates generic applicability; and briefly states each concern.

Either the Subcategory Summary Table or another attachment or a combination of the two will enable the reader to find the report section or sections in which the issue raised by the concern is evaluated.

ECSP GLOSSARY OF REPORT TERMS*

classification of evaluated issues the evaluation of an issue leads to one of the following determinations:

Class A: Issue cannot be verified as factual

Class B: Issue is factually accurate, but what is described is not a problem (i.e., not a condition requiring corrective action)

Class C: Issue is factual and identifies a problem, but corrective action for the problem was initiated before the evaluation of the issue was undertaken

Class D: Issue is factual and presents a problem for which corrective action has been, or is being, taken as a result of an evaluation

Class E: A problem, requiring corrective action, which was not identified by an employee concern, but was revealed during the ECTG evaluation of an issue raised by an employee concern.

collective significance an analysis which determines the importance and consequences of the findings in a particular ECSP report by putting those findings in the proper perspective.

concern (see "employee concern")

corrective action steps taken to fix specific deficiencies or discrepancies revealed by a negative finding and, when necessary, to correct causes in order to prevent recurrence.

criterion (plural: criteria) a basis for defining a performance, behavior, or quality which ONP imposes on itself (see also "requirement").

element or element report an optional level of ECSP report, below the subcategory level, that deals with one or more issues.

employee concern a formal, written description of a circumstance or circumstances that an employee thinks unsafe, unjust, inefficient or inappropriate; usually documented on a K-form or a form equivalent to the K-form.

The subcategories are themselves summarized in a series of eight category reports. Each category report reviews the major findings and collective significance of the subcategory reports in one of the following areas:

- management and personnel relations
- industrial safety
- construction
- material control
- operations
- quality assurance/quality control
- welding
- engineering

A separate report on employee concerns dealing with specific contentions of intimidation, harassment, and wrongdoing will be released by the TVA Office of the Inspector General.

Just as the subcategory reports integrate the information collected at the element level, the category reports integrate the information assembled in all the subcategory reports within the category, addressing particularly the underlying causes of those problems that run across more than one subcategory.

A final report will integrate and assess the information collected by all of the lower level reports prepared for the ECSP, including the Inspector General's report.

For more detail on the methods by which ECTG employee concerns were evaluated and reported, consult the Tennessee Valley Authority Employee Concerns Task Group Program Manual. The Manual spells out the program's objectives, scope, organization, and responsibilities. It also specifies the procedures that were followed in the investigation, reporting, and closeout of the issues raised by employee concerns.

evaluator(s) the individual(s) assigned the responsibility to assess a specific grouping of employee concerns.

findings includes both statements of fact and the judgments made about those facts during the evaluation process; negative findings require corrective action.

issue a potential problem, as interpreted by the ECTG during the evaluation process, raised in one or more concerns.

K-form (see "employee concern")

requirement a standard of performance, behavior, or quality on which an evaluation judgment or decision may be based.

root cause the underlying reason for a problem.

*Terms essential to the program but which require detailed definition have been defined in the ECTG Procedure Manual (e.g., generic, specific, nuclear safety-related, unreviewed safety-significant question).

Acronyms

AI	Administrative Instruction
AISC	American Institute of Steel Construction
ALARA	As Low As Reasonably Achievable
ANS	American Nuclear Society
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
BFN	Browns Ferry Nuclear Plant
BLN	Bellefonte Nuclear Plant
CAQ	Condition Adverse to Quality
CAR	Corrective Action Report
CATD	Corrective Action Tracking Document
CCTS	Corporate Commitment Tracking System
CEG-H	Category Evaluation Group Head
CFR	Code of Federal Regulations
CI	Concerned Individual
CMTR	Certified Material Test Report
COC	Certificate of Conformance/Compliance
DCR	Design Change Request
DNC	Division of Nuclear Construction (see also NU CON)

DNE	Division of Nuclear Engineering
DNQA	Division of Nuclear Quality Assurance
DNT	Division of Nuclear Training
DOE	Department of Energy
DPO	Division Personnel Officer
DR	Discrepancy Report or Deviation Report
ECN	Engineering Change Notice
ECP	Employee Concerns Program
ECP-SR	Employee Concerns Program-Site Representative
ECSP	Employee Concerns Special Program
ECTG	Employee Concerns Task Group
EEOC	Equal Employment Opportunity Commission
EQ	Environmental Qualification
EMRT	Emergency Medical Response Team
EN DES	Engineering Design
ERT	Employee Response Team or Emergency Response Team
FCR	Field Change Request
FSAR	Final Safety Analysis Report
FY	Fiscal Year
GET	General Employee Training
HCI	Hazard Control Instruction
HVAC	Heating, Ventilating, Air Conditioning
II	Installation Instruction
INPO	Institute of Nuclear Power Operations
IRN	Inspection Rejection Notice

L/R	Labor Relations Staff
M&AI	Modifications and Additions Instruction
MI	Maintenance Instruction
MSPB	Merit Systems Protection Board
MT	Magnetic Particle Testing
NCR	Nonconforming Condition Report
NDE	Nondestructive Examination
NPP	Nuclear Performance Plan
NPS	Non-plant Specific or Nuclear Procedures System
NQAM	Nuclear Quality Assurance Manual
NRC	Nuclear Regulatory Commission
NSB	Nuclear Services Branch
NSRS	Nuclear Safety Review Staff
NU CON	Division of Nuclear Construction (obsolete abbreviation, see DNC)
NUMARC	Nuclear Utility Management and Resources Committee
OSHA	Occupational Safety and Health Administration (or Act)
ONP	Office of Nuclear Power
OWCP	Office of Workers Compensation Program
PHR	Personal History Record
PT	Liquid Penetrant Testing
QA	Quality Assurance
QAP	Quality Assurance Procedures
QC	Quality Control
QCI	Quality Control Instruction

QCP	Quality Control Procedure
QTC	Quality Technology Company
RIF	Reduction in Force
RT	Radiographic Testing
SQN	Sequoyah Nuclear Plant
SI	Surveillance Instruction
SOP	Standard Operating Procedure
SRP	Senior Review Panel
SWEC	Stone and Webster Engineering Corporation
TAS	Technical Assistance Staff
T&L	Trades and Labor
TVA	Tennessee Valley Authority
TVTLC	Tennessee Valley Trades and Labor Council
UT	Ultrasonic Testing
VT	Visual Testing
WBECSP	Watts Bar Employee Concern Special Program
WBN	Watts Bar Nuclear Plant
WR	Work Request or Work Rules
WP	Workplans

INSTRUMENTATION AND RADIATION MONITORING

Subcategory Report 30300

Executive Summary

I. SUMMARY OF ISSUES

Two issues were found to be not factually accurate; four were found to be accurate but not a problem; two were accurate but had been previously corrected; one was accurate and requires corrective action; and four were not accurate but, as a result of the evaluation, other problems requiring corrective action were found.

The 16 concerns that comprise the Instrumentation and Radiation Monitoring Subcategory raise 13 issues involving hardware deficiencies as perceived by the concerned individuals (CIs). These issues pertain to reliability, design, operation, and calibration of instruments and to reliability, design, and maintenance of radiation monitoring equipment. R2

II. SUMMARY OF FINDINGS

Conditions were found to exist in violation of a design, construction, or operating requirement. Each of these conditions, called specific deficiencies, was noted as requiring short-term corrective measures. The first deficiency was that RWST narrow range level transmitter surveillance data and acceptance criteria in the applicable surveillance instruction were insufficient. Another deficiency involved a discrepancy between the WBN Final Safety Analysis Report (FSAR) and WBN Technical Specifications pertaining to minimum ice weight for calibration of ice condenser load cells. The third deficiency was that not all housekeeping inspections had been performed and documented by the Office of Nuclear Power (ONP) during the construction phase at WBN in accordance with TVA's Nuclear Quality Assurance Manual (NQAM). Corrective Action Tracking Documents (CATD) were submitted on these deficiencies as they were found.

In the evaluation of a concern regarding accuracy and calibration of Target Rock valves, problems which were not considered violations of design, construction, or operating requirements were found at three plant sites. At WBN, SQN, and BFN, there were no maintenance instructions found for adjusting Target Rock Valve reed switches. At BFN, there was no capability to retrieve maintenance history before March 1983 for any particular plant component.

III. SUMMARY OF COLLECTIVE SIGNIFICANCE OF MAJOR FINDINGS

A collective assessment of the element-level findings led to the identification of one subcategory-level finding which reflected adversely on line management effectiveness at three sites. This finding dealt with the lack of plant management control of equipment history which would preclude recurring instrument failures:

> Processes have been lacking at WBN, SQN, and BFN for trending equipment performance and for subsequent root cause analysis of recurring hardware deficiencies to preclude recurrence of problems. These processes should include tracking of corrective action and follow-up to ensure that appropriate action is taken.

IV. SUMMARY OF CAUSES OF MAJOR FINDINGS

A review and analysis of the root causes for the subcategory taken collectively pointed to several significant root causes for the subcategory as follows:

a. A system or process is not in place to uniformly incorporate commitments and revisions to upper-tier requirement documents in all affected lower-tier documents (WBN).

b. Personnel are not being trained effectively in applicable regulatory commitments and requirements and in the TVA administrative procedures and instructions that govern their activities (WBN). | R2

c. There have been inadequate processes to detect adverse trends in equipment performance and lack of control to govern maintenance activities (WBN, SQN, BFN)

V. SUMMARY OF CORRECTIVE ACTION ON MAJOR FINDINGS

WBN line management is replacing faulty RWST level transmitters under Design Change Requests. Appropriate procedure changes and training with respect to unclear or incorrect maintenance practices on the transmitters was also accomplished. SQN line management is aware of recurring problems with RWST level transmitters and is taking action to ensure the transmitters meet technical specification requirements. The action includes verifying operability of sense line heat trace circuits, compensating for different head pressures at the transmitters, and trending transmitter performance.

With respect to the adequacy of RWST level transmitter, surveillance data and acceptance criteria, SQN line management stated that the RWST narrow range level channels are instruments used to ensure compliance to technical specification parameters and are not subject to the requirements of technical specification-required instruments. Therefore, line management maintained that the data recorded in SI-3 are adequate. Line management agreed to incorporate notes in various SIs into the text of the data sheets. These enhancements were not considered to be required for compliance with technical specifications, and therefore no future commitment dates for the enhancements were provided by line management.

For Target Rock valve reed switch problems, WBN line management adjusted one valve using a vendor-recommended method. The valve was successfully tested according to SQN Technical Specifications but a final evaluation is required during plant heatup. If the final evaluation proves successful, the applicable maintenance instruction will be revised to reflect the vendor-recommended adjustment method. SQN and BFN line managements committed to preparing procedures for adjusting Target Rock valve position switches. Also, BFN line management stated that equipment history is now being adequately maintained but that history before March 1983, is incomplete or non-existent and cannot be recreated.

For discrepancies noted between the WBN FSAR and Technical Specifications on minimum ice weight, changes to the FSAR were prepared to bring the FSAR and Technical Specifications into agreement.

To address housekeeping inspection deficiencies, WBN line management has revised procedures to clarify housekeeping inspection frequencies and documentation requirements.

SQN line management committed to revising surveillance instructions associated with radiation monitors to clearly distinguish between those monitors included in the Tech Specs and those not included. SQN also took action to have a factory representative for Particulate Iodine Noble Gas (PING) radiation monitors assist in correcting problems with the PING monitors and conduct training for instrument technicians.

1.0 CHARACTERIZATION OF ISSUES

1.1 Introduction

The 16 concerns that comprise the Instrumentation and Radiation Monitoring Subcategory raise 13 issues involving hardware deficiencies as perceived by the concerned individuals (CIs). These issues pertain to reliability, design, operation, and calibration of instruments and to reliability, design, and maintenance of radiation monitoring equipment.

1.2 Description of Issues

Related issues were combined into higher-order groups, called elements. In this section of the report, each element is presented with a brief overview of its issues.

1.2.1 Element 303.01 - Difficulty in Obtaining Obsolete Equipment

Issue 303.01-1 - Difficulty in Obtaining Obsolete Equipment:

IN-85-841-001
IN-86-079-001

This issue relates to the difficulty of procuring and maintaining older plant instrumentation at Watts Bar Nuclear Plant (WBN). The CIs believed there were unnecessarily high expenditures and delays due to problems with obtaining spare parts for plant instrumentation purchased 10 to 12 years ago. They stated that newer model instrumentation would be less expensive to maintain and would perform the required functions with a greater degree of accuracy and reliability.

1.2.2 Element 303.02 - Location of Cold Leg Accumulator (CLA) and Refueling Water Storage Tank (RWST) Level Transmitters

Issue 303.02-1 - Inaccuracies in Safety Injection System (SIS) Level Instrumentation at WBN:

IN-85-281-003

The CI alleged that there were inaccuracies in the SIS CLA level instrumentation at WBN. Two level transmitters located at different elevations on each CLA differed by five percent in level indication even after calibration.

Issue 303.02-2 - Inaccuracies in Narrow Range Level Instruments for WBN Unit 1 RWST:

IN-85-142-006

The CI stated that narrow range level instruments for the unit 1 RWST differed by six percent.

1.2.3 Element 303.03 - Accuracy of Safety-Related Instruments

Issue 303.03-1 - Target Rock Valve Reed Switches Inaccurate:

IN-85-802-001

This issue deals with the accuracy and calibration of Target Rock Valve reed switches at WBN. Target Rock Valves installed in the Sampling System and Main Steam System were thought to cause improper annunciations part of the time. Additionally, it was stated that reed switches on the valves require a constant adjustments.

Issue 303.03-2 - Radiation Monitors Inaccurate:

IN-86-079-002

Certain radiation monitors were believed by the CI to be in error by as much as 70 percent.

Issue 303.03-3 - Local and Remote Level Indicators Differ:

IN-85-973-001

The CI thought that unit 1 steam generator local and remote level indicators had differed greatly during a flush. This individual was concerned that a serious problem could arise during normal plant operations with the difference existing in the two instruments.

1.2.4 Element 303.04 - Calibration of Ice Condenser Load Cells

Issue 303.04-1 - TVA Unable and Unwilling to Calibrate Ice Condenser Load Cell Properly:

IN-85-640-002

The CI felt that the Tennessee Valley Authority (TVA) was not able to calibrate the ice condenser load cell to technical specification requirements and that TVA was unwilling to spend the money to have the vendor calibrate the load cell.

Issue 303.04-2 - Ice Condenser Load Cell Test Weight Incorrectly Labeled:

IN-85-640-003

The CI believed that the ice condenser load cell test weight label did not reflect the actual weight.

1.2.5 Element 303.05 - Reliability, Design, and Maintenance of Radiation Monitoring Equipment

Issue 303.05-1 - Improper Installation of Radiation Monitor Cables:

SQP-86-003-001
SQP-86-003-N04
SQP-86-003-N05

The CI alleged that a particular radiation monitor cable in Penetration 23 of SQN's unit 2 containment had not been installed properly. The NRC expurgated file on this concern developed two other concerns questioning the integrity of all connectors in the penetration and the possibility that the condition was reportable.

Issue 303.05-2 - Maintenance and Operability of Radiation Monitor:

XX-85-051-001

The CI stated that a particular radiation monitor at SQN had not been maintained and had not always been operable.

Issue 303.05-3 - Air Monitor Flow Controls Not Listed as Technical Specification or Compliance Instruments: | R2

CWL-85-001

The CI sought the reason why one SQN radiation monitor's air monitor flow controls were not listed as either technical specification or compliance instruments.

Issue 303.05-4 - Improper Operation of Continuous Air Monitors (CAM):

XX-85-044-001

It was thought by the CI that the CAMs at BFN had not functioned properly and had not registered radiation levels accurately during an accidental radiation release in June, 1985.

Issue 303.05-5 - Radiation Monitors Not Operable and Not Maintained:

WI-85-039-002

The CI alleged that radiation monitors at WBN had not been operable until mid-1984 and have not been maintained.

To locate the issue in which a particular concern is evaluated, consult the following attachments:

Attachment A, Subcategory Summary Table

Attachment B, List of Concerns by Element/Issue

2.0 EVALUATION PROCESS

2.1 General Methodology

The evaluation of this subcategory was conducted according to the Evaluation Plan for the Employee Concerns Task Group and the Evaluation Plan for the Operations Group. The concern case files were reviewed. Source documents were researched and interviews conducted in order to identify the requirements and criteria which applied to the issues raised by the concerns. The issues were evaluated against the identified requirements and criteria to determine findings. A collective significance analysis was conducted; causes were indicated for negative findings; and corrective action for the negative findings was initiated or determined to have already been initiated.

2.2 Specific Methodology

Applicable sections from the following baseline requirements documents were reviewed: FSARs at WBN, SQN, and BFN; WBN, SQN, and BFN Technical Specifications; TVA Topical Report; and the NQAM. To

ensure consistency and implementation of the requirements found in these documents, applicable Standard Practices, Administrative Instructions (AI), Surveillance Instructions (SI), Quality Control Instructions (QCI), procedures, data packages and records were reviewed. In addition, files which had been expurgated by NRC, as well as WBN plant staff reports, Nuclear Safety Review Staff (NSRS) reports, and SQN Generic Concerns Task Force (GCTF) reports of concerns previously investigated were reviewed.

Informal interviews were conducted with cognizant personnel when required either to verify document-based findings or to provide nondocument-based evaluation input. Interviews were conducted with personnel in ONP; Instrument Maintenance Sections at WBN, SQN and BFN; Electrical Maintenance Section at BFN; WBN Preoperational Test Staff (PREOP); DNC Instrument Engineering Unit; Division of Nuclear Engineering (DNE) WBN and SQN Engineering Project Instrumentation and Control Supervisors; and DNC Engineering Support Group (ESG). Interviews were also conducted with calibration technicians and supervisors at Central Laboratories and with personnel in the DNE Radiation Protective Section (RPS), including the cognizant safety analysis supervisor in DNE.

3.0 FINDINGS

Generic applicability statements are included for concerns which are classified as being potentially safety-related or safety-significant denoted on Attachment A.

3.1 Element 303.01 - Difficulty in Obtaining Obsolete Equipment

Issue 303.01-1 - Difficulty in Obtaining Obsolete Equipment

WBN

The two employee concerns comprising this issue were evaluated previously by WBN plant staff. The staff's investigation of concern IN-85-841-001 had indicated the concern to be invalid due to a lack of understanding of the plant's AI-9.11, "Repair and/or Replacement of Obsolete Plant Process Instrumentation." In the investigation of concern IN-86-079-001, the plant staff had substantiated the concern. However, the plant staff had noted that the equipment currently installed meets specific design criteria and that, in some cases, it may not be economically feasible to replace it with newer model instrumentation. The staff had noted that replacement of instrumentation must be accomplished using the Design Change Request (DCR) process, including a cost benefit analysis. The staff also had stated that any employee may identify obsolete instruments to the Instrument Maintenance Section to be evaluated for replacement.

The evaluation for WBN found that there were no specific deficiencies because both of these concerns had been addressed adequately by WBN plant staff. Also, no adverse effects on safety were found for either concern because proper operation of safety-related equipment in accordance with technical specification requirements is periodically verified by SIs.

SQN

Concern IN-85-841-001 was evaluated for generic applicability to SQN and was not validated. Sequoyah's Standard Practice SQM-60 was judged equivalent to WBN AI-9.11 in that it also provides instructions for replacing obsolete equipment using the DCR process. SQN's AI-11 and SQA 45 also provide guidance for initiating a DCR for replacement or substitution of equipment when a spare parts inventory can no longer be provided for original equipment.

BFN

Concern IN-85-841-001 was evaluated for generic applicability to BFN and was not validated. No instruction exists that is equivalent to WBN AI 9.11. However, when spare parts can no longer be obtained for original equipment, the responsible sections initiate a DCR for replacement or substitution of equipment in accordance with BFN Standard Practice BF 16.2. Although this standard makes no specific reference to obsolete equipment or substitutions, it does state that procured equipment must be equal to or better than original design.

Conclusion

The issue (concern IN-86-079-001) was verified as factual but not a problem at WBN.

Generic Applicability

The issue was not verified at SQN and BFN. Due to the findings at these plants, evaluation at BLN was determined to be not necessary.

3.2 Element 303.02 - Location of Cold Leg Accumulator (CLA) and Refueling Water Storage Tank (RWST) Level Transmitters

Issue 303.02-1 - Inaccuracies in Safety Injection System CLA Level Instrumentation

WBN

The issue regarding cold leg accumulator level instrumentation was determined to have been evaluated previously by NSRS for WBN. The NSRS report, I-85-208-WBN, had stated that the concern was valid.

The current evaluation concurs with findings of the NSRS, however, it was found that adequate corrective action was being taken. The NSRS had found that there had been a history of problems in general with capillary type transmitters and that the cause of the discrepancies in the cold leg accumulator level transmitters had not been readily determined. The report had recommended that WBN Instrument Maintenance Section (IMS) engineers formulate a plan as soon as possible to resolve the discrepancies in the cold leg accumulator level transmitters.

In response to the report, WBN IMS engineers had performed and revised calculations for acceptable tolerances in deviations between channels of level indication. The revised calculations had shown the maximum acceptable deviation between channels to be four percent. Therefore, the five percent deviation noted in the concern had been out of specification. The IMS had updated the applicable surveillance instruction to reflect the revised calculations. Also, the staff had submitted DCR-633 to replace the existing cold leg accumulator transmitters with more reliable transmitters. The DCR had been approved as a before-fuel-load item and its completion is being tracked by CATD 30302-WBN-01. Based on the fact that the level transmitter will be replaced before fuel loading as a result of the DCR there will be no adverse effects on safety. |R2

SQN

The issue regarding cold leg accumulator level instrumentation was evaluated for generic applicability to SQN and was substantiated. It was determined that problems with cold leg accumulator level transmitters also had existed at SQN. These problems had consisted of deviations between level channels on the same cold leg accumulator and had been attributed to elevation differences on the sense line taps. These problems had been corrected by adjusting the scaling for the transmitters to the narrowest span. However, instrument drift has remained a maintenance problem. DCR 1848 has been written to replace the obsolete Barton transmitters and will be implemented by Engineering Change Notice (ECN) L6358 during the next outage. This change should provide adequate corrective action and reduce the maintenance required for this system. Because corrective action has been taken and ECN L6358 was issued to replace the obsolete transmitters by the next outage, there will be no adverse effects on safety. |R2

Conclusion

The issue was factual but corrective action was initiated prior to this evaluation.

Generic Applicability

The issue is unique to the Westinghouse Nuclear Steam Supply System (NSSS) and applies only to WBN and SQN. No evaluation was necessary at BFN and BLN because they have different NSSS vendors.

Issue 303.02-2 - Inaccuracies in Narrow Range Level Instruments for WBN Unit 1 RWST

WBN

The issue regarding RWST level transmitters at WBN also was determined to have been previously investigated by NSRS. The NSRS report, I-85-327-WBN, had found the concern to be valid in that recurring problems did exist with the transmitters. The current evaluation concurs with findings of the NSRS, however, it was found that adequate corrective action had been taken for this concern. It had been found that changing the zero adjustment had not been an approved method for correcting indication discrepancies. Also, NSRS had found a Maintenance Request (MR) which had not documented the installation of a temporary potentiometer on instrument 1-LT-63-46.

In response to the NSRS investigation, the plant staff had informed appropriate personnel that changing the zero adjustment was not an approved method for correcting indication discrepancies. Also, AI-2.15, "Temporary Alterations," had been revised to include clarifications recommended by NSRS. The temporary potentiometer on instrument 1-LT-63-46 had been removed, and its removal had been documented properly. Furthermore, DCR [illegible] has been written and approved to replace the RWST transmitters as they become inoperable. CATD 30302-WBN-01 was issued to track implementation of this DCR. Because the level transmitters will be replaced under the DCR process with acceptable transmitters before fuel loading, there will be no adverse effects on safety. |R2

SQN

The issue regarding RWST level transmitters also was evaluated for generic applicability to SQN and was substantiated. A review of approximately 50 MRs generated over the last five years on the RWST level transmitters showed a recurring problem with instrument drift. SQN line management was found to be aware of these problems and to be taking action to ensure that the transmitters meet technical specification requirements. Because a large majority of the previous RWST level transmitter problems had been due to frozen sense lines or to heat tracing problems on sense lines, SQN line management was having new SIs performed on a monthly basis to verify operability of sense line heat trace circuits. SQN IMS personnel also had taken field measurements of the transmitters and sense line taps to compensate for different head pressures at the transmitters.

In addition to these actions, plans were being made at the time of the evaluation to provide additional trending data on the transmitters. A decision to replace the transmitters will be based on the trending data that are obtained. Therefore, SQN line management was found to have no plans at present to replace the RWST level transmitters. No violations of Limiting Conditions for Operation (LCO) were identified by the evaluation. R2

During the evaluation of this issue, the RWST narrow range level transmitter surveillance data and acceptance criteria in SI-3 were determined to be insufficient. Only one level channel's readings are recorded in the SI, and the readings' acceptability is included as a note within the SI. This deficiency was thought to represent a potential reportable occurrence (PRO). CATD 30302-SQN-01 was issued on this deficiency.

Conclusion

The issue was factual at WBN and SQN but corrective action had been taken prior to this evaluation. However, another problem was found at SQN. Level transmitter surveillance data and acceptance criteria in SI-3 were found to be insufficient.

2.3 Element 303.03 - Accuracy of Safety-Related Instruments

Issue 303.03-1 - Target Rock Valve Read Switches Inaccurate

WBN

NSRS report I-85-286-WBN was found which adequately addressed the employee concern regarding Target Rock Valves. The NSRS report had concluded that the employee concern was valid for WBN and that it should be investigated for generic applicability to SQN as well. The current evaluation concurs with the findings of the NSRS, finding the concern valid.

The deficiencies at WBN identified in the report had been restrictive tolerances for the reed switches and lack of a formalized maintenance trending program to minimize recurring deficiencies. In response to the report, WBN Electrical Maintenance Section (EMS) had the vendor provide enhancement for reed switch settings and had tested the enhancement on one valve successfully. The EMS had committed to revising the applicable maintenance instruction (MI) to include the vendor recommendations. The EMS had also committed to adjusting and testing Target Rock Valves individually. The estimated completion date for revising the MI and for testing the Target Rock Valves had been January 30, 1986. As of August 8, 1986, the MI had not been revised to include the vendor

enhancements but the action was still planned. Efforts were found to be underway to provide a maintenance trending program, but no schedule for implementation was available. The current evaluation of the concern found no specific deficiencies which adversely impacted safety.

SQN

The issue regarding Target Rock Valves was evaluated for generic applicability to SQN. The concern was not substantiated, and no safety-related issues were identified. In a previous evaluation of the concern at SQN by the SQN GCTF, it had been shown that Target Rock Valves were used as containment isolation valves for post-accident sampling and containment differential pressure and on the reactor head vent system. For the valves in post-accident sampling and containment differential pressure, the position switches were used as a seal-in contact to maintain the valves open. For the valves in the reactor head vent system, the position switches were for indication only. It was concluded that no safety-related deficiencies could result from a malfunctioning or misadjusted position switch. Maintenance personnel at SQN were aware of proper adjustment procedures as provided by vendor documentation, but no plant maintenance instructions existed. Recommendations were made to prepare written instructions on Target Rock Valve position switches based on the vendor input. Implementation of this recommendation was considered by the GCTF an enhancement rather than a safety issue.

BFN

The issue regarding Target Rock Valves was evaluated for generic applicability to BFN. The concern was not substantiated and no safety-related issues were identified. The evaluation of the Target Rock Valves issue at BFN showed that the reed switches for Target Rock Valves are considered by maintenance personnel to be difficult to adjust due to their sensitivity. However, the switches were reported by an electrical maintenance foreman to maintain their settings after adjustment. No procedures were found to exist at BFN for the adjustment of Target Rock Valve reed switches. It was reported, however, that the crafts are knowledgeable in the methods of adjustment. No reed switch problems during plant operations were noted. Downstream instruments are used to assess valve position and steam flow when the relief valves open automatically; therefore, no safety functions are impaired by erroneous position indication from the reed switches should they be out of calibration. |R2 |R2

During the evaluation of this concern at BFN, there were problems noted with the equipment history archives at the plant. It was found that the maintenance request data base had only been in existence since March, 1983. Prior to this time, Trouble Requests (TRs) had been used. The data base for the TRs currently does not allow for search by the component identifier. Therefore, developing a maintenance history on a particular component such as a Target Rock Valve before March, 1983 is not possible without reviewing some 30,000 records individually.

Conclusion

The issue was verified as factual at WBN. Also, as a result of this evaluation, other problems requiring corrective action were identified at WBN, SQN, and BFN.

Generic Applicability

The construction phase at BLN precluded evaluation there.

Issue 303.03-2 - Radiation Monitors Inaccurate

WBN

The employee concern regarding safety-related equipment accuracy and calibration procedures at WBN was found to be referring directly to radiation monitoring equipment. The CI believed there was a 70-percent error associated with some radiation monitoring equipment. The concern as stated was not validated for WBN. However, it was determined that acceptable, correctable inaccuracies of up to 35 percent do exist in the electronics of radiation monitors throughout the nuclear industry. It was found that radiation monitor inaccuracies at WBN are routinely corrected during periodic functional checks and calibrations performed in accordance with SIs. These SIs contain requirements taken from WBN Technical Specifications as well as vendor recommendations for setpoints and tolerances. The monitors' alarm setpoints are chosen conservatively to accommodate the inaccuracies in the electronics and to ensure that technical specification limits are not exceeded. Furthermore, if any person should suspect that a radiation monitor at WBN is malfunctioning, WBN Standard Practice WB-11.4 provides a mechanism for reporting equipment malfunctions to DNE.

SQN

The investigation at SQN resulted in conclusions similar to those reached at WBN, finding the concern not valid.

Conclusion

The issue was found to be not valid at both WBN and SQN. Inaccuracies in radiation monitoring equipment were identified, however, these inaccuracies are correctable by calibration identified in applicable procedures.

Generic Applicability

Evaluation at other sites was found to be not necessary.

Issue 303.03-3 - Steam Generator Local and Remote Level Indicators Differ

WBN

This issue concerns the accuracy of WBN steam generator level indicators. This issue was found valid at WBN but not a problem. The cognizant engineer from Plant Maintenance stated that there were many possible explanations for the CI having observed error in steam generator level indications, such as inoperable transmitters or drained reference legs to transmitters. The engineer stated that, in most cases, the instruments are isolated during flushes to prevent chemicals from entering instrument lines and that tygon tubing is sometimes used to monitor levels rather than instruments.

The engineer indicated it was not possible to know what configuration may have existed at the time of the CI's observation.

A cognizant Instrument Mechanic (IM) was not familiar with the practice of confirming instrument accuracies by way of nitrogen flow as stated in the concern. The IM stated that the instruments were calibrated by filling the sensing lines with water and pressurizing by hand pumps. A cognizant test engineer who had been the DNE test representative during hot functional testing noted that instrument accuracy had been verified satisfactorily in hot functional testing in August 1983 and mini-hot functional testing in September 1984. The engineer also stated that the accident analyses accommodated postulated steam generator level errors and that setpoints were selected such that the auxiliary feedwater system would maintain a level above the tube bundles in at least two out of four steam generators should any errors occur. This was confirmed later by a review of the FSAR.

Conclusion

The issue was found valid but not a problem at WBN.

Generic Applicability

Because no problems were found at WBN, it was not necessary to evaluate the issue at other plants.

3.4 Element 303.04 - Calibration of Ice Condenser Load Cell

Issue 303.04-1 - TVA Unable and Unwilling to Calibrate Ice Condenser Load Cell Properly

WBN

The issue concerns the calibration accuracy of the load cells used in ice surveillance weighing. The concern was found to be not valid at WBN.

Ice condenser load cells are calibrated to plus/minus 0.3 percent of range by TVA's Central Laboratory as specified in SI-6.17, "Weigh Ice Baskets." This equates to plus/minus six pounds variance on measured ice weight since the load cell's range is 0-2000 pounds. A 95 percent confidence level in the total ice condenser ice weight is determined through use of a computer program after each ice weighing session is completed. The SI requires a plus/minus six pound accuracy for load cells, even though the Technical Specification Bases 3/4.6.5.1 indicates that the minimum ice weight in a basket of 1214 pounds includes a one percent (or 12 pound) allowance for weighing accuracy.

SQN

The issue was not evaluated at SQN because it was found not valid at WBN.

Conclusion

The issue was determined to be not valid at WBN.

Generic Applicability

The issue applies only to WBN and SQN because they are the only TVA nuclear plants with ice condensers and for this reason was not evaluated at BFN or BLN.

Issue 303.04-2 - Ice Condenser Load Cell Test Weight Incorrectly Labeled

WBN

The issue is incorrect labeling of an ice condenser test weight and was found not valid. However, a related problem was found with the FSAR as a result of the evaluation. Test weights are labeled with their nominal weight as measured by the calibrated load cell. The calibration reports generated for these test weights specify the accuracy of that nominal weight based on the calibration procedure used. TVA is capable of calibrating test weights as close as 0.1 percent of labeled weight. The test weight accuracy does not impact the net ice weight results since the test weight is used only for monitoring load cell calibration during ice weighing sessions and is not used for calibrating the load cell.

The evaluation found that the minimum ice weight specified in WBN FSAR Section 6.7.4 and Technical Specifications Section 3.6.5.1 are in disagreement. The weight had been revised in the latest revision to the Technical Specifications based on reduced ice weight requirements by Westinghouse, but the change had not been made in the FSAR. SI-6.17 was found to be in agreement with the Technical Specifications for ice weight. The DNE Licensing Section was notified by Corrective Action Tracking Document (CATD) 30304-WBN-01 to have a change initiated to the FSAR as well. This specific deficiency was judged to be neither generic nor safety-related. The specific deficiency and its symptom were evaluated further under Subcategory 307, "Nuclear Power/Site Program/Procedure."

SQN

The issue was not evaluated at SQN because it was found not valid at WBN.

Conclusion

The issue was found not valid at WBN. During evaluation, a discrepancy was found between the FSAR and the Technical Specifications. This problem was addressed by CATD 30304-WBN-01.

Generic Applicability

The issue applies only to WBN and SQN because they are the only TVA nuclear plants with ice condensers and for this reason was not evaluated at BFN or BLN.

3.5 Element 303.05 - Reliability, Design and Maintenance of Radiation Monitoring Equipment

Issue 303.05-1 - Improper Installation of Radiation Monitor Cables

SQN

Some radiation monitor cable connectors had been found loose during the modification mentioned in the original concern, but these had been corrected and inspected by QA before termination. The issue was found not valid. Megger and continuity checks and surveillance testing had been performed before the radiation monitor had been returned to service to ensure proper installation of all the cables in Penetration 23. No deficiencies were identified during the evaluation, and the concern was determined not to be a reportable occurrence.

However, Conditions Adverse to Quality Report (CAQR) SQP870178 was issued because incorrect vendor instructions were identified. The instructions pertain to all the installation of shields on Amphenol connectors used during the work in question. CATD 30305-SQN-04 was issued to track closure of SQP 870178. R2

Megger and continuity checks and surveillance testing were performed to ensure proper installation of the cables in penetration 23.

Conclusion

CAQR SQP870178 was issued because incorrect vendor instructions were identified. CATD 30305-SQN-04 was issued to track closure of SQP 870178. R2

Generic Applicability

Because the issue was not substantiated, evaluation at other sites was not necessary.

Issue 303.05-2 - Maintenance and Operability of Radiation Monitor

SQN

The concern regarding maintenance and operability of Sequoyah radiation monitor 1-RM-90-104 was found to have been evaluated previously by NSRS. NSRS report I-85-613-SQN had validated the concern as did the present evaluation. However, the radiation monitor is tagged "out-of-service", and the SIs are not being performed pending implementation of DCR 1596 to remove the monitor. In addition, the monitor performs no safety-related function and is not required to meet any technical specification requirements.

Conclusion

The issue was found to be valid however, because the monitor does not perform a safety-related function this was not seen as a problem.

Issue 303.05-3 - Air Monitor Flow Controls Not Listed as Technical Specification or Compliance Instruments |R2

SQN

The issue refers to the air monitor flow controls for Sequoyah radiation monitor 2-RE-90-100 and was found factual but not a problem. The airflow sample pump controls are not required for operation of the radiation monitor. The monitor has its own separate sample pump and flow controls which are Technical Specification instruments. The airflow monitor sample pump and flow controls are not required by any Technical Specifications and are not listed as either technical specification or compliance instruments.

Conclusion

The issue was found to be factual but not a problem.

Generic Applicability

It was determined that the issue was specific to SQN and evaluation at other sites was not necessary.

Issue 303.05-4 - Improper Operation of Continuous Air Monitors (CAM)

BFN

This issue questions the functioning and accuracy of CAMs at BFN and was found to be not valid. For the incident specified in the concern, it was determined that the local CAM had not seen the same airborne radiation levels as had been measured by local sampling. The reasons for this had been the location of the CAM relative to the scene of the incident, as well as the dilution effects of airflow in the area. It was found that the CAMs are adequate to meet their intended design function. However, it was also found that the CAMs had required excessive maintenance to keep them in operation and that they would probably be replaced or upgraded because of this.

SQN

This issue was evaluated for generic applicability to SQN. It was found that the CAMs at SQN met the design requirements and the issue was not substantiated. Although they are not state-of-the-art, they are more reliable than the particulate iodine noble gas (PING) monitor used for other applications at SQN.

Conclusion

The issue was not substantiated. |R2

Generic Applicability

No evaluation at other plants was determined to be necessary.

Issue 303.05-5 - WBN Radiation Monitors

WBN

The issue is that radiation monitors at WBN had not been operable before the middle of 1984 and have not been maintained since then.

The issue was substantiated at WBN and subsequently at BLN. There was general agreement by ONP test engineers and DNC engineers that housekeeping and protection of instruments from incidental damage had not been adequate during the construction phase. New requirements for instrument protection had been added in June 1985 to the DNC housekeeping and storage procedures and instructions to reduce the possibilities of incidental damage to installed instruments. A draft DNC procedure was found to be in review which contains more detail for installation and inspection of instruments than the instructions it will replace; however, the procedure contains no provision for inspecting instrument protective coverings. This was noted as a specific deficiency for WBN as well as for BLN. The deficiency was identified by QA personnel at BLN and no further evaluation was considered necessary there. WBN line management was notified of the deficiency by CATD 30305-WBN-01 and BLN management notified by CATD 30305-BLN-02.

A review of ONP housekeeping inspection records for 1985 and 1986 showed that not all inspections were being performed and documented as required.

This deficiency was in apparent violation of the requirements of NQAM, Part II, Section 1.2 which specify that plant areas be inspected at least once per month and that QA records be maintained. The WBN Site Director was informed of this deficiency by CATD 30305-WBN-03. This specific deficiency was judged not to be safety-related. The deficiency and associated symptom were moved to Subcategory 313, "Miscellaneous", for evaluation in addition to this report's evaluation.

Conclusion

This issue was substantiated at WBN and BLN.

Generic Applicability

No evaluation was conducted at SQN and BFN because the issue applies only to plants under construction.

4.0 COLLECTIVE SIGNIFICANCE

A collective assessment of the element-level findings (Section 3.0) led to the identification of one subcategory-level finding which reflected adversely on line management effectiveness at three sites. This finding dealt with the lack of plant management control of equipment history which would preclude recurring instrument failures:

Processes have been lacking at WBN, SQN, and BFN for trending equipment performance and for subsequent root cause analysis of recurring hardware deficiencies to preclude recurrence of problems. These processes should include tracking of corrective action and follow-up to ensure that appropriate action is taken.

Several examples from the subcategory support this finding. Recurring instrument deficiencies were noted at WBN with respect to Target Rock valve reed switches, Cold Leg Accumulator (CLA) level transmitters, and Refueling Water Storage Tank (RWST) level transmitters. WBN line management had taken no action to preclude recurrence of these deficiencies. During the evaluation of the Target Rock valve reed switch problems, NSRS had noted the lack of a formalized maintenance trending program to minimize recurring failures. Various Instrument Maintenance Section (IMS) engineers at WBN had known about the CLA level transmitter problems but no formal program had been in place for reporting the problem, developing corrective action, and tracking the actions taken. A recurring problem with RWST level transmitters had existed at SQN over the last five years, but a maintenance trending program is now in place which should identify and address recurring maintenance problems in the future. At BFN equipment history archives preclude generation of maintenance history on a particular component for times before March 1983.

No overall pattern of hardware deficiencies was found by this evaluation. The equipment problems found were isolated cases and corrective action had been initiated. However, the specific deficiencies revealed by the investigation were all characterized by the same problem: procedures and instructions were not adequate to ensure compliance with requirements. Corrective actions already initiated or planned will adequately address the specific procedure/instruction deficiencies identified in this report. The overall question of procedure adequacy will be elevated to the Category Report for further evaluation. |R2

5.0 ROOT CAUSE, PRELIMINARY ANALYSIS

Sections 3.0 and 4.0 discussed the specific findings for each of the element evaluations of this subcategory and their collective significance. This section presents the results of an independent review and analysis done on these specific element-level findings to identify the most frequently occurring and widespread root causes at the subcategory level. Patterns of recurring findings called symptoms were derived from the elements. These symptoms were tested for root causes, and the root causes for all elements were then analyzed collectively to identify those which occurred most frequently and at the most sites. Details of the symptoms and root causes derived for each element are presented in Attachment G, "Summary of Symptoms and Root Causes."

A review and analysis of these root causes taken collectively points to several significant root causes for the subcategory as follows:

a. A system or process is not in place to uniformly incorporate commitments and revisions to upper-tier requirement documents in all affected lower-tier documents (WBN).

b. Personnel are not being trained effectively in applicable regulatory commitments and requirements and in the TVA administrative procedures and instructions that govern their activities (WBN). |R2

c. There have been inadequate processes to detect adverse trends in equipment performance and lack of controls to govern maintenance activities (WBN, SQN, BFN).

These three root causes can be applied specifically to the elements of this subcategory. |R2 The first root cause applies to Element 303.04 where the evaluator had found ice weight requirement revisions from Westinghouse incorporated in the Technical Specifications but not in the FSAR. The second root cause applies to Element 303.05 where personnel had not been fully carrying out procedures and instructions related to housekeeping inspections. |R2 The third root cause is consistent with the subcategory-level findings presented in section 4.

Corrective Action Tracking Documents (CATDs) were not issued specifically on these subcategory-level root causes. It was believed that corrective action being taken already by line management as part of the commitments made in the Nuclear Performance Plan were helping to address these root causes. However, line management was expected to use the subcategory-level root cause information as an aid in preparing corrective action responses to subcategory-level CATDs that would preclude recurrence of the deficiency noted. The ECTG's process for judging the adequacy of line corrective action responses to subcategory-level CATDs included a determination of how well the applicable root causes were addressed by the responses.

The significant root causes for all subcategories in the Operations category provided part of the input for determining programmatic areas of weakness at the category level and the associated causes. In the Operations category report, these programmatic weaknesses and associated causes are presented along with a discussion of how they are being corrected through implementation of the Nuclear Performance Plan and other corrective action programs.

6.0 CORRECTIVE ACTION

6.1 Corrective Action at Element Level

6.1.1 Element 303.02 - Location of Cold Leg Accumulator and RWST Level Transmitters

WBN

As discussed in the findings, WBN plant staff had taken corrective action on the CLA level transmitters as a result of an NSRS report on the employee concern. The IMS had performed and had revised calculations for acceptable tolerances in deviations between channels of level indication. The IMS had updated the applicable SI to reflect the revised calculations. Also, the IMS had submitted a DCR to replace the existing cold leg accumulator transmitters with more reliable transmitters. The DCR had been accepted as a before-fuel-load item.

With respect to RWST level transmitters, WBN is replacing them under a DCR as they become inoperable. Appropriate procedure changes and training with respect to unclear or incorrect maintenance practices on the transmitters was also accomplished.

CATD 30302-WBN-01 was issued to WBN line management tracking DCR 633 and DCR 678 regarding CLA and RWST level transmitters. |R2

SQN

CATD 30302-SQN-01 was issued to SQN noting that:

SI-3 records only one narrow range level channel for verifying compliance with tech spec RWST volume requirements and the specific channel used is not designated during performance of the SI. Because of this condition, channel calibration out of tolerance reports cannot be evaluated for impact on SI results nor can an audit be performed to verify past compliance. Additionally, MRs reviewed during the evaluation did not specify the work instructions used for loop calibration. These deficiencies are considered to represent a PRO.

SQN management has responded as follows:

"DCR-1848 has been submitted and ECN-L6378 issued to replace the obsolete Barton Model 384 transmitters on the Cold Leg Accumulators. Plans are to work this ECN during the unit 1, cycle 4, and unit 2, cycle 3 refueling outages at SQN. Transmitters will be recalibrated before unit 2 startup to ensure operability."

"The problem of deviations in indicator readings has been corrected at SQN by taking field measurements and compensating for the differences in sensor elevations in the transmitter scaling. This action was taken in September 1983 on unit 2 and April 1984 on unit 1."

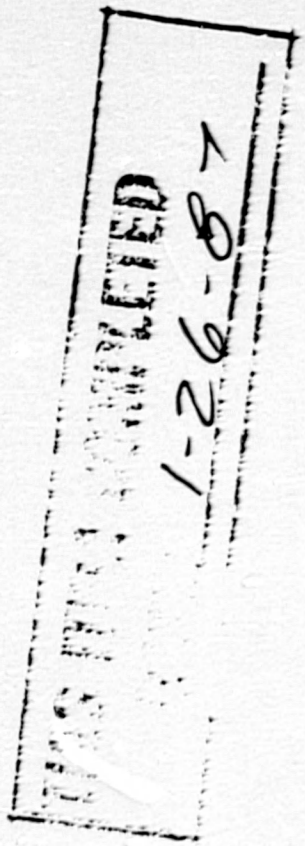
"More comprehensive trending data will be collected than has been in the past and a new Preventive Maintenance instruction will be written."

"Investigation of this Employee Concern at SQN has revealed a significant number of MRs related to problems on the RWST Upper Level Transmitters. However, a large majority of these MRs were related to frozen sense lines or heat tracing problems on the sense lines. Surveillance instructions SI-706, 706.1, and 706.2 were initiated in February 1985 to verify operability of sense line heat trace circuits. The performance of these surveillance instructions on a monthly basis should reduce the number of maintenance problems related to heat tracing."

"SQN has recently implemented a new maintenance trending program to identify potential maintenance problems. However, sufficient data has not been collected since correcting sense line problems, to make any conclusive determinations.

SQN Instrument Maintenance Group has plans to initiate a new Preventive Maintenance procedure to monitor the transmitter output signal for 1, 2-LT-63-46 and 49 on a more frequent schedule (most likely monthly). The performance of this PM will not only provide additional trending information, but will also ensure operability is maintained. The PM will be implemented before unit 2 start up."

"SQN Instrument Maintenance personnel have also taken field measurements of the transmitters and sense line taps to compensate for different head pressures at the transmitters. This was done to ensure an accurate redundant level indication between channels. This was completed at the time the heat trace and freeze protection was upgraded."



"Therefore, since corrective actions have already been taken to remedy maintenance problems associated with frozen sense lines and to correct head pressures values causing inaccurate level indications, and insufficient trending data has been collected to make conclusive determinations, SQN has no plans to replace the RWST upper level transmitters at present. As mentioned previously, SQN will continue to monitor the transmitters operation with the new trending program, and the new Preventive Maintenance instruction which will be implemented before startup."

"An investigation of the RWST Wide Range Level Transmitters (1, 2-LT-63-50, 51, 52, 53) has shown that no significant maintenance or operability problem exists on these transmitters. The report appears to be in error because of a confusion between Compliance Instrumentation and Tech Spec Instrumentation. Tech Spec instruments are specifically identified in the specifications and these instruments usually require a channel check for instrumentation operability verification. An example of Tech Spec instrumentation is the RWST wide range level channels in TS 3.3.2 for ESF instruments. A compliance instrument is an instrument which is not specifically identified in the specs; however, these instruments are used to obtain data to verify operability of a Tech Spec system. A channel check of compliance instruments is not required by Tech Spec. An example of compliance instruments are the RWST narrow range level channels used to verify operability of the water volume in the RWST for TS 3.1.2.6 and TS 3.5.5. Therefore, because a channel check of the RWST narrow range level indicators is not required by Tech Spec, the data recorded in SI-3 weekly is adequate to ensure operability of the RWST TS 3.1.2.6 and TS 3.5.5. We do not plan to initiate a PRO for this concern."

"We do agree, that the note in SI-3 has the potential to be overlooked. Therefore, as a long-term goal for the notes in SI-2, SI-3 daily, SI-3 weekly, and SI-3 monthly, the operations procedures group will attempt to incorporate the notes into the text of the data sheets as applicable. Also, a clarification that a failure of the RWST narrow range channel check does not necessitate entry into the Tech Spec. LCO for RWST is being considered for a future revision to SI-3 weekly. However, we do not consider these enhancements to be required for compliance with Tech Spec and/or the employee concern report. Therefore, no future commitment date is listed in item 9 of the corrective action report. The operations procedures group anticipates the revision to SI-2 and SI-3 within approximately 12 months."

CATD 30302-SQN-02 was issued to SQN noting problems with function and calibration of level transmitters for RWSTs. SQN has responded as follows:

"More comprehensive trending data will be collected than has been in the past and a new Preventive Maintenance instruction will be written - (See CATD 30302-SQN-01 CAP).

"The corrective actions stated have been initiated; however, the associated PM's (1678-062 and 1679-063) have been unable to be performed because the present RWST levels are less than the required 94% needed to ensure that the levels are above the taps to the transmitters. Therefore, prior to start-up, a channel calibration check will be performed on an increased frequency in accordance with SI-202 to obtain data necessary to evaluate operability and to provide trending information. After start-up, the associated PM's will continue to be performed until a reliability data base is established."

6.1.2 Element 303.03 - Accuracy of Safety-Related Instruments

WBN

WBN plant staff had taken corrective action for the one valid concern regarding Target Rock Valves as a result of an NSRS report on the concern. CATD 30303-WBN-01 was issued to document these actions. In response to the CATD, WBN line management reported that:

"As a result of problems with adjusting the reed switches on the Target Rock valves, the Electrical Maintenance Section (EMS) contacted the vendor to obtain their recommendation.

Based on the information provided by the vendor, the EMS issued a form TVA 6436, maintenance request (MR), to adjust 1-FCV-1-7 using the "enhancement" method. The valve was tested as required by Technical Specifications and passed. However, the final evaluation cannot be made until heatup when the valve is tested again to assure no thermal problem exists with setting the reed switches.

In the interim, any Target Rock valves requiring adjustment will be done by a MR using the "enhancement" method and if those valves that were set using this method operate properly during heatup, then maintenance instruction (MI) 57.30 will be revised to reflect the vendor's recommendation.

The maintenance trending program is still being developed. Beginning with commercial operation for each unit, quarterly Nuclear Plant Reliability Data System (NPRDS) report will be reviewed for repetitive failures and generic failures. During this interim period before commercial operation, a Prime computer program has been developed to be used by EMS engineers for the trending of maintenance requests."

SQN

At SQN the GCTF had determined that no procedure for adjusting Target Rock Valves existed. The GCTF had made a recommendation to prepare written instructions on Target Rock Valve reed switches based on vendor input. This item is being tracked by CATD 30303-SQN-01. SQN line management responded as follows:

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"Corrective action for this concern is not required; however, in accordance with the recommendation associated with IN-85-802-001 a procedure will be prepared to adjust the valve position switches for Target Rock Valves. The procedure will be complet" by 2/1/87. No corrective action was proposed for IN-86-079-002 but to provide additional assurance the radiation monitor Procedures are technically adequate they are being reviewed using the SI-1 checklist prior to startup".

CATD 30303-SQN-02 was issued to SQN line management noting questionable adequacy of calibration procedures for radiation monitors. SQN has responded as follows:

"Radiation monitor calibration procedures are being reviewed using the SI checklist for guidance. This corrective action is to be completed prior to plant startup and will be tracked at SQN by P2 activity 200011950."