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EMPLOYEE CONCERNS

SPECIAL PROGRAM

VOLUME 3
OPERATIONS CATEGORY

SUBCATEGORY REPORT 30100
MECHANICAL EQUIPMENT RELIABILITY/DESIGN

UPDATED

TVA
NUCLEAR POWER

TVA EMPLOYEE CONCERNS
SPECIAL PROGRAM

REPORT NUMBER: 30100

REPORT TYPE: Subcategory

REVISION NUMBER: 3

TITLE: Mechanical Equipment Reliability/Design

REASON FOR REVISION:

1. Reformat to conform with Revision 4 of ECTG Program Manual and incorporation of SRP comments and inclusion of final corrective action plans.
2. Revised to incorporate SRP comments.
3. Revised to incorporate TAS comments.

PREPARATION

PREPARED BY: [signature] 9-16-87
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REVIEWS

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CONCURRENCES

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		SRP: [signature]	9/17/87
SIGNATURE	DATE	SIGNATURE	DATE

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ECSP MANAGER DATE

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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.

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.

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.

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

EXECUTIVE SUMMARY

Subcategory Report 30100
Mechanical Equipment Reliability/Design

I. SUMMARY OF ISSUES

The concerns that comprise this subcategory are characterized by hardware deficiencies. Included are issues concerning reliability and design of mechanical equipment such as valves, diesel generators, piping, heat exchangers, steam generator manways, and fire doors.

Sixteen of these issues were not substantiated. Five issues related factual situations but were not problems that required corrective action. Corrective action had already been initiated on twenty 1 issues evaluated by this report. Three issues were substantiated and corrective action was requested.

II. SUMMARY OF FINDINGS

Eight conditions requiring corrective action were found. The conditions are as follows:

1. Deficiencies with Kerotest valves at SQN, WBN and BFN.
2. Deficiencies with various aspects of D/Gs at SQN, WBN, and BFN.
3. Deficiency regarding vibration of a RFW pump low load bypass line at BFN.
4. Deficiencies with containment paint coating were found at SQN, WBN, and BFN.
5. At SQN and WBN, deficiencies with steam generator manways
6. At WBN there were operating instructions that did not reflect correct valve status.
7. SQN and WBN exhibited problems with auxiliary building air lock doors.
8. SQN, WBN, BFN, and BLN all exhibited deficiencies with component identification.

III. SUMMARY OF COLLECTIVE SIGNIFICANCE

A collective assessment of the element-level findings led to the identification of four subcategory-level findings. Three of these findings were determined to reflect adversely on corporate management effectiveness in overseeing and coordinating various TVA-wide nuclear activities. However, the fourth finding dealt with good practices where TVA plants were found to be working together to address common problems. The four findings were as follows:

a. There has been a lack of corporate control over the implementation of Design/Construction standards and requirements into operations activities at WBN, SQN, and BFN relative to the integrity and maintenance of containment paint coatings

b. There has been a lack of corporate guidance in the maintenance and performance testing of diesel generators at all sites

c. There has been a TVA-wide lack of centralized control of component identification resulting in (1) missing and incorrect equipment tags in the fields, and (2) drawing and data base deficiencies related to unique identifiers

d. There were two instances where WBN and SQN line managers have been coordinating efforts to identify and correct certain mechanical problems common to their plants

IV. SUMMARY OF ROOT CAUSES

A collective assessment of the root causes for the element-level findings led to the following six significant subcategory-level root causes at applicable plant sites:

1. Personnel lack understanding of regulatory requirements or commitments pertaining to maintenance of containment paint coatings and to management of hardware identification (WBN, SQN, BFN)

2. There is a lack of adequate systems, processes, or administrative controls to ensure commitments are reflected in procedures or processes for procurement of hardware, maintenance of containment paint coatings, and control of hardware identification (WBN, SQN, BFN)

3. There are inadequate acceptance criteria defined for diesel generator room housekeeping and for vendor construction of spent fuel racks (WBN, SQN, BFN, BLN)

4. Management has been inattentive to trends in the problems with hardware identification at TVA sites (WBN, SQN, BFN)

5. There have been inadequate controls for review of results pertaining to hardware identification, to updating of operating instructions, and to vendor performance of work to ensure compliance with commitments (WBN, BFN)

6. There has been inadequate communication between various TVA functional groups pertaining to hardware identification and initial design of steam generator manway covers (WBN, SQN)

V. SUMMARY OF CORRECTIVE ACTION

Corrective Action Tracking documents (CATD) were issued on the findings in Section II. The following Corrective Action Plans (CAP) have been received from line management at affected plants.

Corrective action to the Kerotest valve problems included revising valve standard specifications, examination and refurbishment of previously procured valves, and implementation of a maintenance program. Proposed corrective action to resolve D/G problems included developing a program for maintenance history and trending, implementing housekeeping procedures, and various modification/repair work. Regarding vibration problem at BFN, the plant has drafted a TI for inspection during outages. A formalized program for maintenance and repair of paint coatings will be developed to resolve deficiencies in that area. The problems with S/G manway installation have been resolved by the purchase of a stud/nut tensioning closure system, installing an improved grating structure, and the use of a Genesis robot for S/G work (SQN). SOI problems with correct valve status have been resolved by revising the SOI. Auxiliary Building airlock deficiencies will be resolved through modifications to these doors. Component identification deficiencies are being corrected at each plant as well as at the corporate level through new programs and procedures.

Corporate Level

Corporate level CATD 30100-NPS-01 was issued on the problem of D/G reliability and the corrective action plan indicates that the Office of Nuclear Power is in the process of developing an Upgraded Preventive Maintenance Program. This program will contain corporate guidelines/requirements for maintenance, testing, and trending of nuclear power plant components and systems (including diesel generators).

1.0 CHARACTERIZATION OF ISSUES

1.1 Introduction

The Mechanical Equipment Reliability/Design Subcategory is comprised of 70 employee concerns that raise 44 issues characterized by hardware deficiencies.

1.2 Description of Issues

The concerns have been combined into 16 higher order groups, called elements, to aid in identifying and evaluating related issues. In this section of the report, each element is presented with a brief overview of its issues.

1.2.1 Element 301.01 - Kerotest Valve Leakage and Corrosion

Issue 301.01-1 - Kerotest Valve Corrosion, Leakage, and Seating Problems

EX-85-085-003
IN-85-594-001
IN-86-285-001
QCP 10.35-8-21
QCP 10.35-8-9
XX-85-090-001
XX-85-090-002

Concerns voiced at BLN, SQN and WBN alleged that Kerotest valves at Watts Bar Nuclear Plant (WBN) had corrosion, leakage, and seating problems due to inadequate drying of the valves after the vendor's hydrostatic tests. One CI believed that 30 of the valves had been inspected at WBN with a 90 percent rejection rate. The CIs requested that Kerotest valves at Bellefonte Nuclear Plant (BLN) and Sequoyah Nuclear Plant (SQN) be checked for similar problems.

1.2.2 Element 301.02 - Diesel Generator (D/G) Reliability Problems

Issue 301.02-1 - D/G Reliability

WI-85-100-003
XX-85-122-003
XX-85-122-009
XX-85-122-010
IN-85-323-001

CIs (at all sites) believed that diesel generators at all TVA nuclear plants had reliability problems requiring a) establishment of a reliability program, b) reduction in the number of starts done for testing, c) upgrading of preventive maintenance, and d) more interaction with the Institute of Nuclear Power Operations (INPO), vendors, and other utilities.

Issue 301.02-2 - Diesel Fuel Spill

IN-85-097-012

One CI at WBN called for corrective action to prevent recurrence of an incident at WBN in which Diesel Fuel Storage Tanks had been overfilled.

Issue 301.02-3 - False Alarms on D/G Bearing and Stator Temperature Recorder

WBN-85-01

A CI at WBN thought there had been false alarms on the Diesel Generator Bearing and Stator Temperature Recorder.

Issue 301.02-4 - D/G AC Lubricating Oil Pump Trips

MAS-85-001

A CI at SQN alleged that the Diesel Generator AC lubricating oil pump was tripping possibly because of gasket material in the pump.

1.2.3 Element 301.03 - Vibration Problems Noted

Issue 301.03-1 - Residual Heat Removal (RHR) Mini-Flow Pipe Vibration

IN-85-289-002
IN-85-325-003

Two CIs at WBN expressed concerns involving the vibration of the RHR minimum flow line during hot functional testing at WBN.

Issue 301.03-2 - Fire Protection Pipe Vibration

IN-85-922-001

The CI reported a fire protection pipe banging against the wall during testing at WBN.

Issue 301.03-3 - Main Steam Pipe Vibration

IN-86-027-001

The CI reported drastic movement of the main steam lines at WBN.

Issue 301.03-4 - Component Cooling Water (CCW) Pipe Vibration

IN-86-296-001

The CI at WBN reported movement of a CCW Line on elevation 713 when the air blower is on.

Issue 301.03-5 - Repair of Defects Caused By Pipe Vibration

XX-85-102-003

The CI at BFN questioned the adequacy of repairs to the damage caused by vibration of the low pressure main steam line.

1.2.4 Element 301.04 - Retubing Problems (Heat Exchangers)

Issue 301.04-1 - Design of Component Cooling System (CCS) Heat Exchangers

IN-86-068-001

One CI at WBN questioned the adequacy of the initial design of WBN unit 1 Component Cooling Heat Exchangers A, B, and C located on the 737' elevation of the Auxiliary Building.

Issue 301.04-2 - CCS Heat Exchanger Tube Problems

IN-86-068-001
IN-86-210-001
IN-86-189-001

Two CIs at WBN believed that the retubing and tube rolling of the heat exchanger tubes was being done improperly. A third CI at WBN (IN-86-189-001) stated that unit 2 Heat Exchanger B had bent tubes caused by a foreman's improper packing instructions.

1.2.5 Element 301.05 - Questionable Design/Construction Practices

Issue 301.05-1 - Reluctance to Have a QC Check Performed

EX-85-008-003

The CI at WBN reported the reluctance of a craft supervisor to have Quality Control personnel check the quality of a valve that had been dropped.

Issue 301.05-2 - Drainage of System 77 (Waste Disposal System) Hot Panel

IN-85-021-002

The CI at WBN questioned the drainage of the System 77 hot panel to floor drains rather than to a closed tank.

Issue 301.05-3 - Cooling Coils in Systems 63 (Safety Injection System) and 68 (Reactor Coolant System)

IN-85-089-005

The CI at WBN was concerned about the lack of serviceability of cooling coils in systems 63 and 68.

Issue 301.05-4 - Unit 2 Floor Drains

IN-85-238-004

The CI at WBN questioned the temporary spot-welding shut of unit 2 floor drains.

Issue 301.05-5 - Location of Swinging Gate

IN-85-411-001

The CI at WBN was concerned about the close proximity of a gate to a valve which leads to the valve being struck when the gate swings open.

Issue 301.05-6 - Incomplete 1/4" Stainless Steel Line

IN-85-554-001

The CI at WBN reported a 1/4" stainless steel line ran out fifty feet from a control panel and was not connected to anything.

Issue 301.05-7 - Engineering Evaluation of The Essential Raw Cooling Water (ERCW) Pump Motor

IN-85-839-001

The CI at WBN stated that TVA had not performed a proper engineering evaluation of the ERCW pump motor anti-reversing problem.

Issue 301.05-8 - Leakage of Boron Level Indicator Isolation Valves for Cold Leg Accumulators

IN-85-889-N08

The CI at WBN reported leakage of isolation valves for the boron level indicators associated with the cold leg accumulators.

Issue 301.05-9 - Leakage of the Blowdown Line

IN-85-930-001

The CI at WBN reported leakage of the blowdown line where concrete and metal pipes join.

Issue 301.05-10 - Plastic Pipe Leading to the Demineralizer

WBN-0023

The CI at WBN questioned the use of plastic pipe leading to the demineralizer that has required numerous repairs.

Issue 301.05-11 - Use of Similar Fittings

WBN-0291

The CI at WBN was concerned that the use of similar fittings for air, water, and contaminated drain connections could cause personnel contamination.

Issue 301.05-12 - Inadequate Heating

WBN-0287

The CI at WBN stated that there was inadequate heating in the east document control unit area of the Temporary Service Office Building.

Issue 301.05-13 - Temporary Rubber Hose

I-86-233-SQN

The CI at SQN reported that a temporary rubber hose was being used on the Condensate Demineralizer Waste Evaporator while extensive welding was being performed in the vicinity.

Issue 301.05-14 - Limit Switches

MAS-86-002

The CI at SQN alleged that limit switches on a specific butterfly valve had been improperly mounted.

Issue 301.05-15 - Condensate Storage Tank (CST) Check Valves

RCM-86-001

The CI at SQN reported possible failure of check valves on the "B" CST.

1.2.6 Element 301.06 - Hardware Selection Questionable

Issue 301.06-1 - Unsuitable Door Latches and Knobs

IN-86-247-002

One CI at WBN thought that some door latches and knobs at WBN occasionally malfunctioned due to their not being suited for the size and weight of the doors.

Issue 301.06-2 - Rusty Bearings In Valves

PH-85-003-010

Another CI at WBN believed that there were rusty bearings in 14" valves on the WBN Auxiliary Building elevation 713.

Issue 301.06-3 - Improper Hardware Identification

XX-85-071-004

A third CI at SQN expressed a general concern over hardware at SQN which was not able to be evaluated due to lack of detailed information in the concern.

1.2.7 Element 301.07 - General Paint Concern, Reactor Building

Issue 301.07-1 - Paint Coatings

XX-85-087-001

A CI at SQN questioned the integrity and maintenance of containment paint coatings at SQN. This issue is considered generically applicable to WBN and BFN.

1.2.8 Element 301.08 - Steam Generator Manway Installation (ALARA)

Issue 301.08-1 - Steam Generators (S/Gs) Access

WBN-0284

A CI at WBN stated that entering and exiting the steam generators was difficult.

IN-85-872-001

Another CI at WBN requested that the floor grating near the manways be extended to provide increased work space.

IN-85-869-001
XX-85-052-001

CIs at SQN and WBN reported that manway doors took excessive time to close due to their poor design.

1.2.9 Element 301.09 - Socket Wrench Dropped into Unit 1 Turbine

Issue 301.09-1 - Socket Wrench Dropped into Unit 1 Turbine

IN-85-294-001

A CI reported that a socket wrench was dropped into the WBN Unit 1 Turbine.

1.2.10 Element 301.10 - Spent Fuel Racks Problem

Issue 301.10-1 - Shoddy Workmanship

IN-85-323-003

A CI at WBN believed that specific problems existed with the construction of the WBN spent fuel racks, including lack of verticality, presence of protruding edges,and improperly leveled edges.

1.2.11 Element 301.11 - Valve Closure Problem

Issue 301.11-1 - Valves Do Not Close Completely

IN-85-400-001

A CI at WBN stated that certain flow control valves and automatic open-close valves in WBN units 1 and 2 do not completely close to prevent flow of water. Affected systems included Residual Heat Removal (RHR), Safety Injection System (SIS), Chemical Volume Control System (CVCS), and Reactor Coolant System (RCS).

1.2.12 Element 301.12 - Improper Operation of System 31

Issue 301.12-1 - Flow Control Indicators

IN-85-772-001
IN-85-772-009
IN-86-064-001

One CI at WBN thought that the WBN Heating, Ventilation, and Air Conditioning (HVAC) general ventilation chiller packages A and B had not been operating properly. Other CIs at WBN expressed concern over various air handling units missing air flow indicators or having inoperable air flow switches.

1.2.13 Element 301.13 - Questionable Activities That Produced Operational Problems

Issue 301.13-1 - Steam Generator (S/G) Cleanliness Violation

IN-85-600-005

One CI at WBN was concerned that steam generator cleanliness requirements had been violated when sandblasting operations had been conducted near an open steam generator manhole.

Issue 301.13-2 - Plugged Drains

IN-86-246-007
WI-85-054-003

Two CIs at WBN alleged plugged drains.

Issue 301.13-3 - Valve/Pipe/Seal/Motor Leaks

IN-86-024-001	IN-86-246-009
IN-86-246-006	IN-86-246-010
IN-86-246-008	IN-86-246-011

Valve leakage problems were identified by CI's at WBN in the Turbine Building and Reactor Building as well as leaks from pipes, from a seal drain, and from a pump motor in the Reactor Building unit 1 raceway.

1.2.14 Element 301.14 - Malfunction of Doors

Issue 301.14-1 - Inadequacy of Doors A56 And A57

IN-85-991-001
IN-86-137-005
IN-86-246-014

CIs at WBN expressed concern over the Auxiliary Building Secondary Containment Enclosure (ABSCE) air lock doors A56 and A57 at WBN either closing too hard and fast or being inoperable much of the time.

1.2.15 Element 301.15 - Improper Hardware Identification

Issue 301.15-1 - Improper Hardware Identification in The Field.

XX-85-102-005

A CI at BFN thought that hardware in the field at BFN is not properly identified. This concern is considered generic to other plants.

1.2.16 Element 301.16 - Health and Safety Concerns

Issue 301.16-1 - Freight Elevator

IN-85-605-002

One CI at WBN stated that the passenger elevator in the WBN Auxiliary Building is used to haul freight.

Issue 301.16-2 - Sanitation Lines

IN-85-924-001

A CI at WBN believed that a health hazard was developing due to backing up of sanitation lines in a women's restroom.

Issue 301.16-3 - Anti-Skid Devices

WI-85-054-005

A CI at WBN thought that anti-skid devices in the waste package area of the railroad bay had been placed on the wrong side of the door.

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 was initiated or determined to have already been initiated.

2.2 Specific Methodology

During the element evaluations, the evaluators reviewed applicable sections from the following baseline requirements documents: Title 10 Code of Federal Regulations Part 20 (10 CFR 20), 10 CFR 21, 10 CFR 50, Appendix J, NRC Regulatory Guides, TVA Nuclear Quality Assurance Manual (NQAM), Final Safety Analysis Reports (FSAR) for WBN and SQN, Technical Specifications for WBN and SQN, Standard Practices for WBN and BFN, and the BFN Configuration Management Program Manual. To ensure consistency and implementation of the requirements found in these documents, the evaluators reviewed applicable Administrative Instructions (AI), Maintenance Instructions (MI), Preventive Maintenance Instructions (PM), Surveillance Instructions (SI), Operations Instructions (OI), System Operating Instructions (SOI), Radiological Control Instructions (RCI), Test Instructions (TI), Quality Control Procedures (QCP), Engineering Change Notice (ECNs), Maintenance Requests (MR), Design Change Requests (DCR), preoperational test data, operating logs, and TVA drawings. Evaluators reviewed files which had been expurgated by NRC, as well as reports of concerns previously evaluated by the Nuclear Safety Review Staff (NSRS), Quality Technology Corporation (QTC), and SQN Generic Concerns Task Force (GCTF). In addition to these reports, evaluators reviewed applicable Nonconforming Condition Reports (NCR), Licensee Event Reports (LER), Significant Condition Reports (SCR), and the Potential Reportable Occurrences Log.

The evaluators conducted informal interviews with cognizant personnel when required either to verify document-based findings or to provide nondocument-based evaluation input. Interviews were conducted at the corporate level with personnel in the Division of Nuclear Engineering (DNE) and the Division of Purchasing. At WBN, interviews were conducted with personnel in Operations, Mechanical Maintenance, Electrical Maintenance, Preoperational Testing, Power Stores, Health Physics, Industrial Safety, and Design Services. At SQN, interviews were conducted with personnel in Quality Assurance, Site Services, Electrical Maintenance, Mechanical Test Group, and Applications Engineering Group. At BFN, various engineers, inspectors, and Maintenance personnel were interviewed. Additionally, walkdown and inspections of the emergency diesel generators and other plant equipment were conducted as appropriate.

From their element evaluation findings, the evaluators identified specific deficiencies and analyzed them from perceived root causes at the element level. A final determination was made on whether or not each specific deficiency was safety-related. The evaluators initiated Corrective Action Tracking Documents (CATDs) for the

specific deficiencies, determined root causes, and corrective action plans. This was documented in element reports that were written in accordance with the Operations Category Evaluation Plan.

3.0 FINDINGS

Note: Generic applicability statements are included only for concerns which are classified as being potentially safety related or safety significant.

3.1 Element 301.01 - Kerotest Valve Leakage and Corrosion

Issue 301.01-1 - Kerotest Valve Corrosion, Leakage, and Seating Problems

WBN Evaluation

Concerns regarding Kerotest valve leakage and corrosion were found to have been validated for WBN through previous evaluations of NCRs 2272R and 2501R conducted by line management. These previous evaluations had found three underlying causes of the Kerotest valve problems. First, the WBN procurement specification for Kerotest valves had not required Kerotest to remove valve packing and to dry bonnets after hydrostatic testing of the valves, and Kerotest had not routinely done this. As a result, many Kerotest valves at WBN had corroded internally. Second, contrary to the requirements of WBN QCP 1.06, valves placed in the storeroom had been removed from the sealed bags in which they had been shipped. This practice had exposed stored Kerotest valves to environmental humidity. Finally, field personnel had been overtorquing the valves, resulting in damage to the seat and bearings. See resolution to NCR 2501R.

These problems with Kerotest valves at WBN had been identified and documented in Division of Nuclear Construction NCR 2501R, dated October 22, 1980. The problems had not been considered safety-related issues even though some of the subject Kerotest valves had been installed in safety-related systems such as CVCS, SIS, RHR, UHI, RCS, and CCS. This determination had been based on the fact that operation of the valves was not required for safe shutdown of the plant. In response to the NCR's recommended disposition, WBN personnel had instituted a maintenance program to inspect and repair as necessary all Kerotest valves installed and stored at WBN. Also, Kerotest revised their procedures to resolve these problems.

Employee concern IN-85-594-001 was unique in that it alleged that Kerotest valve bearings were missing/busted/frozen and there was a rejection rate of 90%. While the valve bearings were found to have problems with being broken/frozen (frozen/broken bearings were found on 52% of the 134 3/4" and 1" valves in NCR 2501R), no cases of missing bearings were noted.

The issue is factually accurate but corrective action was taken prior to the evaluation.

SQN Evaluation

Concerns regarding Kerotest valve leakage and corrosion were found to have been substantiated for SQN through a previous evaluation conducted by NSRS Report I-85-861-SQN. NSRS had found evidence that some Kerotest Y-type globe valves at SQN had corroded if the packing had not been removed and the valve body had not been dried after hydrotesting. Most of the valves at SQN had been purchased by Westinghouse under a specification requiring packing replacement after hydrostatic testing. However, some valves had been purchased by NAVCO under a specification not requiring packing replacement or valve body drying after hydrostatic testing. A spare Kerotest Y-type 1-inch globe valve had been taken from the ECN warehouse at SQN for inspection by NSRS. The bearing in the valve stem had corroded and rust had been visible on parts inside the bonnet. Based on the search of Maintenance Requests (MR) filed at SQN since the plant went into operation, only one Kerotest Y-type Globe Valve has failed due to leakage or corrosion. Line Management's response to the NSRS report adequately justified not inspecting this installed Kerotest valves, not searching for Westinghouse test documentation and not performing a safety analysis for the valves under one percent fuel failure conditions. Based on the justification provided and the NSRS concurrence, this issue is not valid for SQN. R3

BFN Evaluation

Concerns regarding Kerotest valve leakage and corrosion were evaluated for generic applicability to BFN. The concerns were substantiated, and no safety-related issues were identified. However, interviews with cognizant BFN maintenance personnel revealed that no Kerotest valves have failed at BFN due to leakage or corrosion. Based on Kerotest evaluation NE-113T, letters from Kerotest to TVA 8/29/80, 9/9/80, 9/15/80 and historial data, no valve failures due to water saturated stem packing are anticipated, therefore no effect on safety can result. R3

Based on BFN's Line Managements acceptable response to CATD 30101-BFN-01, this issue has been previously addressed. Thus, the issue is factual but corrective action had been initiated before this evaluation.

BLN Evaluation

Concerns regarding Kerotest valve leakage and corrosion were evaluated for generic applicability to BLN. The concerns were substantiated. In a previous inspection (RIMS BLP 811207 004) conducted by line management, various degrees of corrosion had been found in each of 35 Kerotest valves inspected.

Review of the disposition of NCR 2281 and backup information from Kerotest (MEB-800904-520) revealed that the corrosion had occurred due to water-saturated valve packing not being removed after vendor hydrostatic testing. The purchasing requisition under which the valves had been bought had not required replacement of the packing after hydrostatic testing. NCR 2281 had been issued after the inspection. Disposition of the NCR had required that "Y" type Kerotest valves shipped prior to October 1980, be disassembled, that valve internals be dried and packing replaced, and that the valves be refurbished as required. The current evaluation concurred with the corrective action as stated in the NCR. Thus, the issue is factually accurate but adequate corrective action was taken before the evaluation.

Conclusion

At WBN, the issue is factual and identifies a problem for which corrective action was initiated before the evaluation.

At SQN, the issue was factually accurate but described a problem that does not require corrective action.

At BFN, the issue is factual and identifies a problem for which corrective action was initiated before the evaluation.

At BLN, the issue is factually accurate but corrective action was taken before the investigation.

3.2 Element 301.02 - Diesel Generator Reliability Problems

Issue 301.02-1 - D/G Reliability

Generic

In the evaluation of concerns regarding overtesting of diesel generators, reports by industry groups such as Electric Power Research Institute (EPRI-NP-4264), Brookhaven National Laboratory (NUREG-CR-4557), and others generally agree that too much testing can be detrimental to diesel generator reliability. However, the point at which testing becomes excessive has not yet been defined in the nuclear industry. The current testing frequency used by TVA Nuclear Plants to prove reliability satisfies NRC Regulatory Guide 1.108. However, this surveillance test frequency was found to exceed manufacturer's recommendations. Furthermore, the specific test frequency is controversial. The NRC stresses testing to prove reliability, whereas the manufacturer prefers the stressing of preventive maintenance to maintain reliability. Therefore, the issues regarding overtesting of diesel generators were substantiated based on the fact that the NRC mandates testing more frequently than recommended by manufacturers.

Corporate level involvement in the problem of DG reliability

The issue regarding a need for greater interaction with INPO, other utilities, and vendors to resolve diesel generator reliability problems was not substantiated. TVA has reviewed and has taken appropriate action in response to information from NRC, INPO, and other utilities. TVA has also corresponded willingly with these organizations in sharing information on diesel generator reliability.

WBN Evaluation

Concerns regarding the reliability of diesel generators at WBN were substantiated and safety-related issues were identified. A review of valid start data for the last 100 valid starts on the diesel generators showed one of WBN's four diesel generators to be well below the industry-wide reliability goal of .99 established by the NRC in Regulatory Guide 1.108. Also, it was determined that a formal diesel generator trending program was not in place and that WBN line management had rejected a recommendation by the diesel generator system manufacturer to implement such a program.

This lack of a program to trend diesel generator performance and to conduct root cause analysis on recurring problems was determined to be contrary to NRC's guidance in NUREG/CR-0660, "Enhancement of

On-Site Emergency Diesel Generator Reliability," and in Generic Letter 84-15, "Proposed Staff Action to Improve and Maintain Diesel Generator Reliability."

A memorandum (RIMS T09 860718 930) details the findings of a Diesel Generator Task Force formed by line management to evaluate problems with various diesel generator parts and with control of dust. Some of these problems had been resolved prior to the current evaluation. However, problem areas that have yet to be resolved were found to include (a) inadequate air filtering system for the D/G room, (b) inadequate drainage of condensate from moisture separators and air dryers, (c) recommendations of NUREG/CR-0060 have not been implemented as suggested by the NRC and, (d) the D/G room floors are not painted which allows dust/dirt accumulation.

SQN Evaluation

Concerns regarding the reliability of diesel generators at SQN were substantiated and safety-related issues were identified. First, a review of valid start data from March 5, 1980 to May 15, 1984 showed three of SQN's four diesel generators to be below the industry-wide reliability goal of .99. During the last 100 starts for each machine, however, three of the four diesel generators had fallen only slightly short of the .99 goal. Second, no formal diesel generator trending analysis program was found to exist, contrary to the recommendations of NUREG/CR-0660. Third, a walkdown by the evaluator revealed that there was a lack of adequate continuous maintenance and housekeeping on the diesel generators. The diesel generators were found to be dirty, dusty, and to have numerous fuel oil and lube oil leaks.

During the course of the evaluation the evaluator verified by observation and review of training records that SQN line management had already taken action to comply with NRC recommendations for increasing diesel generator reliability as published in NUREG-0011, Supplement 2. These recommendations related to installation of air dryers, installation of heavy-duty turbo chargers, and to formal training of maintenance personnel.

Also, the evaluator identified the need for improved maintenance and general housekeeping. The issue is factually accurate and presents a problem for which corrective action is being taken.

BFN Evaluation

Concerns regarding the reliability of diesel generators at BFN were substantiated and safety-related issues were identified. Although the published valid start history of the diesel generators was found to be impressive, no formal reliability program was found to exist. Also a review of SI 4.9.A.1.a revealed that valid start testing has not been conducted in accordance with NRC Regulatory Guide 1.108. Valid start testing has been documented through the monthly conduct of a Surveillance Instruction, but valid start logs have not been maintained. Because the BFN diesel generators had been installed and placed in operation before the publication of NUREG/CR-0660, some of the recommendations of the NUREG for improved reliability were not able to be incorporated. Most important, no air dryers were installed in the starting air systems, contrary to the first recommendation of NUREG/CR-0660. This was found to have caused repeated problems with corrosion and rust in the air starting system. The BFN plant manager requested BFN modifications, via a memorandum (R36 860225 994), to replace the air start piping with stainless steel piping and to install air dryers in the air start systems. Thus, the issue is factual and presents a problem for which corrective action is being taken.

Also, the need for upgraded maintenance of diesel generators has been addressed by line management. It was found that problems relating to diesel generator maintenance have been the subjects of NRC notices of violations. However, BFN line management had responded to these violations with a revision to Mechanical Maintenance Instruction MMI-6, a completed engine rebuilding program, repair of battery racks, and addition of ERCW throtting valves on the cooling water heat exchangers (ECN P0709). The evaluator performed an inspection of the Diesel Generators and found the engines to be in excellent condition and the diesel generator rooms to be immaculate. An official maintenance report (RIMS R53 860528 816) issued by BFN personnel before the current evaluation found the engine internals in excellent condition.

BLN Evaluation

Concerns regarding the reliability of diesel generators at BLN were substantiated but no safety-related issues were identified. No valid start testing has been conducted at BLN, and therefore no reliability data was available for the current evaluation. However, problems were found in several areas that impacted diesel generator reliability. First, no provisions have been made for a formal diesel generator reliability program. This is contrary to the recommendations of NUREG/CR-0660. Second, no provisions were found for reducing fast cold starts as requested by NRC Generic Letter 84-15. Finally, a walkdown inspection of BLN's diesel generator

room showed problems with dust and dirt, inadequate control cabinet ventilation, and use of electrical relays known to be subject to failure from dust contamination.

Similar problems had been identified at BFN, SQN and WBN and corrective action was implemented. Since BLN has an extended startup date, the results of the corrective action plans at the various sites will be utilized as an ongoing program to formulate a comprehensive D/G reliability program for BLN. This program will have the advantage of incorporating the successful aspects of the various corrective action plans to improve D/G reliability.

Also, corporate CATD 30100-NPS-01 will assist in developing a successful DG program at BLN.

Conclusion

This issue was validated for all TVA nuclear sites and corrective action was found necessary.

Issue 301.02-2 - Diesel Fuel Spill

WBN Evaluation

The concern regarding lack of corrective action for a diesel fuel spill incident at WBN was not substantiated. Although the Diesel Generator Building Number 5 had been partly flooded with diesel fuel, discussion with the cognizant operator revealed that cleanup had been prompt and thorough and that the tank level sensor had been modified under MR-A-491895 and TACF 0-85-113-18 to prevent recurrence of the incident.

Conclusion

The issue could not be verified as factually accurate.

Generic Applicability

The concern was evaluated at the site of the concern (WBN) and found to be not valid. No other site evaluations are determined necessary.

Issue 301.02-3 - False Alarms On D/G Bearing and Stator Temperature Recorder

WBN Evaluation

The concern regarding false alarms on the Diesel Generator Bearing and Stator Temperature Recorder was substantiated. This problem had first been documented during preoperational test TVA 73C and had been perceived by the Diesel Generator Task Force as being serious enough to require replacement. At the time of the current evaluation, replacements for the temperature recorders were being considered the resolve NCR-W-332P.

Conclusion

The issue is factually accurate and presents a problem for which corrective action is being taken.

Generic Applicability

The concern was evaluated at the site of the concern (WBN) and determined to be a specific wiring error limited to the specific installation. The error was identified before the ECTG evaluation through normal communication channels. No other site evaluations are necessary.

Issue 301.02-4 - D/G AC Lubricating Oil Pump Trips

SQN Evaluation

The concern regarding tripping of the SQN diesel generator lube oil pump due to gasket material in the pump, was not substantiated. A search of all work requests from January 1982 to April 1986 failed to reveal any such diesel generator lube oil pump failure.

Conclusion

The issue was found to be not valid.

Generic Applicability

The concern was evaluated at the site of concern (SQN) and found to be not valid. No other site evaluations were determined to be necessary.

3.3 Element 301.03 - Vibration Problems Noted

Issue 301.03-1 - System 74 Mini-Flow Pipe Vibration

WBN Evaluation

There are five seperate groups in TVA that evaluate equipment and piping vibration. Two of these groups are based at the various sites, two in Knoxville and one in Chattanooga.

NSRS investigated the two concerns regarding vibration of Residual Heat Removal (RHR) minimum flow line. These reports, I-85-510-WBN and I-85-230-WBN, conclude that the piping vibrated at a level that could cause support damage. Appropriate action had been taken and the event was logged in the SE's daily journal. A visual inspection performed by the NSRS investigator of the supports on this line identified a pipe clamp that rotated approximately 15 degrees, however, the support integrity had not been degraded. The remaining supports did not show signs of support damage. The concerns of piping failure due to testing were not substantiated. The NSRS report contained two recommendations:

a. Event should be documented and handled according to WB-11.8 "Reporting Adverse Conditions to Plant Superintendent."

b. Standoff pipe clamp should be rotated to be as-designed.

The event was evaluated per WB-11.8, but since corrective action had already been taken, no report was made. The pipe clamp was inspected by maintenance under MR 418182. Based on these facts, no further action is required.

Conclusion

The issue could not be validated.

Generic Applicability

Concerns IN-85-289-002 and IN-85-325-003 were evaluated at WBN and determined to be plant specific events occurring during preoperational and hot functional testing. The issue was resolved prior to the ECTG evaluation through normal communication channels. No other site evaluations are necessary.

Issue 301.03-2 - Fire Protection Pipe Vibration

WBN Evaluation

The concern involving vibration of fire protection piping was valid, but appropriate action had already been taken. This concern is also addressed in QTC Report IN-85-922-001. It was determined that the cause of this vibration problem was pressure pulsations induced by cyclic relief valve operation. There have been problems reported with the fire protection pumps and system relief valves which are probably related to this concern. NCR W-243-P was written regarding two failed fire protection pump shafts. In addition, Significant Condition Report (SCR WBN MEB 8616) was initiated with the following description of the condition:

> "The relief valves associated with High Pressure Fire Pump (HPFP) 1A-A did not operate properly. The valve chattered and cycled open and closed violently, such that it induced severe pressure surges and vibration of the HPFP pump and associated piping in the general area. This vibration could potentially damage the pump. Based on discussions with the valve vendor about the intended service for this valve and original design basis, it was determined that all the existing HPFP relief valves are oversized."

There had also been a history of problems in adjusting the relief valve set points and operating more than one pump. Based on background information and discussions with cognizant personnel, it is likely that the concern is related to equipment problems at the intake pumping station. Corrective action was taken by replacing the relief valves for the proper size under ECN 6184 and by resolution of NCR W243-P.

Conclusion

The issue is factually accurate but corrective action was taken before the evaluation.

Generic Application

This concern was evaluated at the site of concern (WBN) and determined to be a specific plant issue occurring during preoperational and hot functional testing. The issue was resolved before the ECTG evaluation via normal communication channels. No other site evaluations are necessary.

Issue 301.03-3 - Main Steam Pipe Vibration

WBN Evaluation

The concern that pipe movement on elevation 708 occurred during a thermal expansion test was substantiated in that movement did occur, however, it was not a vibration problem. As the lines cooled, steam condensed and the lines filled with water causing the spring cans to bottom out. The system is designed to handle these load changes caused by condensation and evaporation. An interview with a Preoperational Test engineer indicated that the two foot drop reported in the concern was an overestimate. The spring cans that support the piping only allow for 1-foot of travel before becoming rigid. The pre-op engineer inspected the spring cans following the unit 1 mini hot functional tests and found them undamaged. Based on this the most the pipe could have dropped is 1-foot. This issue was also addressed by ECTGs Engineering Group who identified a vibration problem with the recirculation line and instigated and implemented corrective action. Reference Report EN 26000 for further information.

Conclusion

The issue is factually accurate but what it describes is not a problem.

Generic Applicability

The concern was evaluated at the site of the concern (WBN) and determined to be partially factual. However, no problems due to the pipe movement were identified. No other site evaluations were determined to be necessary.

Issue 301.03-4 - Condenser Circulating Water (CCW) Pipe Vibration

WBN Evaluation

The concern regarding movement of CCW lines on elevation 713 was not substantiated. Review of the design drawings and walkdown of the area by the ECTG evaluator revealed no CCW lines on elevation 713. It was
thought that the concern could have involved Component Cooling System (CCS) lines rather than CCW lines. The walkdown of revealed no evidence of CCS lines that might move when an air blower is on.

Conclusion

The issue was not validated.

Generic Applicability

The concern was evaluated at the site of the concern (WBN) and determined to be not valid. No other site evaluations were determined to be necessary.

Issue 301.03-5 - Repair Of Defect's Caused By Pipe Vibration

BFN Evaluation

The concern regarding whether or not repairs had been effected to correct vibration problems in the low pressure main steam line was determined through walkdowns by DNE and site personnel to be actually addressing vibration problems with the Reactor Feed Water (RFW) pump low load by-pass line. The issue was determined to be factually accurate but corrective action was taken before the investigation. An inspection of the line indicated that large pipe and valve movement had occurred adjacent to a concrete wall. There was evidence of impact of a valve handwheel with the concrete wall. However, it was determined that Maintenance Requests MR-A628229 through A228261 and MR-A633174 through A633189, excepting A633175 had already been initiated to repair damage in the area and Design Change Request DCR-B3291 to improve the design. The only repairs outstanding at the time of this evaluation involved replacement of support angles which had buckled. Post modifications testing was to be performed after support changes were made.

Conclusion

The issue was factually accurate but corrective action was taken before the investigation.

Generic Applicability

The issue was evaluated at the site of the concern (BFN) and determined to be a specific plant issue limited to GE BWR type plants. No other site evaluations are necessary.

3.4 Element 301.04 - Retubing Problems (Heat Exchangers)

Issue 301.04-1 - Design of CCS Heat Exchangers

WBN Evaluation

The employee concern regarding poor initial design of the CCS heat exchangers was not validated. This concern is addressed in QTC report IN-86-068-001. A cognizant individual in Division of Nuclear

Engineering (DNE) stated that in heat exchangers, baffle plates are never attached rigidly to the shell. He stated that the CCS heat exchanger design is good, and expert respresentatives from a tube manufacturer and a tube pulling contractor agree.

Conclusion

The issue was not validated.

Generic Applicability

The issue was evaluated at the site of the concern (WBN) and found to be not valid. No other site evaluations were determined to be necessary.

Issue 301.04-2 - CCS Heat Exchanger Tube Problems

WBN Evaluation

Concerns were expressed regarding improper retubing, installation of bent tubes, and incorrect rolling of tubes in the CCS heat exchangers. Discussions with knowledgeable industry representatives and review of the vendor procedures, Workplan 2403, and the tools used indicate that the retubing and tube rolling was done in accordance with applicable procedures and good industry practice. The concerns were not validated. This issue is also addressed in QTC reports IN-86-068-002 and IN-86-210-001.

Conclusion

The issue was not validated.

Generic Applicability

The concern was evaluated at the site of the concern (WBN) and found to be not valid. No other site evaluations were determined to be necessary.

3.5 Element 301.05 - Questionable Design/Construction Practices

Issue 301.05-1 - Reluctance To Have A QC Check Performed

WBN Evaluation

The concern involving the reluctance of a craft supervisor to have Quality Control (QC) personnel check the quality of a valve that had been dropped is valid. This concern is addressed in QTC Report

EX-85-008-003. The supervisor was allegedly urged repeatedly to get a QC inspection performed to assess any damage done to the valve, and on doing so extensive internal machining was required. Since the quality aspect of this concern was resolved at the time of the incident, no corrective action is needed.

Conclusion

The issue is factually accurate but corrective action was taken before the evaluation.

Issue 301.05-2 - Drainage Of The System 77 (Waste Disposal System) HotPanel

WBN Evaluation

The concern regarding the drainage of System 77 Hot Panels into floor drains, rather than a closed tank, was a statement of fact that did not require corrective action. This issue was previously investigated and reported on in Nuclear Safety Update. This report stated that all drains in the Auxiliary and Reactor Buildings are in a contaminated drain system. The issue of hot panel drains being routed to the floor drains is according to design. This issue is also addressed in QTC Report IN-85-021-002.

Conclusion

The issue is factually accurate but what is described does not require corrective action.

Generic Applicability

This concern was evaluated at the site of concern (WBN) and found to be a statement of fact. However, no adverse effects were identified due to this situation. No other site evaluations were determined to be necessary.

Issue 301.05-3 - Cooling Coils And Systems 63 (Safety Injection System) And (Reactor Coolant System) 68

WBN Evaluation

The concern questioning the serviceability of cooling coils associated with Systems 63 and 68 is not valid. An interview with a refrigeration craftsman and field inspection by the evaluator of the referenced coils revealed that cleaning these coils would present no particular difficulty.

Conclusion

The issue cannot be verified.

Generic Applicability

The issue was evaluated at the site of the concern (WBN) and found to be not valid. No other site evaluations were determined to be necessary.

Issue 301.05-4 - Unit 2 Floor Drains

WBN Evaluation

Another CI questioned the reasons behind the temporary spot-welding shut of the unit 2 floor drains. The concern was that the necessity of using wet vacuums to remove liquid spills could expose workers to harmful chemicals. This concern is factually accurate but no corrective action is required since the present configuration meets the requirements of the NQAM Part V Section 2.3 and AI-1.6. These controls were put in place to prevent the overflow of the common Floor Drain Cover Tank (FDCT) during the time that unit 1 is operational and unit 2 is still under construction.

Conclusion

The issue is factually accurate but no corrective action is required.

Issue 301.05-5 - Location Of Swinging Gate

WBN Evaluation

The concern involving the proximity of a safety gate to a valve is valid. The location as stated in the concern was correct. However, the investigation revealed that a chain had been added to the gate to restrict its opening width and it no longer opens wide enough to strike the identified valve.

An inspection of the same area of unit 1 revealed no problem involving a valve but the protective housing of a level transmitter could be struck by the gate. Excessive or repeated opening of the gate could possibly damage this protective housing. This issue is also addressed in NSRS Report I-85-136-WBN. The gate has been reworked under MR A504562 to correct the problem.

Conclusion

The issue is factually accurate but corrective action was initiated before the evaluation.

Generic Applicability

The issue was evaluated at the site of the concern (WBN) and found that corrective action had been implemented before the ECTG evaluation which resolved the problem. The issue was determined to be a plant specific issue isolated to WBN. No other site evaluations were determined to be necessary.

Issue 301.05-6 - Incomplete 1/4" Stainless Steel Line

WBN Evaluation

The concern involving the incomplete line coming off of a control panel was valid but has already been corrected. According to the concern, the dead end line was taped over rather than plugged. A previous employee concerns evaluation reported (in the Nuclear Safety Update) that the line had been completed to the CI's satisfaction.

Conclusion

The issue is factual but corrective action was implemented before the evaluation.

Generic Applicability

The issue was evaluated at the site of the concern (WBN). Corrective action had been implemented before the ECTG evaluation which resolved the issue. The concern was determined to be a plant specific issue isolated to WBN. No other site evaluations were determined to be necessary.

Issue 301.05-7 - Engineering Evaluation Of The ERCW Pump Motor

WBN Evaluation

Another concern in this element identified a problem with the anti-reversing mechanism used on essential raw cooling water (ERCW) pump motors. NSRS investigation report IN-85-287-WBN stated that the mechanisms were installed on all eight ERCW pumps. ONP requested that DNE perform a design study to remove the anti-reversing mechanisms. ONP

put this design study on hold based on the cost/benefit aspects and the good performance of these clutch mechanisms. One clutch mechanism operated but was overstressed and severely damaged as reported on NCR W-240-P. This was corrected by replacing the key holding the clutch mechanism to the shaft with one designed to shear before damage occurs to the clutch mechanism.

Conclusion

The issue is factually accurate but corrective action was taken before the evaluation.

Generic Applicability

The WBN evaluation of the issue identified that the NSRS evaluation and the 10 CFR 50.55(e) report determined the issue to be an isolated case. No other site evaluations were determined to be necessary.

Issue 301.05-8 - Leakage Of Boron Level Indicator Isolation Valves For Cold Leg Accumulators

WBN Evaluation

The concern regarding leakage of isolation valves for the accumulator boron concentration indicators at WBN is not valid as no evidence exists to document the inability of these valves to function properly. A search for MRs written on these valves produced only one, unrelated to leakage. An engineer in Mechanical Maintenance revealed that these valves are not part of the ASME XI pressure boundary, so there is no surveillance to verify their leak-tightness. The Preoperational Test (TVA-28) that verified operability of these valves revealed one leakage problem which was repaired at the time of the test.

Conclusion

This issue was not validated.

Generic Applicability

The issue was evaluated at the site of the concern (WBN) and found to be not valid. No other site evaluations were determined to be necessary.

Issue 301.05-9 - Leakage Of The Blowdown Line

WBN Evaluation

The concern addressing leakage of cooling tower blowdown lines where they join the weir box was substantiated. An inspection of these lines revealed numerous inspection opening patches missing and considerable damage to the fiberglass liner in the leg between the connecting tee and the holding pond. After a discussion with DNE and Civil Engineering Unit (CEU) employees, it was decided to patch the line from the weir box to the tee.

The patch was detailed in a memo (RIMS MEB 841105 005) by DNE with input from CEU. Testing of this patch was conducted on site and the results were accepted by DNE. The leg between the tee and the holding pond was beyond repair, and therefore, replaced under CCN-C-47. Corrective action regarding this concern is now complete.

Conclusion

The issue is factually accurate but corrective action was taken before the evaluation.

Generic Applicability

The issue was evaluated at the site of the concern (WBN). Corrective action had been implemented before the ECTG evaluation which adequately resolved the issue. The issue was determined to be plant specific and isolated to WBN. No other site evaluations were determined to be necessary.

Issue 301.05-10 - Plastic Pipe Leading To The Demineralizer

WBN Evaluation

The concern involving a plastic line which runs to the new DI plant was valid, but has already been corrected. Discussion with a Maintenance foreman revealed that the pipe had been repaired repeatedly, as stated in the concern. Work is now complete on ECN 6419 which replaced this pipe, therefore, no corrective action is necessary.

Conclusion

The issue is factually accurate but corrective action was taken before the evaluation.

Issue 301.05-11 - Use Of Similar Fittings

WBN Evaluation

The concern involving the use of similar connections for air, water, and contaminated drains was valid and corrective action was initiated before the evaluation. Evaluation of this concern considered two incorrect hookups: (1) a breathing air manifold to a DI water line, and (2) using contaminated hoses for hookup of a breathing air manifold to service air. An NRC proposed solution for the first case, resulting from an audit of an occurrence of incorrect hookup, was to clearly label all service air lines near the connection. This is now a requirement of Radiation Control Instruction (RCI) 4, and random inspections by the evaluator of fittings in the plant revealed that the labelling is in place. RCI-4 also assigns HP responsibility for controlling, issuing, and inspecting adapters and hoses necessary for connection to service air. These responsibilities have not yet been incorporated in HP Section Instruction Letter HP TSIL-19.

Conclusion

The issue is factual and corrective action was initiated before the evaluation.

Generic Applicability

This concern was evaluated at the site of the concern (WBN) in both 301.05 and 311.07 with similar findings. Corrective action had been implemented prior to the ECTG evaluation in response to NRC audit findings.

The following excerpt from 311.07 WBN RO fact sheet addresses SQN and BFN appliability.

Interviews with Respiratory Protection Supervisors at SQN and BFN, revealed that the fittings on the hookup lines and manifold are not unique within either plant. Several precautions are taken prior to and during use to prevent wrong hookups. Pipefitters install the hose. The shift engineer places a hold order tag on the line in

use. HP verifies the manifold setup, installation and tags. The hoses are clearly marked "Breathing Air Only." No problems involving wrong hookups have occurred to date at BFN or SQN. This excerpt is considered adequate justification to preclude evaluation at BLN.

Issue 301.05-12 - Inadequate Heating

WBN Evaluation

The concern regarding the inadequate heating system in the Temporary Storage and Office Building (TSOB) at WBN was valid. A request for a dropped ceiling was previously declined for cost reasons. More recently, ductwork modifications made according to a DNE design failed to solve the problem. A draft DCR was prepared by WBN Modifications to redesign the entire system designating the building as office rather than a warehouse. This DCR was rejected by plant management and is waiting resubmittal. Therefore, corrective action is already being taken.

Conclusion

The issue is factually accurate and corrective action was taken before the evaluation.

Issue 301.05-13 - Temporary Rubber Hose

SQN Evaluation

The concern regarding use of a temporary rubber hose on the Condensate Demineralizer Waste Evaporator (CDWE) was found to be factual but did not present a problem requiring corrective action.

There is a temporary rubber hose installed between the CDWE system and the Floor Drain Collector Tank (FDCT). This hose carries offgrade distillate from CDWE to FDCT. This hose can also carry CDWE "bottoms." When bottoms are flushed during what is referred to as emergency operations, HP controls are in place to ensure there is no access of personnel in areas where the hose runs, per RCI-13. The hose is protected and well marked in areas where personnel traffic is expected to routinely occur. No procedures have been violated. ECN 6326 has been issued to replace the rubber hose with permanent piping, and no further corrective actions are deemed necessary.

WBN Evaluation

The WBN design as shown on TVA drawing 47W830-7 precludes the condition described at SQN thus the issue is not valid for WBN.

Conclusion

At SQN, the issue was determined to be factual but was not a condition that required corrective action.

At WBN, the issue was not valid.

Generic Applicability

At SQN, the issue was a statement of fact but proper personnel protective measures were implemented. At WBN, the issue was not valid. No other site evaluations were determined to be necessary.

Issue 301.05-14 - Limit Switches

WBN, SQN, BFN, BLN Evaluation

The SQN concern regarding improper mounting of limit switches had been valid but had been corrected by WR-B110369 at the time of the current evaluation. This concern was investigated at WBN, BFN and BLN, but was not substantiated. A search of purchase contracts and the INPO NPRDS database revealed no valves at these plants similar to the specific valve of concern at SQN.

Conclusion

The issue was found to be not valid at WBN, BFN and BLN.

At SQN, the issue was valid but corrective action had been implemented before the evaluation.

Issue 301.05-15 - Condensate Storage Tank (CST) Check Valves

SQN Evaluation

This concern was the result of five styrofoam float valves at the top of the bladder decaying. These disks shrank in size until they passed through the holes they were to seal against. This problem was resolved by replacing the styrofoam disks with plastic disks under workplan 11844, initiated by ECN-L6515. The concern also brought up the possibility of the bladder being drawn into the ERCW suction. The cage around the suction inlet was enlarged under the same ECN to prevent this potential occurrence.

BLN and WBN Evaluation

The concern related to the CST bladder at SQN was not substantiated at either WBN or BLN. Review of the respective plants' FSARs revealed that the design of the CSTs at these plants did not include rubber bladders.

Conclusion

At WBN and BLN, the issue was not valid.

At SQN, the issue was factually accurate but corrective action was implemented before the evaluation.

Generic Applicability

This concern was evaluated at BLN, SQN and WBN. An evaluation at BFN was not conducted since the design of BFN safety related tanks do not include bladders.

3.6 Element 301.06 - Hardware Selection Questionable

Issue 301.06-1 - Unsuitable Door Latches And Knobs

WBN Evaluation

The concern regarding suitability of specific latch/knob door hardware at WBN was not valid and no safety-related issues were identified. The maintenance history did not indicate a recurring problem with the Yale model 175 door latch like that used on door A125.

During the evaluation of the concern on door hardware, problems were perceived with the specification/procurement process with respect to reliability of general hardware received. These problems appeared to stem from lack of a defined mechanism for requisitioners to provide feedback to the purchasing agents and design organizations on hardware reliability problems.

Conclusion

The issue was not valid at WBN.

Issue 301.06-2 - Rusty Bearings In Valves

WBN Evaluation

The concern regarding rusty bearings in 14-inch valves in the WBN Auxiliary Building elevation 713 was not valid and no safety-related issues were identified. No 14-inch valves were identified on elevation 713 of the Auxiliary Building. Five 14-inch motor operated valves associated with the Residual Heat Removal (RHR) system were found in lower elevations of the Auxiliary Building and were found to be scheduled for Motor Operated Valve Analysis and Test System (MOVATS) testing. It was determined that any problems with rusty bearings and manual operations of these valves would be corrected during the MOVATS testing.

Conclusion

The issue was not validated.

Generic Applicability

The issue was evaluated at the site of the concern (WBN) and found to be not valid. No other site evaluations are necessary.

Issue 301.06-3 - Improper Hardware Identification

SQN Evaluation

An evaluation for the general concern on hardware was not performed due to a lack of detailed information.

Conclusion

The issue was not validated at SQN.

3.7 Element 301.07 - General Paint Concern, Reactor Building

Issue 301.07-1 - Paint Coatings

WBN Evaluation

The concern regarding the integrity and maintenance of containment paint coatings at SQN was evaluated for generic applicability to WBN. The concern was substantiated, and safety-related issues were identified. In a previous evaluation of the concern, NSRS (in NSRS report I-85-817-WBN) had observed no significantly damaged areas in

unit 1 containment but had observed extensive damage to unit 2 containment floor areas caused by construction activities. NSRS had found no mechanism for including unqualified coatings identified by ONP in the Unqualified Coatings Log maintained by DNE. This had represented a violation of 10 CFR 50 Appendix B Criterion III.

The Watts Bar Engineering Project (WBEP) had conducted an evaluation (RIMs B26 860505 013) based on the NSRS report to determine whether or not a significant condition adverse to quality had existed requiring stoppage of work. The WBEP had determined that a stop-work order was not necessary and that a significant condition adverse to quality did not exist. The evaluation had indicated the need for repairs to unit 2 concrete, however.

The current evaluation found the extensive damage to unit 2 concrete surfaces to indicate a lack of a formalized program to maintain and control containment coatings to the original design specification. Contrary to the WBEP's determination, this lack of a formal maintenance program was found to be a significant condition adverse to quality. The issue is factually accurate and WBN has committed to a corrective action plan to resolve the deficiencies as a result of the investigation.

SQN Evaluation

The concern regarding the integrity and maintenance of containment paint coatings at SQN was substantiated, and safety-related issues were identified. In a previous evaluation of the concern, NSRS report I-85-812-SQN noted that a formalized program of periodic inspection and maintenance had not existed.

The current evaluation found corrective action in progress as a result of the NSRS evaluation. The corrective action was being tracked under a Corrective Action Report (SQ-CAR-86-01-001). A new SQM is being prepared to provide overall control for a formalized Protective Coatings Program. G-Specification-55, MI-19.14 and the PMs for system 364 are being revised to comply with and support the new SQM.

The CAR by which the various corrective actions are being tracked is identified as nonsignificant. The NQAM defines a significant condition adverse to quality as "those which represent gross or widespread noncompliance with procedural requirements which negate the effectiveness of quality assurance controls imposed by this

quality assurance manual; or any condition which has recurred with such a frequency that it indicates past corrective action (if any) has been ineffective." Based on this definition, the lack of an overall TVA program to ensure the quality of CSSC protective coatings appeared to be a significant condition adverse to quality. The "nonsignificant" designation of the CAR by SQN QA did not appear justified since the CAR addressed the lack of an upper-tier program and not just noncompliance with an already existing procedure. The issue is valid and SQN has committed to a corrective action plan to address the problems, as a result of the investigation.

BFN Evaluation

The concern regarding the integrity and maintenance of containment paint coatings at SQN was evaluated for generic applicability to BFN. The concern was substantiated, and safety-related issues were identified.

It was determined that informal methods have been used at BFN to identify defective coatings and that extensive repairs have been made at all three units over the last five years by a contractor without QA surveillance. Coating repairs in the unit 2 drywell were determined by Williams Power Services inspection reports VII-C8 and VII-C9 for the period June 13, 1986 through June 24, 1986 to be deficient in several ways, including (1) adhesion tests had not been performed as required by Construction Specification G-55, and (2) more than one coat of primer had been applied in violation of coating system specification BFNP-N-949. The lack of a formal protective coatings program at BFN was determined to be in violation of ANSI N18.7, to which TVA is committed as an acceptable standard for meeting QA requirements of 10 CFR 50, Appendix B during operations. Also, the evaluator determined through discussions with the cognizant coatings engineer that an unqualified coating log was not being maintained at BFN as required by NUREG 0800.

As a result of recent coating deficiencies found previously at BFN and the NSRS containment coating investigation recommendations for SQN and WBN, BFN line management had begun development in May 1986 of a formal protective coatings program. At the time of the current evaluation, a proposed program plan was being evaluated which contained the following three parts: (1) identification of the existing Level I coatings through baseline inspections under MMI-167, (2) correction of critical deficiencies not in compliance with FSAR commitments, and (3) establishment of periodic inspections of the coating systems with preventive maintenance to follow inspections.

SDSP 3-3 commits QA to begin performing surveillances of future containment repair activities. A memo from the BFN plant manager to the DNE Chief Nuclear Engineer (RIMS R53 860520 812) formally requests that DNE establish an unqualified coatings log for each unit prior to restart. The issue is factually accurate and BFN has agreed to a corrective action plan as a result of the investigation.

Conclusion

At WBN, SQN and BFN the issue was valid and corrective action was taken as a result of the evaluation.

Generic Applicability

WBN, SQN and BFN were evaluated for this issue. BLN was not evaluated due to (1) BLN's construction stage (2) superior management and (3) few problems with coatings.

3.8 Element 301.08 - Steam Generator S/G Manway Installation (ALARA)

Issue 301.08-1 - Steam Generator (S/G) Access

WBN Evaluation

IN-85-869-001
WBN-0284
XX-85-052-001
IN-85-872-001

Concerns regarding difficulty in entering and exiting steam generators were found to be valid at WBN. No safety-related issues were identified; however, review of correspondence and discussions with cognizant maintenance personnel revealed that the plant staff has been coordinating efforts in an ongoing manner to address problems with entering, exiting, and working around steam generators. A stud-nut tensioning closure system for steam generator primary manways had been recently purchased for use at WBN under change number 386 to contract 71 C62-5414-1.

Concern IN-85-872-001 was addressed at WBN by issuing DCR 629 to modify the platforms at the steam generator bases. Anticipated benefits of the modified platforms are reduced exposure time, reduced potential for personnel injury, and minimal equipment damage in work areas around the steam generators.

The issue is factually accurate but corrective action was initiated before the evaluation.

SQN Evaluation

IN-85-869-001
IN-85-872-001
XX-85-052-001

Concerns regarding difficulty in entering and exiting steam generators were found to be valid at SQN as previously noted in NSRS report I-85-558-SQN. No safety-related issues were identified; however, review of correspondence and discussions with cognizant maintenance personnel revealed that the plant staff has been coordinating efforts in an ongoing manner to address problems with entering, exiting, and working around steam generators.

Also a stud-nut tensioning closure system for S/G primary manways and a Genesis robot (for S/G work) were expected to help reduce exposure rates.

Concern IN-85-872-001 was addressed by issuing Design Change Request DCR-2247 to extend the floor grating (platform). Benefits are the same as for WBN.

The issue is factually accurate for SQN and corrective action was taken before the evaluation.

Conclusion

At WBN and SQN, the issue is factually accurate and corrective action was taken before the evaluation.

Generic Applicability

The issue was evaluated at SQN and WBN as the steam generator designs are essentially identical. It was found at both plants that adequate corrective action had been initiated before the ECTG evaluation. No other site evaluations were determined to be necessary as the steam generator design of BLN is different from WBN and SQN and BFN has no steam generators.

3.9 Element 301.09 - Foreign Objects In Equipment

Issue 301.09-1 - Socket Wrench Dropped Into Unit 1 Turbine

A concern regarding the dropping of a socket wrench into the WBN Unit 1 Turbine was not substantiated and no further inspections or other corrective action was found to be necessary. WBN report IN-85-294-001 stated that there had been no evidence of foreign material in the turbine. During a turbine roll test in 1984, no problems attributable to foreign objects in the turbine had been found. Also, numerous inspections of the hotwell had been conducted with no identification of foreign objects.

Conclusion

The issue was not verified.

3.10 Element 301.10 - Spent Fuel Racks Problem

Issue 301.10-1 - Shoddy Workmanship

WBN Evaluation

The concern regarding shoddy workmanship in WBN spent fuel rack construction was substantiated. The workmanship involved in the fuel rack's construction had been determined in a previous evaluation in NSRS report I-85-193-WBN to be below the level normally accepted. Fabrication and installation of the racks resulted in 106 NCRs, four NRC OIE inspection reports and an EN DES Audit.

WBN Technical Instruction (TI) 1, Revision 26, "Special Nuclear Material Control and Accountability System Units 1 and 2," takes all defects of the racks into consideration and specifies the manner in which each cell of each rack can be safely used. The defects of the racks have either been corrected by rework, or prevented from causing harm by provisions of TI-1. Also, QA inspection of and documentation for the spent fuel racks were found by NSRS to be adequate. No safety-related issues were determined to exist, and no corrective actions were required.

Conclusion

The issue is factually accurate, but what it describes is not a problem requiring corrective action.

Generic Applicability

The issue was evaluated at the site of the concern (WBN) and found to be a statement of fact. However, no adverse effects were identified as a result of the situation. No other site evaluations were determined to be necessary.

3.11 Element 301.11 - Valve Closure Problem

Issue 301.11-1 - Valves Do Not Close Completely

WBN/SQN Evaluation

The concern regarding incomplete closure of flow control valves and of automatic open/close valves was evaluated at both WBN and SQN. The concern was not substantiated at either plant, and no safety-related issues were identified. SQN and WBN have both implemented leak rate test programs via SIs 6.32, 6.33 4.0.5LT (WBN) and SI 158.1, 166.18, 166.34, 160 and TI-58 (SQN), and review of the data sheets by the evaluator at both plants for valves in question showed that these valves do close completely. Four reactor coolant system valves at WBN affected by the concern have yet to be tested but are scheduled to be tested prior to plant startup under SI 4.0.5LT.

Discussion with the cognizant maintenance engineers and review of the various valve maintenance instructions revealed that some of the valves' limit switches are set at 98 percent closure as was alleged. This practice is governed by DPM N75 M1 and prevents damage to the valves from overtravel of the valve stem after power is removed from the motor. The valves in question do close completely after power is removed at 98 percent closure as is evidenced by the satisfactory leak rate data mentioned above.

Conclusion

The issue is not valid at WBN and SQN.

Generic Applicability

The issue was evaluated at SQN and WBN and found to be not valid. No other site evaluations were determined to be necessary.

3.12 Element 301.12 - Improper Operation of System 31

Issue 301.12-1 - No Flow Indicators

WBN Evaluation

Concerns IN-85-772-001 and IN-85-772-009 regarding the Auxiliary Building general ventilation system water chillers and air handling units chilled water flow instrumentation were not substantiated.

Discussions with an Auxiliary Unit Operation (AUO) and a review of maintenance requests on the sytem revealed that there had been recurring shutdown problems with the chilled water system during its initial operation prior to preoperational testing. Tripping problems with the chillers had also been encountered during the preoperational test (TVA-9C) and had been attributed to two pressure control valves (PCV-31-349 and PCV-31-364).

These valves had been locked in a balanced position with control air and power removed under ECN 5176. After this corrective action had been taken, there had been no further problems.

In the course of the evaluation for these concerns, procedural discrepancies related to chilled water system operation were noted. WBN plant instructions SOI-30.5E and TI-56.31 were found to make reference to operation of the valves that have been locked in place and have had their power removed. These problems were identified to plant management.

The concern (IN-86-064-001) related to the 480 volt board rooms air handling unit switches was substantiated. In a previous evaluation reported in NSRS report I-85-416-WBN, NSRS determined that Fluid Components Incorporated (FCI) flow switch probes had required up to 20 seconds to clear and to seal in the start circuit. Because of this, the air handling units had been tripping on low flow unless the start button had been depressed longer than 20 seconds to keep the start circuit energized. At the time of the NSRS investigation corrective action for these slow-acting probes had already been initiated by Field Change Request FCR-NP-921. The current evaluation identified no further deficiencies and found that no further corrective action was required.

SQN Evaluation

The concern (IN-86-064-001) related to the 480 volt board rooms air handling unit switches at WBN was evaluated generically at SQN and was not substantiated. Cognizant engineers at SQN instrument maintenance for ventilation and air conditioning stated that no problem had occurred with FCI flow switches similar to WBN. A review of MRs written on these instruments did not indicate problems similar to WBN.

Conclusion

At WBN, the issue is factually accurate and describes a problem for which corrective action was taken before the evaluation.

At SQN, the issue was not valid.

Generic Applicability

The issue was evaluated at the site of the concern (WBN) and generically at SQN. Based on the evaluations the concerns were determined to be specific to WBN. No other site evaluations were determined to be necessary.

3.13 Element 301.13 - Questionable Activities That Produced Operational Problems

Issue 301.13-1 - Steam Generator (S/G) Cleanliness Violation

WBN Evaluation

No specific SG manhole identification, or specific time is given in the concern. Assuming the concern is valid, sandblasting was in progress in the general area of the SGs and not inside the SGs. A limited amount of sandblast material could have entered a SG.

The "roto-peening" stress treatment of the tube bundles revealed no problems with the tubes on the primary side. Extensive flushing of the SGs secondary sides during Hot Functional Testing would have removed most if not all of any sandblast material. The manway on a SG may have been open during sandblast operations, however, this is not considered a problem because of the SG cleaning operations that have occurred since 1978.

Conclusion

The issue is not valid.

Generic Applicability

The issue was evaluated at the site of the concern (WBN) and found to be not valid. No other site evaluations are necessary.

Issue 301.13-2 - Plugged Drains

WBN Evaluation

Concerns regarding plugged drains at WBN had been previously investigated by NSRS and reported in I-85-606-WBN and had not been substantiated. Preoperational Test TVA-44A, "Liquid Waste Drains, Collection, and Transfer Facilities Test," had verified the operational capability of each drain in both Unit 1 and 2.

Conclusion

The issue is not valid.

Generic Applicability

The issue was evaluated at the site of the concern (WBN) and found to be not valid. No other site evaluations are necessary.

Issue 301.13-3 - Valve/Pipe/Seal/Motor Leaks

WBN Evaluation

Concerns regarding various leaks had also been addressed previously by NSRS in report I-85-606-WBN. The sump pump (1-077-PMP-410) mentioned in one concern (IN-86-246-009) had been found leaking but has been repaired under MR A500843. Valves found to be leaking in the Turbine Building have also been repaired. This concern (IN-86-024-001) is addressed in WBN employee concern report IN-86-024-001. Other leaks alleged in the concerns (IN-86-246-006, IN-86-246-008, IN-86-246-010, and IN-86-246-011) were not found to exist. No safety-related issues were identified for the element.

Conclusion

The issue is factually accurate and corrective action was initiated before the evaluation.

Generic Applicability

The issue was evaluated at the site of the concern (WBN) and it was determined that normal maintenance activity had repaired the leak. This was determined to be a specific issue isolated to WBN. No other site evaluations were determined to be necessary.

3.14 Element 301.14 - Malfunction Of Doors

Issue 301.14-1 - Inadequacy Of Doors A56 And A57

WBN Evaluation

The concerns regarding the Auxiliary Building Secondary Containment Enclosure (ABSCE) air lock doors are valid since the doors are plagued with problems which if left uncorrected will result in unproper and unsafe operation. However, the integrity of the Auxiliary Building isolation function of door A57 does not

appear to be in question. The door makes a very good seal when closed properly. Verification of the seal is routinely accomplished using plant instructions following breaching.

Mechanical problems with this door system are known and action is being taken. The vendor (OVERLY) has analyzed A56/A57 airlock operational problems and proposed solutions. Improvements related to airlock safety are often submitted by MRs. The plant safety section will continue to monitor operation of these doors to determine if additional safety features are needed. They will also assist in user education by notes in "Hazard Line," memorandums, and other similar routings where deemed necessary. CATD 30114-WBN-01 was issued to request line management to provide planned corrective actions including their response to vendor's assessment of problems and the schedule for in-service operation of the airlock system at WBN.

ECTG Industrial Safety section more thoroughly evaluates safety issues of the A56/A57 airlock in subcategory 91000.

SQN Evaluation

The concern (IN-86-137-005) regarding the operability, reliability, and safety of air lock doors A56 and A57 were evaluated for generic applicability to SQN. It was found that these concerns had been previously evaluated by the SQN Generic Concerns Task Force (GCTF) in Report IN-86-137-005 and had been substantiated. The GCTF had concluded that injuries had occurred due to these doors and that these doors had required a high degree of maintenance. The GCTF had recommended that the TVA Design Organization, SQN, and WBN jointly evaluate the door problems. The current evaluation found SQN Mechanical Modifications, Safety, and Design Services personnel to be coordinating with WBN to identify operational problems with the doors. SQN line management stated that close-out of ECN-5855, "Modify doors A56, A57, and A58 as required to withstand high frequency usage," should resolve the issues raised in the concerns. Three workplans against this ECN were found outstanding (WP 11586, 11687, and 11654) and were awaiting scheduling at the time of the current evaluation. Also, surveillances were performed as required by Technical Specifications demonstrating that the secondary containment isolation function is being maintained. Therefore, no outstanding safety-related issues were identified.

Conclusion

The issue is factually accurate at SQN and WBN and corrective action was initiated before the evaluation.

Generic Applicability

This concern was evaluated at SQN and WBN due to the similarity of airlock door design. It was not evaluated at BLN or BFN as they do not have similar type airlock doors.

3.15 Element 301.15 - Improper Hardware Identification

Issue 301.15-1 - Improper Hardware Identification In The Field

Generic

The concern regarding inadequate hardware identification in the field at BFN was substantiated for all TVA nuclear sites. It was determined through this evaluation and through review of an ONP configuration management survey that various problems with component identifications exist both in the field and on TVA drawings. In particular, unique identification numbers have not been assigned to components at the various sites, and multiple data bases exist which contain data discrepancies. These problems were perceived to result from the lack of a centralized component identification program.

They were determined to constitute a potential safety-related issue because traceability for testing and maintenance activities and proper operation of plant equipment may be hindered by the current problems.

SQN Evaluation

The issue that hardware is not properly identified was validated for SQN. The walkdown effort being performed at SQN under SMI-0-317-30 has identified numerous missing equipment tags and some cases of incorrect tags have been identified and are being corrected.

The scope of the walkdown effort does not include verifying that data bases and drawings reflect the correct component identifiers. Although not specifically evaluated, traceability for testing and maintenance activities and proper operation of plant equipment may be compromised and are not precluded by the current situation. For

these reasons, this issue is considered safety-related and may represent a significant condition adverse to quality. The new corporate configuration plan will address the issues related to drawing/data base discrepancies.

WBN Evaluation

At WBN it was found that an interdivisional task force in 1983 had prepared an estimate for having DNE consolidate component identifiers (RIMS PBB 831005 006). ONP had considered the costs too high for implementation at that time and a resolution of the issue had been delayed. In November, 1985 a meeting of DNE, DNC, and ONP had been held to discuss INPO questions related to component identification (RIMS T15 851129 945). As a result of this meeting, a quality assurance representative had been appointed by ONP to determine if a nonconformance existed but this review had not been documented.

During the course of the evaluation at WBN, a discrepancy was found with a draft copy of a DNC inspection procedure (QCP 3.06-9) that contained no criteria for the responsible engineers to use in assigning equipment ID numbers. CATD 30115-WBN-02 was issued on this deficiency.

BFN Evaluation

This issue was validated at BFN. Upper management has recognized this problem and has taken steps to correct hardware identification at the site. System walkdowns are being performed under SDSP 9.1 to identify hardware identification deficiencies as part of the overall design verification program. Program reviews to establish conformance with SDPM-30, the overall configuration management policy, are underway. Tagging requirements have been established under Standard Practice BF 8.11.

BLN Evaluation

The issue was considered generic to all TVA sites based on the assessment of the Office of the Manager of Nuclear Power Interim Report on configuration Management. BLN was addressed per CATD-30115-NPS-01.

Conclusion

The issue is factually accurate at SQN, WBN, BFN, and BLN and corrective action is being taken.

3.16 Element 301.16 - Health and Safety Concerns

Issue 301.16-1 - Freight Elevator

WBN Evaluation

The concern regarding improper use of the passenger elevator in the WBN Auxiliary Building was substantiated. An elevator program governed by the Industrial Safety Program Manual was found to be in place. Implementing instructions related to elevator operation and safety included two Standard Practices WB 9.36 and WB 3.1.3 and the Hazard Control Instruction Manual. These instructions mandate that the passenger elevators are utilized for personnel only. This issue is also addressed in QTC report IN-85-605-002.

Conclusion

The issue was validated, but corrective action was taken prior to the investigation.

Issue 301.16-2 - Sanitation Lines

WBN Evaluation

The concern regarding the women's restroom in the Elevation 713 machine shop at WBN was substantiated. Initial problems with flashback and odor had been corrected at the time of this evaluation by relocating the vent. However, during the evaluation discrepancies were found in WBN AI 1.8, "Plant Housekeeping," including (1) inconsistencies in inspection frequencies for specific plant areas, (2) lack of clarity on QA record retention requirements, and (3) errors in matching line organizations with plant area housekeeping responsibilities. This issue is also addressed in QTC report IN-85-924-001.

Conclusion

The issue is valid and corrective action was initiated prior to of the investigation.

Issue 301.16-3 - Anti-Skid Devices

WBN Evaluation

The concern regarding incorrect placement of anti-skid devices in the waste packaging area of the railroad bay was substantiated. The concern had been previously evaluated by line management and reported in report WI-85-054-005, and a maintenance request (MR 538499) had been completed which had installed anti-skid tape on both sides of doors A111 and A112.

Conclusion

The issue is valid but corrective action was initiated before the investigation.

4.0 COLLECTIVE SIGNIFICANCE

A collective assessment of the element-level findings (section 3.0) led to the identification of four subcategory-level findings. Three of these findings were determined to reflect adversely on corporate management effectiveness in overseeing and coordinating various TVA-wide nuclear activities. However, the fourth finding dealt with good practices where TVA plants were found to be working together to address common problems. The four findings were as follows:

a. There has been a lack of corporate control over the implementation of Design/Construction standards and requirements into operations activities at WBN, SQN, and BFN relative to the integrity and maintenance of containment paint coatings

b. There has been a lack of corporate guidance in the maintenance and performance testing of diesel generators at all sites

c. There has been a TVA-wide lack of centralized control of component identification resulting in (1) missing and incorrect equipment tags in the field, and (2) drawing and data base deficiencies related to unique identifiers

d. There were two instances where WBN and SQN line managers have been coordinating efforts to identify and correct certain mechanical problems common to their plants.

Implementation of Design/Construction Standards and Requirements

With regard to the first finding, there either was or had been a lack of a formalized program to periodically maintain, inspect, and control containment coatings at WBN, SQN, and BFN. These conditions appeared to represent a significant condition adverse to quality for TVA. Also, adhesion test requirements from General Construction Specification G-55 and requirements from a coating system specification had not been properly implemented at BFN.

Maintenance and Performance Testing of Diesel Generators

For this finding, none of TVA's nuclear sites was found to have a formal diesel generator trending program. Also, there either was or had been a lack of adequate maintenance and housekeeping for diesel generators at SQN, BFN, and BLN. At both WBN and SQN, three of the four site diesel generators were below the industry's reliability goal. At BFN valid start logs have not been maintained.

Component Identification

Various problems with component identification exist both in the field and on TVA drawings and data bases. In particular, unique identification numbers have not been assigned to components at the various sites, and multiple data bases exist which contain data discrepancies. It was determined that traceability for testing and maintenance activities and proper operation of plant equipment may be hindered by these problems.

Coordination Between Plants

WBN and SQN line managers were found to be coordinating the resolution of problems in two areas: (1) entering, existing and working around steam generators, and (2) design, operation, and maintenance of doors A56 and A57.

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. There 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 D, "Summary of Symptoms and Root Causes."

The review and analysis of the symptoms and root causes taken collectively pointed to the following six significant root causes in the subcategory at applicable plant sites:

a. Personnel lack understanding of regulatory requirements or commitments pertaining to maintenance of containment paint coatings and to management of hardware identification (WBN, SQN, BFN)

b. There is a lack of adequate systems, processes or administrative controls to ensure commitments are reflected in procedures or processes for procurement of hardware, maintenance of containment paint coatings, and control of hardware identification (WBN, SQN, BFN)

c. There are inadequate acceptance criteria defined for diesel generator room housekeeping and for vendor construction of spent fuel racks (WBN, SQN, BFN, BLN)

d. Management has been inattentive to trends in the inconsistent hardware identification at TVA sites (WBN, SQN, BFN)

e. There have been inadequate controls for review of results pertaining to hardware identification, to updating of operating instructions, and vendor performance of work to ensure compliance with commitments (WBN, BFN)

f. There has been inadequate communication between various TVA functional groups pertaining to hardware identification, procurement of commercial grade items, and initial design of steam generator manway covers (WBN, SQN)

6.0 CORRECTIVE ACTION

6.1 Corrective Action at Element Level

6.1.1 Element 301.01 - Kerotest Valve Leakage and Corrosion

WBN

CATD 30101-WBN-01 was issued to WBN line management addressing three issues. The first of these was that the disposition of NCR 2272R did not address the conditions identified in the NCR partially responsible for seat leakage. These conditions were foreign material in the flow

lines and damage done to the valves by over torquing. Also addressed was the QCP 1.06 violation of removing heat sealed bags before placing the valves in storage. Finally, WBN has not responded to the recommendation by NSRS concerning NRC reportability of the root cause of valve failures. The acceptable response received from WBN line management was as follows:

"Item 1.) NCR-2272R was written due to several valves failing to close completely during hydro testing. Since piping systems are hydro tested prior to system cleaning, there may be a tendency for some foreign matter to be in them. Valves that do not seat due to some foreign matter being in them should be flushed out and reseated. They should never be over torqued. If a valve does not seal well it should be disassembled and examined for any foreign matter and reassembled per QCP 4.10-3 R4. This procedure has signoffs for internal cleanliness prior to reassembly. The valves listed on NCR 2272R were cutout and replaced. This action closed NCR 2272R. The generic implications of Kerotest valves having excessive corrosion, and requirements for examination and refurbishment of such valves, were addressed in NCR-2501 R2.

"Item 2.) Material storage requirements are listed in QCP-1.30 R10 "Storage and Housekeeping". Kerotest valves fall under storage level "C" requirement per attachment D - section 3.0 of QCP-1.36 R10. Per section 7.1.6.3 of QCP-1.36 R10, there are no humidity requirements for level "C" storage. QCP-1.06 R2 section 7.3 - "Protective Covers and Seals", states that protective packaging and seals are installed and are intact to protect the item from damage or contamination. Since these valves do not require environmental humidity control this section does not apply.

"Item 3.) This item, NCR 2501R, was reported to the NRC as a 50.55(e) item on August 19, 1980. In the course of evaluating this item for reportability under 10 CFR 50.55(e) an evaluation was made to determine 10 CFR 21 applicability. The results of this evaluation were reported to the NRC on August 20, 1982, in TVA's revised final report which reads as follows: TVA does not consider this condition to represent a breakdown in a portion of the quality assurance program of the plant or the vendor. The valves were inspected before

shipment from Kerotest and found free of corrosion. The condition reported in NCR 2501 resulted from improper testing/maintenance and not from manufacturing defects or design deficiencies. (This makes 10 CFR 21 not applicable. TVA has also instructed its personnel in the procurement process of Kerotest valves of the requirement to specify that wet packing be removed after vendor testing and be replaced with dry packing. A complete examination and refurbishment of previously procured Kerotest valves has been completed and a maintenance program has been instituted for all Kerotest valves. No further action is required."

SQN

CATD 30101-SQN-01 noted the inconsistencies in procurement specification requirements for Kerotest valves at SQN as a specific deficiency requiring corrective action by line management. It was recommended to line management that specifications incorporated into future purchase orders for Kerotest valves be reviewed to ensure that they include the requirements for valves to be dried upon completion of hydrostatic testing and for valve packing to be removed before shipment. SQN has responded as follows:

"No further immediate corrective action is required (see report 301.01-SQN, Section VII). However, as recommended, all valve standard specifications issued by DNE have been revised to include the requirement for valves to be dried upon completion of hydrostatic testing and that valve packing is removed prior to shipment. This was initiated as part of the corrective action for NCR 2501, R1, dated 10/22/80 (801 02780 425)."

BFN

CATD 30101-BFN-001 was sent to BFN line management noting that contracts reviewed on Kerotest valves do not require valves to be dried and valve packing to be removed after vendor hydro testing before shipment to TVA. BFN has responded as follows:

"Additional Corrective Actions are not required. Previous actions which support the decision above are:

"1. Standard Specifications MEB-SS-10.18 and MEB-SS-10.19 were issued February 12, 1981 to supplement contracts for valve purchases including those from Kerotest. These supplements require vendors to remove valve packing after hydro test and to clean inside and out before packing and shipping.

"2. In addition to TVA requirements, Kerotest changed the company procedures in 1980 to include removing valve packing and cleaning before shipment.

"3. The 301.01 - BFN ECSP FACT SHEET summary associated with this CATD states that BFN has not had problems with Kerotest valves corroding".

6.1.2 Element 301.02 - Diesel Generator Reliability Problems

WBN

Seven CATDs were issued to WBN line management regarding D/G issues. One of these (30102-WBN-06) was for tracking purposes.

CATD 30102-WBN-01 was issued to WBN Mechanical Maintenance noting the following eight items concerning diesel generators: (1) roof leaks above exhaust mufflers, (2) lack of a maintenance instruction for starting air dryers, (3) no Temporary Alteration Change Forms on temporary sample lines connected to day tanks, (4) diesel fuel and lube oil leaks, (5) Morrison Knudsen recommendations concerning maintenance history reviews not incorporated in diesel generator maintenance instructions, (6) no trending analysis program for root cause analysis of diesel generator failures exists, (7) diesel generator room floors are not painted, and (8) diesel generator control relay and field flash cabinets are not protected from dust and grit entry. The acceptable responses received from WBN line management were as follows:

"Item 1: After inspecting and investigating, it was concluded that the roof does not leak. Water collection stains on floor are due to the as-designed leak-off connection on the diesel engine exhaust stacks. Due to location of the nearest drain and slope of floor, the water collects on floor. After discussing problem with DNE, Mechanical Maintenance will issue FCR to pipe the drainage to the floor drain. FCR will be written by May 1, 1987.

"Item 2: A Preventive Maintenance (PM) folder issued under the PM program would best suit this purpose. A PM will be written and scheduled by 5/1/87 for "starting air dryers.

"Item 3: These temporary lines are connected, disconnected, and documented as such in SI-4.0.5.18.P and on MR issued to do this in accordance with SI.

"Item 4: The maintenance request program should repair any leaks identified. Mechanical Maintenance will issue maintenance requests (MRs) to repair any existing leaks by 3/20/87. Operations will be responsible for identifying future leakage and initiating MRs.

"Items 5 & 6: A computer based maintenance history/ trending program is planned for the diesel generators as well as other plant equipment. The program development is presently limited due to manpower relocations in support of SQN start-up. The program will be in place as soon as manpower is available, by Unit 1 fuel load at the latest.

"Existing procedures defining the program are AI-9.2 Section 6.0 through 6.2 for NPRDS reportable items and WB6.5.1 outlining system engineer review requirements.

"In addition, a Site Services Special Project group will be developing a data base and trending program for non-NPRDS reportable items utilizing the EQIS data base. Also, a task force is to be formed to improve the WBN computer data system to enhance our available system and provide more precise capabilities for trending and data entry (Ref. CATD No. 30102-WBN-05).

"Items 7 and 8: ECN 6366 was issued to resolve these problems by filtering supply air to the cabinets and using sealed dust covers over relays. It should be noted that the electrical panel problems that have been identified were in part due to the panel doors being left open during testing while construction was continuing in and around the D/G Building; this will soon no longer be a factor to contend with. Item 2 of Table 9.1 of the SER dated June 1982, states that the NRC considers TVA to be in compliance with NUREG/CR-0660 concerning "dust and dirt in the diesel generator room."

CATD 30102-WBN-02 was issued to WBN Electrical Maintenance noting that metal rimmed informal tags were observed attached with string to wiring inside one diesel generator control cabinet. The acceptable WBN line management response was as follows:

"The maintenance request (MR) A-591921 was written to remove any nonessential metal-rimmed tags and perform inspections of other panels for these tags. Any tag of this type found to be required for proper identification will be replaced on another MR with a nonconducting tag. There are not any instructions that require the use of this type of tag. The use of this tag was apparently the result of inattention to details by the craftsman installing these tags. No further corrective action is necessary."

In CATD 30102-WBN-03, the following problems concerning diesel generator testing were noted to WBN operations: (1) no formal reliability program exists to perform trending and root cause analysis of diesel generator failures, (2) no "valid start" documentation comparable to SQN SI-7.2 was found, (3) no graphic record of voltage or frequency data was found in the review of performance of SI-8.1, (4) diesel fuel and lube oil leaks, and (5) use of flammable absorbent pads to soak up diesel fuel and lube oil. The acceptable response to these observations were as follows:

"Item 1: Refer to CATD Number 30102-WBN-01 items 5 and 6.

"Item 2: Sequoyah Nuclear Plant SI-7.2 was implemented to satisfy the requirement of the Technical Specification (TS) S.R. 4.8.1.1.4 and 4.8.1.2 reporting. There is now, and has been for a number of years, an informal D/G log at WBNP which satisfies these TS requirements. However, this D/G log has not been a PORC reviewed document in the past. This document will be revised for technical adequacy and proper implementation and will be made a PORC reviewed document prior to January 1, 1988.

"Item 3: Technical Specifications (TS) L.C.O. 3.8.1.1 action requires all diesel generators to be tested within one hour upon the failure of any part of the required electrical power source. This does not allow sufficient time to hook up M&TE for normal surveillance testing. Thus, installed plant equipment will be used to demonstrate compliance. However, M&TE may be used during troubleshooting and other testing. We do not feel that M&TE is necessary for normal surveillance testing at the present time.

"Item 4: OSLA-27 contains D/G routine inspection logs which are completed each shift by Operations. This log sheet identifies any leak found on the D/G system or in the building. Maintenance requests are filled out and submitted to the maintenance section from these findings. AI-9.2 covers the method of processing maintenance requests. Mechanical Maintenance will issue MRs on any existing leaks by 03-20-87.

"Item 5: This item was discussed with the Industrial Safety group. The use of absorbent pads is an approved method of absorbing oils and grease, and there is no requirement for them to be constantly attended. The D/G Building is protected by an automatically actuated CO_2 fire protection system. When this system is removed from service for any reason a full time fire watch is posted in the building."

CATD 30102-WBN-04 was issued to WBN DNE personnel addressing the following problems with diesel generator auxiliary systems design: (1) cooling air entering the diesel generator rooms is not filtered to remove dust and grit, (2) moisture separators and air dryers drip condensate leading to corrosion deposits, (3) recommendations of NUREG/CR-0660 have not been implemented as recommended by the NRC, and (4) diesel generator room floors are not painted leading to accumulation of dust on moving equipment parts and resultant failures. The acceptable responses to these items were as follows:

"Item 1: The cooling air entering the D/G rooms is not filtered; however, measures have been taken according to ECN 6366, which was written on SCR WBNEEB 8652, to correct problems which identified dust as a factor in the failure of relays in the D/G room electrical panels. This ECN also established the filtering requirements for air entering the electrical panels. This corrective action has not been implemented long enough to determine if it will be completely satisfactory and is being monitored to see if problems continue to exist. If it is deemed necessary at a later date, filters will be added for intake air to the D/G Building.

"Item 2: This condition has been determined to exist. At this time, we feel that drip pans tied to the floor, and placed to collect the condensate will resolve the problem. Natural evaporation should keep the drip pans from reaching an overflow level; however, if it is determined to be required, measures will be taken to drain the pans to an available floor drain. We expect this action to be implemented per a Maintenance Request (MR) by Mechanical Maintenance and will require no action by DNE. The drip pans will be of such size and configuration as required to prevent any direct dripping of condensate or splashing onto the frame.

"Item 3: Table 9.1 of the Safety Evaluation Report (SER) dated June 1982 (NUREG-0847), lists TVA's conformance with recommendations made according to NUREG/CR-0660. This table lists the thirteen concerns dealing with NUREG/CR-0660; eight of which were shown to be in compliance or unnecessary by the NRC. Five items in the list indicated partial conformance or nonconformance. Since that time TVA has taken actions to bring nonconforming items into conformance and we are presently awaiting final concurrence and approval from the NRC.

"Item 4: Item 12 of the SER referenced in item 3 shows the NRC position that TVA is in conformance with the requirements for "concrete dust control" per NUREG/CR-0660. Electrical problems identified have been addressed per actions taken in item 1. No mechanical failures have been identified because of dust.

"We do not feel that painting the floors, at this time, would be necessary until such time that corrective actions taken for item 1 can be evaluated. At that time, if it is considered necessary, painting the floors will be considered along with adding the building air intake filters.

"It should be noted that the electrical panel problems that have been identified were in part due to the panel doors being left open during testing while construction was continuing in and around the D/G Building; this will soon no longer be a factor to contend with. Item 2 of Table 9.1 of the SER dated June 1982, states that the NRC considers TVA to be in compliance with NUREG/CR-0660 concerning "dust and dirt in the diesel generator room." (Reference items 3 and 4 of this response.)"

CATD 30102-WBN-05 was issued to the WBN Plant Manager pointing out that MR history on repairs and cleanup operations are not easily retrievable. The acceptable response to this CATD was as follows:

"A task group will be formed to improve the Watts Bar Nuclear Plant (WBN) computerized data systems pertaining to maintenance activities. This task group will develop plans for modifying the systems in the areas identified that would require enhancements and better utilize the system available. The following items will be considered as a minimum: 1) Data input and output formats 2) File identifiers (for entry/retrieval) 3) "Keyword" usefulness 4) Input/output procedures 5) System for assuring that needed files are computerized. This task group shall consist of at least members from the maintenance sections, and the Document Control Unit (DCU)."

CATD 30102-WBN-06 was generated to track evaluation of the WBN diesel generator stator bearing temperature recorders which is being conducted in accordance with Diesel Generator Task Force Report (T09 860718 930).

CATD 30102-WBN-07 was issued to the WBN Site Director noting the problems with diesel generator reliability and requesting resolution to the question of how the diesel generators will be qualified at fuel loading.

The acceptable response to this CATD is as follows:

"There have been some problems with the diesel generators which decreased their reliability. We feel we have adequately resolved these reliability problems through the change out of governor parts, voltage regulators, and through the training of maintenance personnel. By January 1988 we will have a PORC approved "Valid Start" log - all valid starts will be recorded in this log after January 1988. A surveillance program will be set up to allow sufficient time to determine reliability of the diesel generators before fuel load. We feel this record will verify the reliability of the diesel generators before fuel load.

"The Maintenance Group will write a summary report of the troubles we have had with the diesel generators and what we did to resolve these problems. This report will be filed with the Compliance Group. A CAQ WBP 870298 was written."

Note

As part of the ECTG's final closeout process for this corrective action plan, objective evidence will be sought to determine if performance improvement has been achieved by implementation of the corrective action.

SQN

Two CATDs were sent to SQN line management regarding diesel generator reliability problems.

CATD 30102-SQN-01 noted an overall problem with housekeeping in the diesel generator building, and SQN line management's response is as follows:

"Cleanliness of D/G control panels was considered as a potential contributor to D/G reliability. Consequently, the control panels for 1A-A, 2A-A, 1B-B, and 2B-B were thoroughly cleaned to remove accumulations of dust/grime. To maintain equipment in a clean condition, PMs have been prepared to perform annual and 18 month cleaning. The D/G Building has been included in a routine program for cleaning by maintenance laborers. Building cleanliness has been significantly improved, and the routine cleaning will maintain it.

"18-Month

MI-10.1E/1.5Y cleans the 480V Diesel Auxiliary Boards by using PMs 1485-82, 1484-82, 1483-82, and 1478-82.

"Annual

MI-10.1E/A cleans 1) the Voltage Regulator Panel, 2) the Woodward Governor Panel, 3) the Excitation Panel, 4) the Engine Control Panel, 5) the Engine Auxiliary Control Panel, 6) the Neutral Transformer Cubicle, and 7) the Generator Protective Relay Panel by using PMs 1482-82, 1480-82, 1479-82, and 1481-82.

"NOTE All PMs except 1484-82 for 2A-A D/G and 1478-82 for 2B-B D/G have been completed. These will be completed by January 31, 1987."

COMPLETED 8-23-88

CATD 30102-SQN-02 identified the need for maintenance-related items referenced in NUREG/CR 0660 and NUREG/CR 2989 to be implemented at SQN. SQN line management responded as follows:

"TS change 107 is incorporating items into the diesel generator start and test requirements that will resolve any diesel problems associated with testing.

"The Electrical Maintenance Section will evaluate the additional maintenance related items referenced in NUREG/CR0660 and NUREG/CR2989 to determine the need for inclusion into the present program. The CAP specified is considered an enhancement to the present system and will be completed by 06/30/87."

Note

As part of the ECTG's final closeout process for this corrective action plan, objective evidence will be sought to determine if performance improvement has been achieved by implementation of the corrective action.

BFN

CATD 30102-BFN-001 was also sent to BFN line management stating that BFN does not currently implement all recommendations of NUREG/CR-0660. BFN has responded as follows:

"BFN currently meets recommendations of NUREG/CR-0660 with the exception of installing air dryers in the air start systems. Diesel generator air start systems are under evaluation, commitment number NCO860198001, to determine and implement corrective actions. Possible solutions are replacement of piping (either with stainless steel or carbon steel), installation of air drying components, or chemical cleaning.

"A proposed Technical Specification Revision has been submitted to Site Licensing implementing recommendations contained in Generic Letter 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability, July 2, 1984." This Technical Specification revision is scheduled to be submitted to NRC in March, 1987.

"A program for diesel generator reliability, including maintaining a log of diesel starts, is being implemented at this time. A memorandum to R. McKeon from D. C. Mims dated December 18, 1986, (R40 861218 830) requested a diesel generator log to document diesel starts, failures, and out of service time. BFNP will continue to refine this program and participate in current industry programs."

Note

As part of the ECTG's final closeout process for this corrective action plan, objective evidence will be sought to determine if performance improvement has been achieved by implementation of the corrective action.

6.1.3 Element 301.03 - Vibration Problems Noted

BFN

CATDs 30103-BFN-001,-002, and -003 were sent to BFN line management at Units 1, 2, and 3. The CATDs stated that the Reactor Feed Water (RFW) pump low load by-pass lines (min flow line) may have excessive pipe vibration. However, this cannot be verified unless an inspection is performed during operation. The inspection should include a clearance check and thermal movement verification to establish if additional hangers are necessary.

The BFN acceptable CAP for CATDs 30103-BFN-001, 002, and 003 is as follows:

"See attached memorandums from John L. Sparks to Bob Erickson (R40 870602 930 and R40 870507 862). The attached memorandums discuss Browns Ferry unit 2. Since the designs for units 1 and 3 are very similar they will be observed like unit 2 if a problem is found with unit 2. If no problem exist on unit 2 no further investigation will be done on units 1 and 3."

Text of Memo (R40 870602 930) J. L. Sparks to B. Erickson dated June 2, 1987:

"We are issuing this attachment to our reference memorandum (R40 870570 862 - See below) in order to clearly define our plan of action to handle the subject concern. We have discussed the situation with Jim Kincaid and he agrees with our plan. We have confirmed to him verbally, and by means of this memorandum, our commitment to be present during startup to perform visual observations of the feedwater (FW) lines in question in the subject concern. As discussed with Mr. Kincaid, a qualified Division of Nuclear Engineering (DNE) representative will be with us to observe the FW lines, and assess the nature and degree of any problem areas identified. As stated previously, the startup mode is the period where the greatest perturbation to these lines occurs, and the highest degree of vibration would occur. If the work already done to correct the problem is found to be inadequate, we will coordinate with DNE to come up with a solution.

"The exact details of the visual observation, necessary testing, etcetera will be discussed with DNE prior to startup. All results will be formally documented, as a means of confirming that all commitments were followed through. If you have any questions, let me know."

Text of Memo (R40 870507 862) J. L. Sparks to B. Erickson dated May 7, 1987:

"The problem description stated that the potential existed for excessive vibration in the RFWP low-load bypass lines, but could not be verified unless an inspection was performed during operation. The recommendation was made that the inspection include a clearance check and thermal movement verification to determine if any additional hangers were necessary.

"Technical Support has been tracking this problem since it was identified. Nodal analyses were performed by a qualified stress analyst in late 1985 to early 1986, from which several recommendations for modifications resulted. The problems required performing dead weight and thermal analyses for the various lines examined, combining with the applicable stress codes, and running the finite element stress analysis program, TPIPE.

"In addition to work done by Technical Support, the BFN ISI group performed a visual inspection of unit 2 RFWP low load bypass lines and identified several areas where potential problems existed. The ISI group plans to conduct an examination of RFWP low load bypass line supports during each refueling outage. This will be an N-VT-1 examination, which is a visual observation of welds and piping by a certified Level II NDE welding inspector, who is qualified to make evaluations.

"DCR 3291 (reference ECN 0996) was developed, as a result of the above mentioned efforts, to modify pipe supports for Rx feed pumps and low load bypass lines. As a result of this DCR, which is scheduled for this outage, the necessary preventive measures will be implemented to address the problem of damage from excessive vibration. We believe that by U-2 startup, these problems will have been corrected, and hangers and supports added, modified or repaired as necessary. We do not expect any problems to occur after these things are done, but cognizant Systems Engineering personnel will perform routine checks of the RFWP lines during startup (which is the time where vibration would be the greatest), with assistance from Operations to ensure no problems arise without being noted.

"Please note that, even though we strongly believe that this concern has been adequately addressed, we were informed by Jim Kincaid that he is expecting, as our response to this concern, a plan for performing routine inspections and testing of these low load bypass lines by the appropriate plant group, e.g., ISI, Mechanical Test. He has requested a scoping document that specifies the tests to be performed, and strongly suggested that analysis be made of how much the subject piping has moved thermally, and the degree of physical movement during operation. He did add that he was pleased with the work to date, but could not accept anything less than the above mentioned testing, performed by trained personnel during periods of plant operation.

"We believe it is unreasonable to require testing on a routine basis during operation, because of the work that has already been done to locate areas of concern, the routine observations performed by Operations, and the review (and modifications if necessary) required by DCR 3291 which will serve to "strengthen" any hangers and supports found to be deficient. This will help to alleviate the problem and provide reasonable assurance that vibration-induced damage will not occur."

6.1.4 Element 301.04 - Retubing Problems (Heat Exchangers)

No corrective action was required for this element since the concerns were either not valid or were true but posed no problems.

6.1.5 Element 301.05 - Questionable Design/Construction Practices

No corrective action was required for this element since the concerns were either not valid or were true but posed no problems.

6.1.6 Element 301.06 - Hardware Selection Questionable

No corrective action was required for this element since the concerns were either not valid or were true but posed no problems.

6.1.7 Element 301.07 - General Paint Concern, Reactor Building

WBN

CATD 30107-WBN-001 was issued to WBN line management noting that recommendations from NSRS investigation I-85-817-WBN has not yet been fully addressed and that a significant Condition Adverse to Quality (CAQ) appears to be in existence because of (1) lack of a formal program for coating maintenance and repair and (2) lack of a mechanism for including ONP-identified unqualified coatings in the DNE Unqualified Coating Log. The acceptable WBN line management response was as follows:

"A formalized program for coatings maintenance and repair will be developed and in place before unit 1 startup. A procedure will be developed requiring inspection and repairs of any areas identified as deficient during each outage.

"A new procedure will be written or instructions incorporated into existing procedures to provide requirements for maintaining a formal list of unqualified coatings ITEM 6 by May 1, 1987. This evaluation will be complete as according to Telecon by E. M. DNE/NEB Coating Specialist. The need for the CAQ will be determined at the time of the walkdown evaluation finalization.

"The following is our response to the recommendations in the NSRS report I-85-817-WBN:

"1. Containment Concrete Coatings Inspection and Repair - A walkdown inspection of all the coatings in unit 1 Reactor Building has been performed by completion of Walkdown Procedure, WP-12. This documented the condition & dry film thickness. The results of this inspection will be used to identify any areas that need repair. These repairs will be made before unit 1 startup.

2. Containment Carbon Steel Coatings Inspection and Repair - Same as item 1 above.

3. Preventive Maintenance Program - A preventive maintenance program will be developed and in place before unit 1 startup.

4. Revision of MI-270.10 - This procedure has been revised to include instructions for taking film thickness measurements for concrete and steel, as well as adhesion tests. These requirements are in compliance with G.55. A requirement to mask adjacent areas to prevent overspray will be included in next revision to MI-270.10 by 03-15-87.

5. Coatings Applicator Certification - The certification program has been formalized in the approved site procedure AI-10.6.

6. Unqualified Coatings Program - The unqualified coatings for unit 1 have been identified and documented by completion of Walkdown Procedure, WP-12. This information will be used to develop an up-to-date unqualified coatings log. A new procedure will be written or instructions incorporated into existing procedures to provide requirements for maintaining a formal list of unqualified coatings. This procedure or revision to existing procedures will be in place by 05-15-88.

7. Temporary Protection - This idea will be investigated during refueling outages.

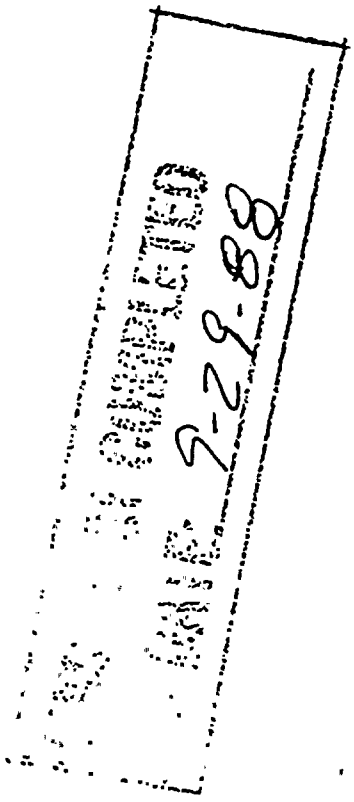
8. Use of Available Expertise - Communication between the different organizations has improved since the coatings concerns have been identified."

SQN

At SQN corrective action relating to the integrity and maintenance of containment paint coatings is being tracked under a CAR. CATD 30107-SQN-001 was issued to SQN line management stating that this CAR (1) does not specifically identify NSRS recommendations to be resolved, and (2) does not specify actions to resolve the root cause of differences at the corporate level. SQN has responded as follows:

"SQ-CAR-86-01-001 was not written because of deficiencies found by Nuclear Safety Review Staff (NSRS) Report I-85-812-SQN. This Corrective Action Report (CAR) was generated by an audit that was conducted by site QA staff. Sequoyah Nuclear Plant (SQN) has responded to the NSRS report in a memorandum from H. L. Abercrombie to K. W. Whitt dated February 20, 1986. This Corrective Action Plan (CAP) further specifies which steps have been taken and the documents that the work was implemented under.

"The upper-tier document specified by the CAR is for the SQN site and will be generated as a SQN Standard Practice Procedure (SQM). This SQM will be written from the specifications and requirements of TVA Construction Specification G-55.



Schedule

"All physical work necessary to bring each unit containment protective coating within limits of the uncontrolled coating established by the Division of Nuclear Engineering (DNE) will be completed prior to each unit startup. Program changes (issues of revised TVA Construction Specification G-55 MI-10.14,. and a new SQN), will be required. Revision of TVA Construction Specification G-55 and issue of a new SQM is required for unit 2 restart. Revision to other procedures (MI-10.14, and SQEP-13, etc.) is not required for restart.

"Action Items

The following actions have been taken in response to NSRS Report I-85-812-SQN, and SQ-CAR-86-01-001.

1. NSRS Recommendation I-85-812-SQN-01

   a. The deficient areas of lower containment floor were recoated by Engineering Change Notice (ECN) L6682. This was implemented by Workplan 12069. All physical work is complete.

   b&c. The liner wall delaminating carboline 305 topcoat was removed on both units by MR Nos. A523804, A548573, and A547675. This work was inspected by Maintenance Instruction MI-10.14. The carboline 305 topcoat will be re-installed at a later outage.

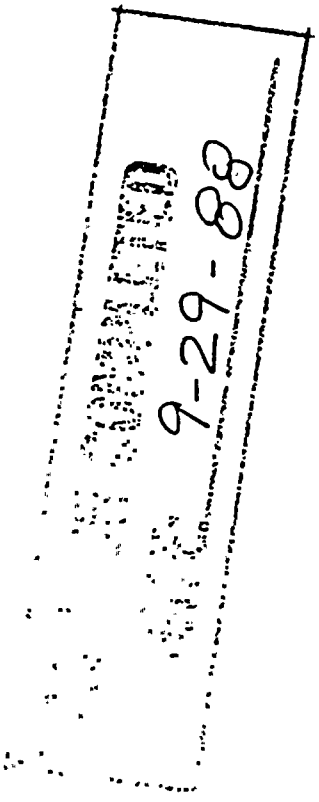
   d. The floor on 734 elevation was determined not to require repair. NSRS accepted this position.

   e. S. G. Pinney & Associates, Inc., (SGPI) was contracted to do a detail baseline evaluation inspection using a Preventive Maintenance (PM) program data sheet. Deficient areas have been added to the uncontrolled coating inventory maintained by Division of Nuclear Engineering (DNE). The data sheets from the PM program will be reviewed prior to U2 restart to verify that all priority work (required before restart) has been completed and documented.

2. NSRS Recommendation I-85-812-SQN-02

Delaminating topcoat was removed by MR Nos. A523804, A548573, and A547675. Further inspection for all areas was conducted by Preventative Maintenance (PM) Nos. 1435-364 and 1439-364.

3. NSRS Recommendation I-85-812-SQN-03



A formalized PM instruction for inspection of Level I coating has been developed. This group of instructions is on System 364. All preliminary inspections have been completed.

4. NSRS Recommendation I-85-812-SQN-04

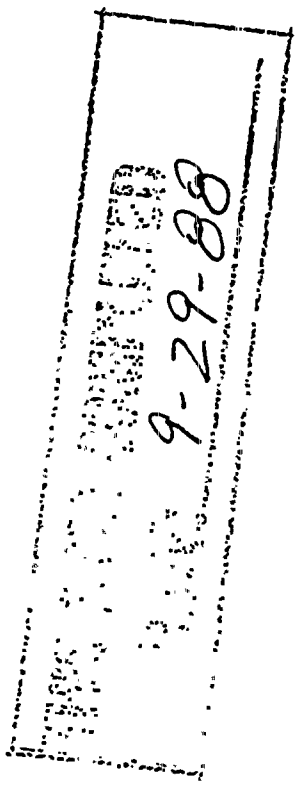
MI-10.14 will be revised in accordance with TVA Construction Specification G-55 upon revision of the G-Spec. This action is being tracked by SQ-CAR-86-01-001. A draft revision has been proposed by DNE, and SQN site has made comments to the proposed draft.

5. NSRS Recommendation I-85-812-SQN-05

In accordance with SQ-CAR-86-01-001, SQN site will generate a SQM for the protective coating program. The issue of this procedure is dependent on the issue of the revision to TVA Construction Specification G-55. This "SQM" procedure is the upper-tier document for SQN site.

6. Additional deficiencies were found on the inspection of SGPI. Minor repair work was done under WRs and MRs. Three major problems still exist and need to be resolved or reworked prior to startup of either unit.

   a. Reactor Coolant Pump (RCP) motor coating is unqualified. SQN-NEB-8610 (attached), documents this CAQ. ECN L7001 will correct the deficiency by providing a screen to contain the coating chips at the RCP base. This is a restart action.



b. Pressurizer Relief Tank (PRT) - The lower portion of the PRT potentially has unqualified coating. Further study is required to determine the qualifications of the coating. If the coating is unqualified, the exact solution will be determined through the Significant Condition Report and ECN process. This resolution is a restart action. This deficiency was discovered during the baseline evaluation of SQ-CAR-86-01-001.

c. Steam Generator and Pressurizer Enclosures - The coating on these enclosures were determined to be unqualified. This was determined during baseline evaluation of SQ-CAR-86-01-001. The area will be recoated by ECN L7012. This is a restart action.

7. Sequoyah Element Report 301.07 SQN R1

SQ-CAR-86-01-001 has been reevaluated by the site QA supervisor. This CAR is not considered to be associated with a gross deficiency in the QA program and is therefore not significant.

Additionally, the deficiencies were evaluated by NSRS Report I-85-812-SQN to have no significant safety impact and were evaluated by PRO No. 1-86-139 as not reportable to the NRC. There are problems with the program that have been identified and corrective actions taken are appropriate."

BFN

CATD 30107-BFN-01 was issued to BFN to permit line management to formally document corrective actions that were being planned already at the time of the current evaluation related to protective coating maintenance problems. The response is as follows:

"BFN's Protective Coating Plan proposed in May 1986 (memorandum R53 860505 802) encompasses all corrective action required. This plan is currently being implemented. The plan was developed to:

1. Identify the existing condition of Level I coatings.

2. Correct critical deficiencies not in compliance with Final Safety Analysis Report commitments.

3. Establish periodic inspections of Level I coating systems with preventive/corrective maintenance following the inspection.

"It should be noted contrary to CATD 30107-BFN-01 statement, NUREG 0800 is a guide for coating inspections, and an unqualified coating log is not a mandatory requirement. However, as a result of BFN's baseline inspection and recent coating effort, an unqualified coating log will be developed.

"The revision of Construction Specification G55 which is the responsibility of the Division of Nuclear Engineering is anticipated by March 1987. This specification will provide the upper-tier documentation to enforce the Protective Coating Plan implementing documents as follows:

	Corrective Action	Implementing Document
1.	Baseline inspection unqualified coating log	MMI-167
2.	Correct deficiencies or preventive maintenance	MMI-29 or MMI-32
3.	Periodic inspection	Revised SI 4.7.A.K and MAI-33

"The completion date of the Protective Coating Plan cannot be determined at this time. However, the evolution of corrective action can be defined in respect to the unit's operation status. The baseline inspections unqualified coating log and corrective maintenance to meet requirements will be completed prior to startup of all units. The inspection and preventive maintenance section is a continuous operation but will begin at the first refueling outage following startup.

"Although site Quality Assurance (QA) has not performed a quality audit on Level I coating, the coating has been applied by a qualified vendor whose QA program was reviewed and approved by TVA QA. In addition, an independent vendor, S. G. Penny and Associates, was contracted to provide a certified Level II and III coating specialist to monitor and review the application of the coating. Therefore, we do not question the integrity of the corrective maintenance of the coating. Future corrective maintenance may be performed by BFN personnel or contracted to independent contractor qualified for the assignment.

"The BFN reportability review has been completed on Browns Ferry Site Director Standard Practice 15.5."

NPS

CATD 30107-NPS-001 was issued at the corporate level to DNE addressing the lack of upper-tier requirements providing for periodic inspection and maintenance of protective coatings and inadequate control of unqualified coatings. These conditions were viewed as significant conditions Adverse to Quality for TVA. The acceptable response received from DNE was as follows:

" (1) Upper tier document G55 R5 (effective date 3/18/87) Sections 8.7, 9.2, and 9.3 states requirements for periodic inspection and maintenance of protective coatings and the control of unqualified coatings.

" (2) Baseline inspection of the coatings in coating service level 1 areas have been completed at SQN units 1 and 2, WBN unit 1, and BFN unit 2 to provide information for the uncontrolled coating logs. WBN unit 2, BFN units 1 and 3, and BLN units 1 and 2 will be inspected and the uncontrolled coating logs established prior to fuel loading.

" (3) The issue of G55 R5 (effective 3/18/87) provides the basis for the revision of the implementing

maintenance manuals (SQM, etc.), maintenance instructions (MI), etc. Revision of the plant-specific specifications N1A-930, N2A-931, N3A-932, and N4A-933 with emphasis on maintenance coating systems and procedures will be in place prior to the end of the current fuel loading cycle."

6.1.8 Element 301.08 - Steam Generator Manway Installation (ALARA)

CATDs 30108-WBN-01 and 30108-SQN-01 were sent to WBN and SQN, requesting (a) confirmation of the intention to purchase a Westinghouse stud-nut tensioning closure system for primary manways at both sites, and (b) the proposed schedule for installing the system at both sites. The line response from WBN and SQN was as follows:

WBN

"Change number 386 to contract 71062-54114-1 has been issued to Westinghouse to provide primary manway studs/nuts and tensioning equipment. The studs/nuts have been received at WBN. The tensioning equipment is scheduled for delivery in late December. (Reference DCR 652, FCN WATM - 10771, FCN WBTM - 1074) This item will be completed by 3/15/87."

SQN

"Westinghouse Electric Corporation has been selected to provide steam generator primary manway closure equipment. Installation should occur at U2C3 and U1C4 RFO per R. M. Hodge SQN 6733.

"SQN DCR-2247 is now in the DNE review cycle. It has been categorized as a post restart activity, indicating that the timeframe for review completion and ECN issue will occur in the summer, 1987 per L. A. Rather SQN 6956."

6.1.9 Element 301.09 - Socket Wrench Dropped Into Unit 1 Turbine

No corrective action was required for this element since the concern was not substantiated.

6.1.10 Element 301.10 - Spent Fuel Racks Problem

Although the concern for this element was true as stated, implementing instructions and QA documents associated with the spent fuel rack at WBN were found to be adequate. Therefore, no corrective actions were required for the element.

6.1.11 Element 301.11 - Valve Closure Problem

No corrective action was required for this element since the concern was not substantiated.

6.1.12 Element 301.12 - Improper Operation of System 31

CATD 30112-WBN-01 was issued to WBN line management noting that (1) some instructions have not been updated to reflect changes in System 31 valve status, and (2) Operations and Maintenance personnel should collaborate to determine instruction enhancements for operating chiller packages. The acceptable WBN line management response was as follows:

"Revise SOI-30.SB to reflect 0-FCV-31-349 and 364 are preset-locked throttle valves by 371787. Power supplies have already been removed from SOI-[illegible] during the operational period of the summer of 1986, no problems were encountered with the units; therefore, additional instrumentation will not be pursued at this time. In the future, if problems do exist, the necessity of adding additional instrumentation will be evaluated."

6.1.13 Element 301.13 - Questionable Activities That Produced Operation Problems

No corrective action was required for this element since none of the concerns was substantiated.

6.1.14 Element 301.14 - Malfunction of Doors

WBN

CATD 30114-WBN-01 issued to WBN line management requested further information regarding actions planned or taken to place air lock doors into safe operation. The acceptable WBN line management response was as follows:

"Design Change Request (DCR) number WB-DCR-0682 was approved November 14, 1986 to execute the following modifications to doors A56 and A57. Modification to doors will be completed with Group 6 in current fuel load milestone schedule.

A56: Redesign to make the flush bolts at top and bottom of the door stronger.

A57: 1. Replace the wire type limit switch arms and brackets with lever type arms and brackets - furnished by Overly Door Co. (original contractor).

2. Install swivel type connections in the supply air hose to the operator cylinders - furnished by Overly Door Co.

3. Install an additional oiler in the air line on the wall outside of the box closer to both door operator cylinders and the locking dog cylinders - purchased by TVA.

4. Add a personnel door to the inactive leaf of door - Contract.

5. Add vertical support for operator air cylinder - TVA

"Workplan NP-1109-1 installed a warning horn to sound when door A57 is moving and a safety edge to stop movement if pressed.

"A hazard assessment #MM-002-87 was done by Industrial Safety on a possible pinch point between the hinge side of door A57 and the door frame and was determined remote as an accident probability.

"Made misalignment corrections to door A-57 to within 1/4" tolerance overall, as suggested in letter No. 4104 from Overly Manufacturing Company to TVA."

SQN

SQN line management was requested via CATD 30114-SQN-01 to provide a schedule for completing three outstanding workplans that would modify air lock doors for high frequency usage. SQN has responded as follows:

> "Closure of ECN-5855 should resolve the operational and industrial problems associated with the A56/A57 doors. SQN workplans 11586 and 11587 implement construction associated with ECN-5855 and have a scheduled early start date of October 9, 1986.
>
> "Required surveillances have been performed as required by Technical Specifications demonstrating the ability of the existing door to maintain its secondary containment function. Appropriate post modification testing requirements will be incorporated into all workplans which will assure new door functions as required."

6.1.15 Element 301.15 - Improper Hardware Identification

Corrective action was requested for this element from corporate management as well as from plant sites.

NPS

The Corporate Configuration Manager, Division of Nuclear Services, was asked via CATD 30115-NPS-01 to address data base deficiencies related to unique identifiers. The acceptable response received from Mr. C. G. Robertson, Acting Director of Nuclear Services, was as follows:

"As this CATD is generic to all the ONP Sites and the ONP Configuration Management Program, this response will be addressed as follows:

A. Browns Ferry Nuclear (BFN) Plant: DNE issued the BFN Plant Component Identification Standards - OES 8.31 and OES 8.32 to BFN on February 27, 1987, RIMS No. B22 870213 028, in response to SCR BFN ECB 8606. BFN is in the process of implementing this DNE Standard according to their Project Instruction Procedures.

B. Sequoyah Nuclear (SQN) Plant: DNE issued the SQN Plant Component Identification Standards - OES 8.21 and OES 8.22 to SQN to March 22, 1985, RIMS No. B42 8850310-501. SQN is in the process of implementing this DNE Standard according to their Project Instruction Procedures SQM-2.

C. Watts Bar Nuclear (WBN) Plant: DNE issued the WBN Plant Component Identification Standards - OES 8.41 and OES 8.42 to WBN to March 15, 1985, RIMS No. B42 850321 500. WBN is in the process of implementing this DNE Standard according to their Project Instruction Procedures.

D. Bellefonte Nuclear (BLN) Plant: DNE issued the BLN Plant Component Identification Standards - OES 8.01 and OES 8.02 to BLN on March 3, 1986, RIMS No. B42 860304 500. BLN is in the process of implementing this DNE Standard according to their Project Instruction Procedures.

E. The above deficiencies with component identification on drawings versus the equipment tags did result from TVA's lack of centralized control for assignment of component identification. This problem has been addressed by DNE and is in the process of being corrected through adherence to the DNE "Plant Component Identification Standards" by the Sites. As Drawing to tag discrepancies are identified each discrepancy will be corrected to reflect that the tag number corresponds to the number identified on the drawings.

F. The above deficiencies with the component identification on drawings versus the databases is being addressed and corrected by DNE. As each drawing number to database discrepancy is identified to DNE, the DNE sponsor of the database field has been instructed to correct the identified discrepancy in a timely manner.

G. The ONP Configuration Management Branch is aware of the above deficiencies with the component identification system. The CM Branch in conjunction with DNE and DNQA will be performing assessments and audits to monitor the effectiveness of the sites implementing the DNE "Plant Component Identification Standards." Please note that the time to correct the deficiencies of the ONP wide component identification on drawings to equipment tags to databases is estimated to be 156 weeks or 3 years."

WBN

The WBN Plant Manager and WBN Project Engineer were requested via CATD 30115-WBN-01 to provide details for determining the extent of missing and/or incorrect tags. The acceptable corrective action plan received was as follows:

"The detailed and comprehensive program necessary to fully identify and correct the deficiencies with component identification and tagging is being developed but is not finalized at this time. A major input to the problem identification effort is underway as part of the Q-List effort. The Q-List activity is determining areas where component identification numbers on drawings need to be changed, deleted, or added for completeness and consistency. See attachment 1 for an overview of this process.

"Gilbert Commonwealth has reviewed over 1,000 drawings to evaluate the baseline drawings. Discrepancies are now being resolved with about 32 systems in various stages of completion according to the project manager. Discrepancies identified on the drawings will be corrected by the established ECN process and revised drawings issued. As shown on the attachment, the Q-List will be revised for consistency. The schedule for completion of the Q-List is BFL. For additional information see NCR-W-269-P (TROI tracking number W-269-P and CCTS tracking numbers NC085051 through 85012).

"Attachment 2 reflects some of the recognized, expected impacts from the issuing of revised drawings. Included is the changing of tags in the field to reflect the revised drawings. The process in the attachments was discussed with site personnel in meetings on February 6 and February 10, 1987. Walkdowns will identify equipment needing tagging, but not shown on drawings. Drawings will be revised, identifiers assigned, and tags prepared. The scope, schedule, and interfaces for this effort is not defined at this time. Several phases are expected in the process to ensure the field configuration is in agreement with the system drawings.

"In addition, the project manager for the equipment tagging effort is communicating with personnel in the Central Office responsible for Configuration Management. See attachment 3 for the draft ONP policy 4.3 concerning configuration management. Also see OP 30115-NPS-01 for further discussion of drawing/data base discrepancies. The program being developed for Watts Bar will meet the intent of the policy.

"The current schedule for completion is as follows:

1) Discrepancies between drawings will be resolved before Unit 1 fuel loading. The Q-List will also be made consistent with the revised drawings. Classification of components for the Q-List shall also be completed.

2) The impacts indicated on attachment 2 have not been fully evaluated and therefore the schedule and resources necessary have not been finalized."

In CATD 30115-WBN-02, WBN DNC management was informed that Section 7.33 of a draft DNC procedure (QCP 3.06-9) for instrument installation and tagging provided the responsible engineer with no criteria to use in assigning identification numbers not provided by DNE. The acceptable WBN line management response to this CATD was as follows:

"QCP 3.06-9, Section 7.33 contains a statement that the "Responsible Engineer will assign ID numbers not supplied by DNE when needed." DNC will coordinate with DNQA the removal of this statement. DNC has not assigned any ID numbers since the initial issue of QCP 3.06-9 on July 3, 1986."

SQN

In CATD 30115-SQN-01, SQN line management was requested to provide details for determining the extent of missing or incorrect tags. SQN has responded as follows:

"(A) Complete prior to Restart tagging deficiencies identified and classified as "Restart" by TVA's Design Baseline and Verification Program.
Corrections prior to Restart will be limited to components identified by the Main Control flow and control drawings and corrected under the DB&VP program.

THIS ITEM PARTIALLY COMPLETED AT SQN DUE 12-31-87

(B) Initiate a long-term Corrective Action plan to reflect the unique identification of mechanical, electrical, and I&C components on the necessary drawings to allow the components to be reflected in procedures and identified in the field."

BFN

CATD 30115-BFN-01 sent to BFN line management requested actions being taken to resolve the fact that hardware is not properly identified in the field at BFN in accordance with design documents. BFN has responded as follows:

"The baseline program for unit 2 startup includes a system walkdown effort that identifies missing tags and incorrectly tagged equipment and corrects these problems through the Maintenance Request (MR) process. The Operations Group processes the MRs by making and attaching the tags. The Master Equipment List program, also a DNE effort, will correct misnumbered equipment on drawings which will also be corrected in the field. These programs are part of the overall BFN Configuration Management Program in effect at the Site Director's direction. Startup efforts for units 1 and 3 will have the same activities to correct hardware not properly identified in the field.

"The Drawing Discrepancy (DD) program is a program that will continue to correct the as-constructed drawings as discrepancies are found while doing work in the field. Through this effort, if plant equipment is found not to be tagged properly it can be corrected through the DD process.

"Walkdown and tagging of equipment, as part of the baseline program, will be completed by startup of the applicable unit. The DD program will be an ongoing program to correct deficiencies as identified.

"As of November 3, 1986, approximately 95 percent of the systems and components to support unit 2 startup have had MRs generated to make changes."

6.1.16 Element 301.16 - Health and Safety Concerns

No corrective action was required since the problems identified had been resolved by line management.

6.2 Negative Findings at Subcategory Level

CATD 30100-NPS-01 was issued to TVA corporate management to address the second subcategory-level finding as presented in Section 4 of this report. This finding deals with the lack of corporate guidance in the maintenance and performance testing of diesel generators at all sites. The first subcategory-level finding dealing with implementation of design/construction standards and requirements was adequately addressed by corrective action responses received for element-level CATDs 30107-WBN-001, 30107-SQN-001, 30107-BFN-001, and 30107-NPS-001. The third subcategory-level finding dealing with component identification was adequately addressed by corrective action responses received for element-level CATDs 30115-NPS-01, 30115-WBN-01 and WBN-02, 30115-SQN-01, and 30115-BFN-01.

The TVA corporate response for CATD 30100-NPS-01 is as follows:

"The Office of Nuclear Power is in the process of developing an Upgraded Preventive Maintenance Program. This program will contain corporate guidelines/requirements for maintenance, testing, and trending of nuclear plant components and systems. The diesel generators are included in this program. In the past, there was no formal program for corporate guidance in the maintenance and testing of diesel generators. Support and guidance were supplied on an as-needed basis.

"The draft Technical Specifications for Watts Bar Nuclear Plant have been revised to include diesel generator reliability improvements in accordance with NRC Generic Letter 84-15. This program will reduce the number of starts required to prove diesel operability. This program also requires that records be maintained of the number of diesel starts and failures."

7.0 ATTACHMENTS

Attachment A - Subcategory Summary Table

Attachment B - List of Concerns by Element/Issue

Attachment C - Checklist For Root Cause Analysis

Attachment D - Summary of Symptoms and Root Cause

Attachment E - Graph of Symptoms vs Root Cause

Attachment F - Bar Charts of Symptoms

Attachment G - Bar Chart of Root Causes

Attachment H - CATDs

Attachment I - List of Evaluators by Element/Plant

CATEGORY: OP PLANT OPER. SUPPORT
SUBCATEGORY: 301 MECHANICAL EQUIPMENT RELIABILITY/DESIGN

CONCERN NUMBER	CAT	SUB CAT	S H R D	PLT LOC	1 REPORT APPL 2 SAF RELATED BF BL SQ WB	HISTORICAL REPORT	CONCERN ORIGIN	CONCERN DESCRIPTION	REF. SECTION # CAT - OP SUBCAT - 301 Section/Issue
III -86-285-00101 T50200	OP	30101	N	WBN	1 Y Y Y Y 2 SR SR SR SR		QTC	WATTS BAR UNIT 1 & 2. GLOBE VALVES (KERO TEST) WERE RECEIVED FROM VENDO R IN A CORRODED CONDITION DUE TO VEN DOR'S HYDRO OF VALVE AND INADEQUATE DRYING. THESE VALVES LEAKED AFTER I NSTALLATION. A GENERIC NCR HAS WRIT TEN TO CORRECT THIS PROBLEM BUT THE FULL IMPLEMENTATION OF THE NCR DISPO SITION IS QUESTIONABLE. EXAMPLES OF THE SYSTEMS WITH THESE VALVES ARE: CVCS, SAFETY INJECTION, RHR, & REACT OR COOLANT. CONSTRUCTION DEPT. CONC ERN. CI HAS NO FURTHER INFORMATION.	3.1/301.01-01
III -86-296-00101 T50152	OP	30103	N	WBN	1 N N N Y 2 NA NA NA SR		QTC	ONE OF THE CCW LINES MOVES CONSIDERA BLY WHEN THE AIR BLOWER IS ON. 713' ELEV. NUCLEAR POWER CONCERN. CI H AS NO FURTHER INFORMATION. NO FOLLO WUP REQUIRED.	3.3/301.03-04
MAS-85-001	01	OP	30102	N	SQN	1 N N Y N 2 NA NA SS NA		OECP	D/G AC LUB OIL PUMP TRIPPED BECAUSE OF POSSIBLE GASKET MATERIAL IN PUMP.	3.2/301.02-04
MAS-86-002	01	OP	30105	N	SQN	1 Y Y Y Y 2 SR SR SR SR		OECP	IMPROPER MOUNTING OF LIMIT SWITCHES ON 2-FCV-30-15	3.5/301.05-14
PH -85-003-01001 T50106		OP	30106	N	WBN	1 N N N Y 2 NA NA NA SR		QTC	THERE ARE RUSTY BEARINGS IN 14" VALV ES ON EL 713' AUX. BLDG. CI HAS NO M ORE INFORMATION AVAILABLE NO FOLLOW UP REQUIRED	3.6/301.06-02
QCP10.35-8-21	01	OP	30101	N	BLN	1 Y Y N N 2 SR SR NA NA		OECP	MAINTENANCE OF KEROSTEST VALVES SHOU LD BE ENHANCED BECAUSE OF THEIR CORR OSION.	3.1/301.01-01
QCP10.35-8-9	01	OP	30101	N	BLN	1 Y Y N N 2 SR SR NA NA		OECP	CI NOT SURE THAT PREVIOUSLY REPORTED CONCERN ABOUT KEROTEST VALVES HAS B EEN RESOLVED.	3.1/301.01-01
RCH-85-001	01	OP	30105	N	SQN	1 N Y Y Y 2 NA SS SS SS		OECP	FAILED CHECK VALVE ON BCST ALLOWED H ATER ON TOP BLADDER. BLADDER COULD GET INTO ERCW SUCTION.	3.5/301.05-15

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.

CATEGORY: OP PLANT OPER. SUPPORT
SUBCATEGORY: 301 MECHANICAL EQUIPMENT RELIABILITY/DESIGN

CONCERN NUMBER	CAT	SUB CAT	S H R D	PLT LOC	1 REPORT APPL 2 SAF RELATED BF BL SQ WB	HISTORICAL REPORT	CONCERN ORIGIN	CONCERN DESCRIPTION	REF. SECTION # CAT - OP SUBCAT - 301 Section/Issue
WBN-0023	01	OP 30105	N	WBN	1 N N N Y 2 NA NA NA NO		OECP	PLASTIC PIPE GOING TO NEW DI PLANT IS BAD. PIPE HAS BEEN REPAIRED SEVERAL TIMES AT DIFFERENT LOCATIONS.	3.5/301.05-10
WBN-0284	01	OP 30108	S	WBN	1 N N N Y 2 NA NA NA NO		OECP	DIFFICULT ENTRY/EGRESS FROM MANWAYS.	3.8/301.08-01
	02	OP 30501	S	WBN	1 N N N Y 2 NA NA NA NO				
WBN-0287	01	OP 30105	N	WBN	1 N N N Y 2 NA NA NA NO		OECP	HEATING INADEQUATE IN E DCU AREA OF TSOB	3.5/301.05-12
WBN-0291	01	OP 30105	S	WBN	1 N N N Y 2 NA NA NA SR		OECP	POTENTIAL "UPTAKE" OF RADIOACTIVE SUBSTANCES DUE TO SIMILAR FITTINGS BEING USED FOR AIR, WATER & CONTAMINATED DRAIN CONNECTION.	3.5/301.05-11
	02	OP 31107	S	WBN	1 Y N Y Y 2 SR NA SR SR				
WBN-85-01	01	OP 30102	N	WBN	1 N N N Y 2 NA NA NA SR		OECP	DG GENERATOR BEARING AND STATOR TEMPERATURE RECORDER GIVES FALSE ALARMS. WHEN THE RECORDER POINT IS ON THE STATOR (120 DEGREES C), THE BEARING (82 DEGREES C) ALARM COMES IN WHEN THE RECORDER POINT HEAD EXCEEDS 82 DEGREES C.	3.2/201.02-03
WI -85-054-00301 T50142		OP 30113	N	WBN	1 N N N Y 2 NA NA NA SR	I-85-606-WBN	QTC	DRAINS ARE PLUGGED UP AND THERE IS WATER ON THE FLOOR OF THE BOTTOM OF THE RACEWAY, 702' ELEV. RB #1 AND 692' AUX. BLDG. WEST END. BOTH LEAKS ARE FROM PIPES. NUCLEAR POWER DEPT. CONCERN. CI HAS NO FURTHER INFORMATION.	3.13/301.13-02

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER

CATEGORY: OP PLANT OPER. SUPPORT SUBCATEGORY: 301 MECHANICAL EQUIPMENT RELIABILITY/DESIGN

CONCERN NUMBER	CAT	SUB CAT	S H R D	PLT LOC	1 REPORT APPL 2 SAF RELATED BF BL SQ WB	HISTORICAL REPORT	CONCERN ORIGIN	CONCERN DESCRIPTION	REF. SECTION # CAT - OP SUBCAT - 301
									Section/Issue
HI -85-054-00501 T50142	OP	30116	N	HBN	1 N N N Y 2 NA NA NA NO	HI-85-054-005	QTC	THE SKIDS ARE PLACED ON THE WRONG SIDE OF THE DOOR IN THE WASTE PACKAGE AREA, RAILROAD (RR) BAY. CI FEELS THAT THE SKIDS SHOULD ACTUALLY BE ON BOTH SIDES OF THE DOOR. NUCLEAR POWER DEPT. CONCERN. CI HAS NO FURTHER INFORMATION.	3.16/301.16-03
HI -85-100-00301 T50211	OP	30102	N	HBN	1 Y Y Y Y 2 SR SR SR SR		QTC	DIESEL GENERATORS HAVE RELIABILITY PROBLEMS. CI STATED THAT CORRECTION REQUIRES RELIABILITY PROGRAM, A REDUCTION IN THE NUMBER OF STARTS, ATTENTION TO TESTING, PREVENTATIVE MAINTENANCE UPGRADING, AND MORE INTERACTION WITH INPO, OTHER UTILITIES AND VENDORS TO ESTABLISH RESOLUTION TO PROBLEMS. CI HAS NO FURTHER INFORMATION. ANONYMOUS CONCERN VIA LETTER.	3.2/301.02-01
XX -85-052-00101 T50153	OP	30108	S	SQN	1 N N Y Y 2 NA NA SR SR	I-85-558-SQN	QTC	SEQUOYAH-MANWAY DOOR AT THE BOTTOM OF STEAM GENERATOR TAKES APPROX. 20 MINUTES TO OPEN AND 3-4 HOURS TO CLOSE DUE TO COMPLICATED PROCESS NECESSITATED BY POOR DESIGN. IF A COMEALONG SLIPS, IT IS MOST LIKELY THAT PERSONNEL WOULD BE PINNED BETWEEN THE SWING-ARM AND HAND RAIL. THERE ARE 5 REMS/HOUR ESCAPING WHILE THIS DOOR IS OPEN. A WAY TO OPEN/CLOSE THIS DOOR MUST BE FOUND THAT WOULD TAKE ONLY 20 MINUTES TOTAL. UNITS 1 AND 2. CI HAS NO FURTHER INFORMATION. NO FOLLOWUP REQUIRED.	3.8/301.08-01
02	OP	31105	S	SQN	1 N N Y Y 2 NA NA SR SR				
XX -85-071-00401 T50159	OP	30106	N	SQN	1 N N Y N 2 NA NA NO NA		QTC	SEQUOYAH, CI HAS GENERAL HARDWARE CONCERN, AND REQUESTED THAT QTC INVESTIGATE. DETAILS KNOWN TO QTC; WITHELD TO MAINTAIN CONFIDENTIALITY. NO FOLLOWUP REQUIRED.	3.6/301.06-03

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.

CATEGORY: OP PLANT OPER. SUPPORT
SUBCATEGORY: 301 MECHANICAL EQUIPMENT RELIABILITY/DESIGN

CONCERN NUMBER	CAT	SUB CAT	SHRD	PLT LOC	1 REPORT APPL 2 SAF RELATED DF BL SQ HD	HISTORICAL REPORT	CONCERN ORIGIN	CONCERN DESCRIPTION	REF. SECTION # CAT - OP SUBCAT - 301 Section/Issue
XX -85-087-00101 T50186	OP	30107	N	SQN	1 Y N Y Y 2 SR NA SR SR	I-85-812-SQN	QTC	SEQUOYAH UNIT 1 & 2: CONTAINMENT PAINT COATINGS (#295 AND #305) ARE NOT PROPERLY MAINTAINED. THE INTEGRITY OF THE COATINGS IS BEING ERODED & QUESTIONABLE. CI IS CONCERNED THAT THE PAINT WILL CURL & POP-UP AND CLOG THE DRAINS IN CASE OF A (LOCA) ACCIDENT WHEN THE TEMPERATURE AND PRESSURE BUILDS UP IN THE REACTOR. PAINT SPECIFICATIONS AND STANDARDS ARE NOT FOLLOWED, ESPECIALLY IN RECOATING OF #305. NUC POWER CONCERN. CI HAS NO FURTHER INFORMATION.	3.7/301.07-01
XX -85-090-00101 T50200	OP	30101	N	BLN	1 Y Y Y Y 2 SR SR SR SR		QTC	BELLEFONTE ALL UNITS. THE GLOBE VALVES(KERO TEST) NEED TO BE CHECKED FOR CORROSION & LEAKAGE DUE TO VENDORS HYDRO AND INADEQUATE DRYING. EXAMPLES OF THE SYSTEMS ARE: CVCS, SAFETY INJECTION, RHR, REACTOR COOLANT. CI STATED THIS PROBLEM HAS EXISTED FOR SIX YEARS. CONSTRUCTION DEPT. CONCERN. CI HAS NO FURTHER INFORMATION	3.1/301.01-01
XX -85-090-00201 T50198	OP	30101	N	SQN	1 Y Y Y Y 2 SR SR SR SR	I-85-861-SQN	QTC	SEQUOYAH: UNIT 1 & 2. PER CI TVA USED GLOBE VALVES (KERO TEST) EXTENSIVELY IN BOTH PLANTS, WATTS BAR AND BELLEFONTTE AND HAD LEAKAGE & CORROSION PROBLEMS. CI QUESTIONS THE USAGE OF THESE VALVES AT SEQUOYAH - THE SISTER PLANT- FOR LEAKAGE & CORROSION PROBLEMS. THE SYSTEMS TO BE CHECKED AS EXAMPLES ARE CVCS, SAFETY INJECTION, RHR & REACTOR COOLANT ETC. CI HAS NO FURTHER INFORMATION. NUC POWER CONCERN.	3.1/301.01-01

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.

CATEGORY: OP PLANT OPER. SUPPORT SUBCATEGORY: 301 MECHANICAL EQUIPMENT RELIABILITY/DESIGN

CONCERN NUMBER	CAT	SUB CAT	SHRD	PLT LOC	1 REPORT APPL 2 SAF RELATED BF BL SQ NB	HISTORICAL REPORT	CONCERN ORIGIN	CONCERN DESCRIPTION	REF. SECTION # CAT - OP SUBCAT - 301 Section/Issue
XX -85-102-00301 T50208	OP	30103	N	BFN	1 Y N N N 2 SR NA NA NA		QTC	BROWNS FERRY: IN 83 OR 84, THE LOW PRESSURE MAIN STEAM LINE IN THE VALVE ROOM ON TURBINE BUILDING, UNIT 2, HAS MOVED SO FAR BECAUSE OF VIBRATION THAT SEVERAL BOLTS AND NUTS HAVE BEEN BEATEN FLAT AND CONCRETE CHIPPED OFF BY EQUIPMENT VALVE HANDLES HAMMERING AGAINST IT. SPECIFIC ITEMS OF THE EQUIPMENT WERE OBSERVED TO BE DEFECTIVE AND ABOUT 4 HANGERS WERE MESSED UP. MANAGEMENT HAS NOTIFIED VERBALLY. NO MAINTENANCE REQUESTS WERE WRITTEN. CI HAS NO IDEA IF THE DEFECTS ARE PROPERLY REPAIRED. NU	3.3/301.03-05
XX -85-102-00501 T50172	OP	30115	N	BFN	1 Y Y Y Y 2 SR SR SR SR		QTC	BROWN'S FERRY: HARDWARE IS NOT PROPERLY IDENTIFIED IN THE FIELD. A PERSON NEEDS A DRAWING TO IDENTIFY IT. NUCLEAR POWER DEPT CONCERN. CI HAS ADDITIONAL INFORMATION. NO FOLLOW UP REQUIRED.	3.15/3-1.15-01
XX -85-122-00801 T50214	OP	30102	N	SQN	1 Y Y Y Y 2 SS SS SS SS		QTC	SEQUOYAH: DIESEL GENERATORS HAVE RELIABILITY PROBLEMS. CI STATED THAT CORRECTION REQUIRES RELIABILITY PROGRAM, A REDUCTION IN THE NUMBER OF STARTS, ATTENTION TO TESTING, PREVENTATIVE MAINTENANCE UPGRADING, AND MORE INTERACTION WITH INPO, OTHER UTILITIES AND VENDORS TO ESTABLISH RESOLUTION TO PROBLEMS. CI HAS NO FURTHER INFORMATION. ANONYMOUS CONCERN VIA LETTER.	3.2/301.02-01

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.

CATEGORY: OP PLANT OPER. SUPPORT
SUBCATEGORY: 301 MECHANICAL EQUIPMENT RELIABILITY/DESIGN

CONCERN NUMBER	CAT	SUB CAT	S H R D	PLT LOC	1 REPORT APPL 2 SAF RELATED BF BL SQ NB	HISTORICAL REPORT	CONCERN ORIGIN	CONCERN DESCRIPTION	REF. SECTION # CAT - OP SUBCAT - 301 Section/Issue
XX -85-122-00901 T50214	OP	30102	N	BLN	1 Y Y Y Y 2 SR SR SR SR		QTC	BELLEFONTE: DIESEL GENERATORS HAVE RELIABILITY PROBLEMS. CI STATED THAT CORRECTION REQUIRES RELIABILITY PROGRAM, A REDUCTION IN THE NUMBER OF STARTS, ATTENTION TO TESTING, PREVENTATIVE MAINTENANCE UPGRADING, AND MORE INTERACTION WITH INPO, OTHER UTILITIES AND VENDORS TO ESTABLISH RESOLUTION TO PROBLEMS. CI HAS NO FURTHER INFORMATION. ANONYMOUS CONCERN VIA LETTER.	3.2/301.02-01
XX -85-122-01001 T50214	OP	30102	N	BFN	1 Y Y Y Y 2 SR SR SR SR		QTC	BROWN'S FERRY: DIESEL GENERATORS HAVE RELIABILITY PROBLEMS. CI STATED THAT CORRECTION REQUIRES RELIABILITY PROGRAM, A REDUCTION IN THE NUMBER OF STARTS, ATTENTION TO TESTING, PREVENTATIVE MAINTENANCE UPGRADING, AND MORE INTERACTION WITH INPO, OTHER UTILITIES AND VENDORS TO ESTABLISH RESOLUTION TO PROBLEMS. CI HAS NO FURTHER INFORMATION. ANONYMOUS CONCERN VIA LETTER.	3.2/301.02-01

70 CONCERNS FOR CATEGORY OP SUBCATEGORY 301

CONCERNS ARE GROUPED BY FIRST 3 DIGITS OF SUBCATEGORY NUMBER.

ATTACHMENT B

List of Concerns by Issue

301.01 Kerotest Valve Leakage and Corrosion

Issue	301.01-01	Kerotest valve corrosion, leakage, and seating problems (EX-85-085-003, IN-85-594-001, IN-86-285-001, QCP10.35-8-21, QCP10.35-8-9, XX-85-090-001, XX-85-090-002)

301.02 - Diesel Generator Reliability Problems

Issue	301.02-01	D/G reliability (WI-85-100-003, XX-85-122-008, XX-85-122-009, XX-85-122-010, IN-85-323-001)
Issue	301.02-02	Diesel fuel spill (IN-85-097-012)
Issue	301.02-03	False alarms on D/G bearing and stator temperature (WBN-85-01)
Issue	301.02-04	D/G AC lubricating oil pump trips (MAS-85-001)

301.03 - Vibration Problems Noted

Issue	301.03-01	System 74 Mini-Flow pipe vibration (IN-85-289-002, IN-85-325-003)
Issue	301.03-02	Fire protection pipe vibration (IN-85-922-001)
Issue	301.03-03	Main steam pipe vibration (IN-86-027-001)
Issue	301.03-04	CCW pipe vibration (IN-86-296-001)
Issue	301.03-05	Repair of defects caused by pipe vibration (XX-85-102-003)

301.04 - Retubing Problems

Issue	301.04-01	Design of CCS Heat Exchanger (IN-86-068-001)
Issue	301.04-02	CCS Heat Exchanger tube problems (IN-86-068-002, IN-86-189-001, IN-86-210-001)

301.05 - Questionable Design/Construction Practices

Issue	301.05-01	Reluctance to have a QC check performed. (EX-85-008-003)
Issue	301.05-02	Drainage of the System 77 (Waste Disposal System) Hot Panel. (IN-85-021-002)

ATTACHMENT B (con't)

Issue	301.05-03	Cooling coils in Systems 63 (Safety Injection System) and 68 (Reactor Coolant System). (IN-85-089-005)
Issue	301.05-04	Unit 2 floor drains. (IN-85-238-004)
Issue	301.05-05	Location of swinging gate. (IN-85-411-001)
Issue	301.05-06	Incomplete 1/4" stainless steel line (IN-85-554-001)
Issue	301.05-07	Engineering evaluation of the ERCW pump motor. anti-reversing mechanism. (IN-85-839-001)
Issue	301.05-08	Leakage of boron level indicator isolation valves for cold leg accumulator. (IN-85-889-N08)
Issue	301.05-09	Leakage of the blowdown line. (IN-85-930-001)
Issue	301.05-10	Plastic pipe leading to the demineralizer. (WBN-0023)
Issue	301.05-11	Use of similar fittings. (WBN-0291)
Issue	301.05-12	Inadequate heating. (WBN-0287)
Issue	301.05-13	Temporary rubber hose. (I-86-233-SQN)
Issue	301.05-14	Limit switches. (MAS-86-002) R2
Issue	301.05-15	Condensate Storage Tank check valves. (RCM-85-001)

Element 301.06 - Hardware Selection Questionable

Issue	301.06-01	Unsuitable door latches & knobs (IN-86-247-002)
Issue	301.06-02	Rusty bearings in valves (PH-85-003-010)
Issue	301.06-03	Improper hardware identification (XX-85-071-004)

ATTACHMENT B (con't)

Element 301.07 - General Paint Concern

Issue 301.07-01 Paint coatings (XX-85-087-001)

Element 301.08 - Steam Generator (S/G) Manway Installation

Issue 301.08-01 Steam Generator (S/G) Access (IN-85-869-001, IN-85-872-001, WBN-0284, XX-85-052-001)

Element 301.09 - Socket Wrench Dropped into Unit 1 Turbine

Issue 301.09-01 Socket wrench reported dropped into Unit 1 turbine (IN-85-294-001)

Element 301.10 - Spent Fuel Rack Problems

Issue 301.10-01 Shoddy workmanship (IN-85-323-003)

Element 301.11 - Valve Closure Problems

Issue 301.11-01 Valves do not close completely (IN-85-400-001)

Element 301.12 - Improper Operation of System 31

Issue 301.12-01 Flow control indicators (IN-85-772-001, IN-85-772-009, IN-86-064-001)

Element 301.13 - Questionable Activities that Produced Operational Problems

Issue 301.13-01 Steam Generator (S/G) cleanliness violation (IN-85-600-005)

Issue 301.13-02 Plugged drains (IN-86-246-007, WI-85-054-003)

Issue 301.13-03 Valve/pipe/seal/motor leaks (IN-86-024-001, IN-86-246-006, IN-86-246-008, IN-86-246-009, IN-86-246-010, IN-86-246-011)

ATTACHMENT B (con't)

Element 301.14 - Malfunction of Doors

Issue 301.14-01 Inadequacy of Doors A56 and A57 (IN-85-991-001, IN-86-137-005, IN-86-246-014)

Element 301.15 - Improper Hardware Identification

Issue 301.15-01 Improper hardware identification in the field (XX-85-102-005)

Element 301.16 - Health and Safety Concerns

Issue 301.16-01 Freight elevator (IN-85-605-002)

Issue 301.16-02 Sanitation lines (IN-85-924-001)

Issue 301.16-03 Anti-skid devices (WI-85-054-005)

Checklist for Root Cause Analysis

1. Procedure lacks specifics to perform task.
2. Personnel lack sufficient training in the applicability/use of procedure.
3. Lack of understanding regulatory requirements or commitments.
4. Lack of adequate system, process, or administrative controls to ensure commitments are reflected in procedures or processes.
5. Inadequate communication within functional group.
6. Inadequate communication between functional groups.
7. Management Assumed Risk.
8. Procedures incomplete or failed to incorporate all technical requirements.
9. Error in judgment by qualified individuals.
10. Unqualified individuals performing the task.
11. Insufficient time to perform task.
12. Inadequate prerequisites defined to ensure satisfactory completion of task.
13. Personnel performed task knowingly in violation of procedure/process.
14. Personnel error in following procedures.
15. Failed to identify root cause of previous deficiencies.
16. Failed to take appropriate action to preclude reoccurrence.
17. Inadequate process to detect adverse trends.
18. Inadequate acceptance criteria defined to ensure satisfactory task completion.
19. Management attentiveness to trends.
20. Lack of accessibility to documentation.
21. Inadequate controls for review of results to ensure compliance with commitments.
22. Timeliness of changes to commitments or changes to licensing/regulatory requirements.
23. Isolated incident.
24. Random error.
25. Other - i.e., equipment related failure.

ATTACHMENT D

SUMMARY OF SYMPTOMS AND ROOT CAUSES

Element 301.01 - Kerotest Valve Leakage and Corrosion

For Element 301.01 the potential for negative findings at the subcategory level were exhibited by the following symptoms: (1) inadequate procurement processes resulting in the use of conflicting purchase specifications, and (2) inadequate material control with regard to receipt inspection. These symptoms were exhibited at WBN only. The appropriate root causes were judged to be as follows:

a. Lack of adequate system, process, or administrative controls to ensure commitments are reflected in procedures or processes

b. Personnel error in following procedures

c. Inadequate acceptance criteria defined to ensure satisfactory task completion

Element 301.02 - Diesel Generator Reliability Problems

For Element 301.02 the potential for negative findings at the subcategory level were exhibited by the following symptoms: (1); Inadequate D/G maintenance, and (2) Lack of cleanliness in D/G Building. The first symptom was identified for WBN while the second symptom was identified for SQN. The testing of these symptoms for root cause led to the following root causes and applicable plant sites:

a. Procedures incomplete or failed to incorporate all technical requirements (WBN)

b. Error in judgement by qualified individual (SQN and WBN)

c. Inadequate acceptance criteria defined to ensure satisfactory task completion (SQN and WBN)

Element 301.07 - General Paint Concern

In Element 301.07 the potential for negative findings at the subcategory level was exhibited by the following symptoms: (1) lack of design control pertinent to integrity and maintenance of containment paint coatings, (2) improper classification, reporting, and evaluation of deficiencies, and (3) inadequate work control regarding QA surveillance of painting contracts. The first and second symptoms were identified for WBN, SQN, and BFN while the third symptom was identified for BFN only. The testing of these symptoms for root cause led to the following root causes and applicable plant sites:

ATTACHMENT D (con't)

a. Personnel lack sufficient training in the applicability/use of procedures (WBN, SQN, BFN)

b. Lack of understanding regulatory requirements or commitments (WBN, SQN, BFN)

c. Lack of adequate system, process, or administrative controls to ensure commitments are reflected in procedures or processes (WBN, SQN, BFN)

d. Procedures incomplete or failed to incorporate all technical requirements (BFN)

e. Inadequate controls for review of results to ensure compliance with commitments (BFN)

Element 301.08 - S/G Manway Installation

For Element 301.08 the potential for negative findings at the subcategory level for WBN was exhibited by the symptom of inadequate preplanning for removing and replacing the steam generator primary manway covers. The testing of this symptom pointed to three root causes as follows:

a. Lack of adequate system, process, or administrative controls to ensure commitments are reflected in procedures or processes

b. Inadequate communication between functional groups (Maintenance, Health Physic/ALARA, and DNE at WBN)

c. Inadequate prerequisites defined to ensure satisfactory completion of task

Element 301.10 - Spent Fuel Rack Problems

For Element 301.10 the potential for negative findings at the subcategory level for WBN was exhibited by the symptom of inadequate QA control of vendor performance. Root causes emerging from the testing of the symptoms were as follows:

ATTACHMENT D (con't)

a. Lack of adequate system, process, or administrative controls to ensure commitments are reflected in procedures or processes

b. Procedures incomplete or failed to incorporate all technical requirements

c. Inadequate process to detect adverse trends

Element 301.12 - Improper Operation of System 31

For Element 301.12 the potential for negative findings at the subcategory level for WBN was exhibited by the symptom of operating instructions not reflecting the as-built condition of the plant. The appropriate root cause for this symptom was found to be as follows:

a. Personnel error in following procedures (i.e., operating instructions and prints should have been updated as part of the normal procedure for closing out ECNs)

b. Inadequate controls for review of results to ensure compliance with commitments.

Element 301.15 - Improper Hardware Identification

For Element 301.15 the potential for negative findings at the subcategory level was exhibited by the following symptoms: (1) inadequate configuration management (as-built installed permanent plant identification) and (2) inadequate design control regarding inconsistent component identification between drawings. The first symptom appeared for WBN, SQN, and BFN. The second symptom appeared for SQN and WBN. As these symptoms were tested for root cause, the appropriate root causes and applicable plant sites were judged to be as follows:

a. Personnel lack sufficient training in the applicability/use of procedure (WBN)

b. Lack of understanding regulatory requirements or commitments (BFN)

c. Lack of adequate system, process, or administrative controls to ensure commitments are reflected in procedures or processes (WBN, BFN, SQN)

d. Inadequate communications between functional groups (ONP, DNC, and DNE at WBN; ONP, and DNE at SQN)

ATTACHMENT D (con't)

e. Inadequate prerequisites defined to ensure satisfactory completion of task (SQN and WBN)

f. Personnel error in following procedures (BFN)

g. Failure to identify root cause of previous deficiencies (SQN and WBN)

h. Failure to take appropriate action to preclude recurrence (BFN, SQN and WBN)

i. Management attentiveness to trends (BFN, SQN, and WBN)

Symptoms

1. Inadequate procurement process resulting in the use of conflicting purchase specifications.

2. Inadequate material control with regard to receipt inspection.

3. Inadequate D/G maintenance.

4. Lack of cleanliness in D/G Building.

5. Lack of design control regarding integrity and maintenance of containment paint coatings.

6. Improper classification, reporting, and evaluation of deficiencies.

7. Inadequate work control regarding QA surveillance of painting contracts.

8. Inadequate preplanning for removing and replacing the steam generator primary manway cover.

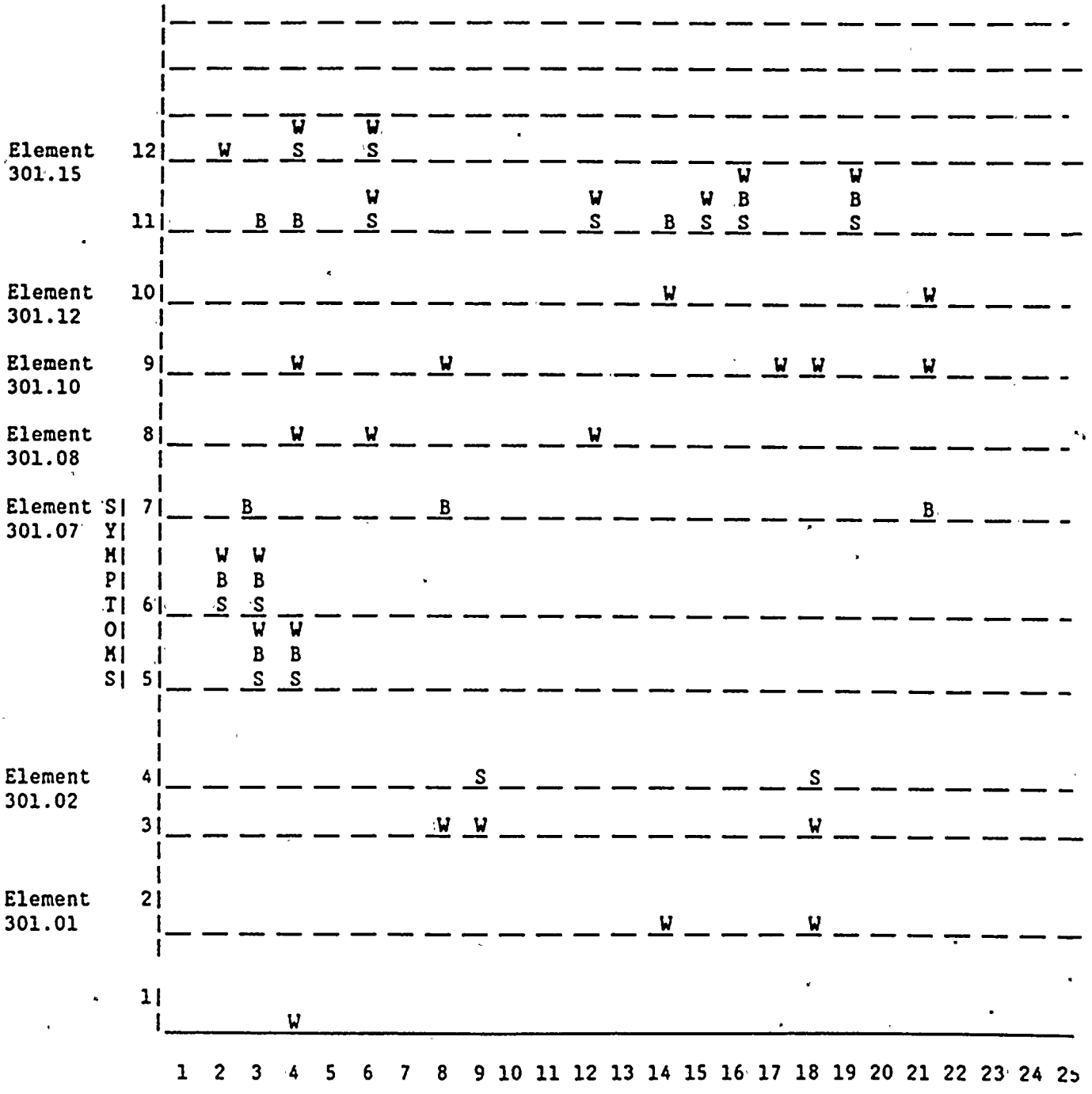
9. Inadequate QA control of vendor performance.

10. Operating instructions not reflecting as-built condition of plant (i.e., locked open valves on System 31).

11. Inadequate configuration management of as-built installed permanent plant identification.

12. Inadequate design control regarding inconsistent component identification between drawings.

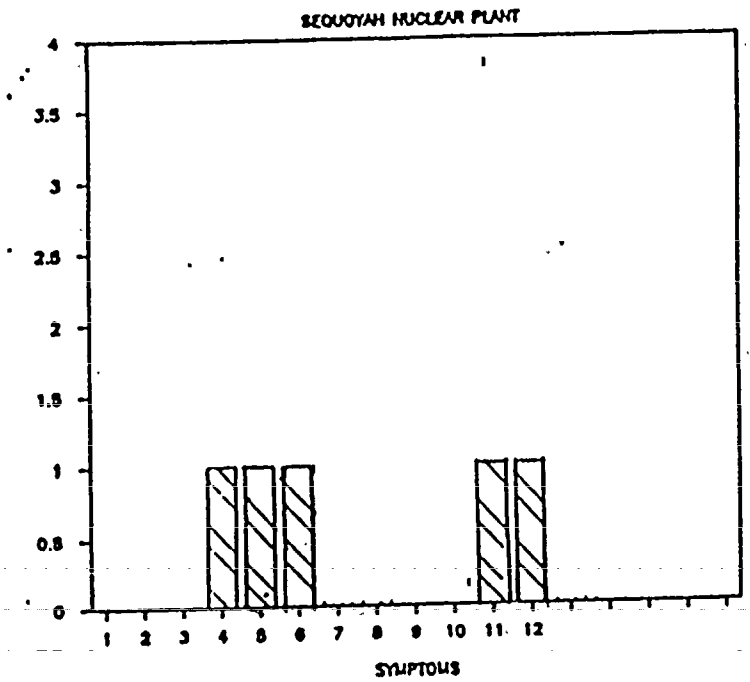
KEY: W=WBN
S=SQN
B-BFN
L=BLN

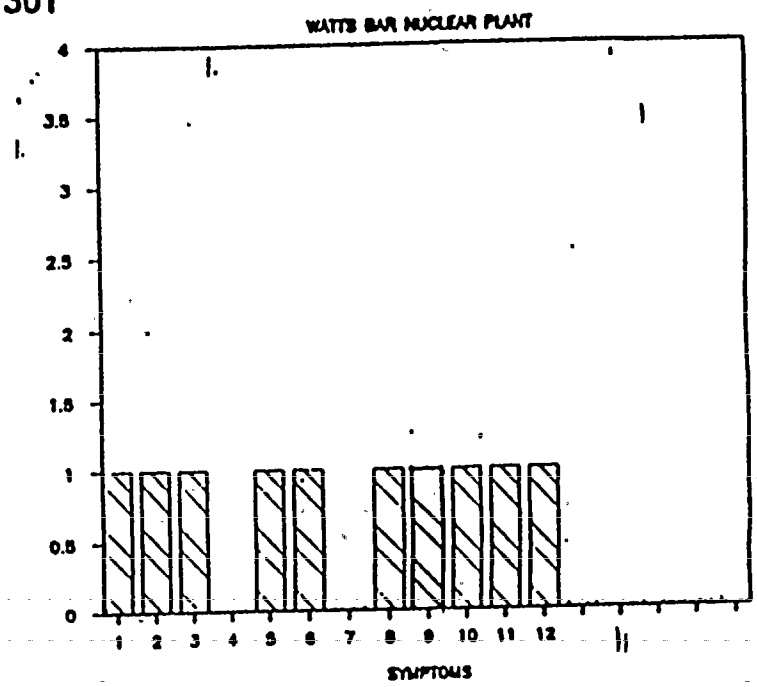


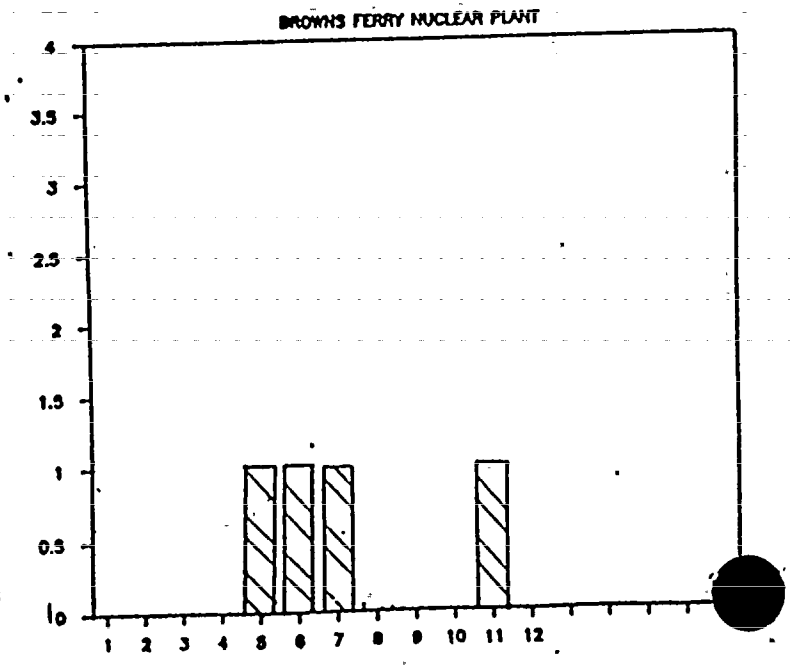
ROOT CAUSES

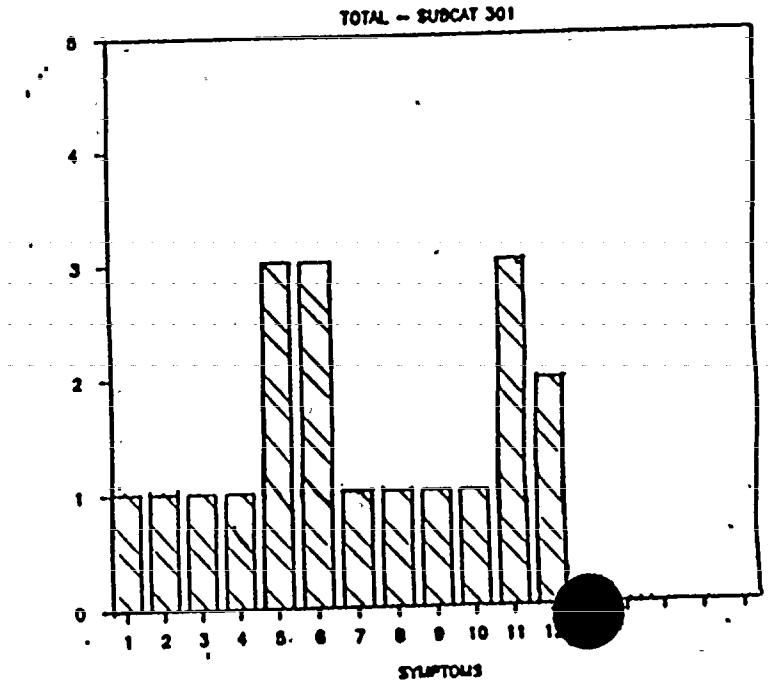
OCCURRENCES VS SYMPTOMS

TOTAL – SUBCAT 301





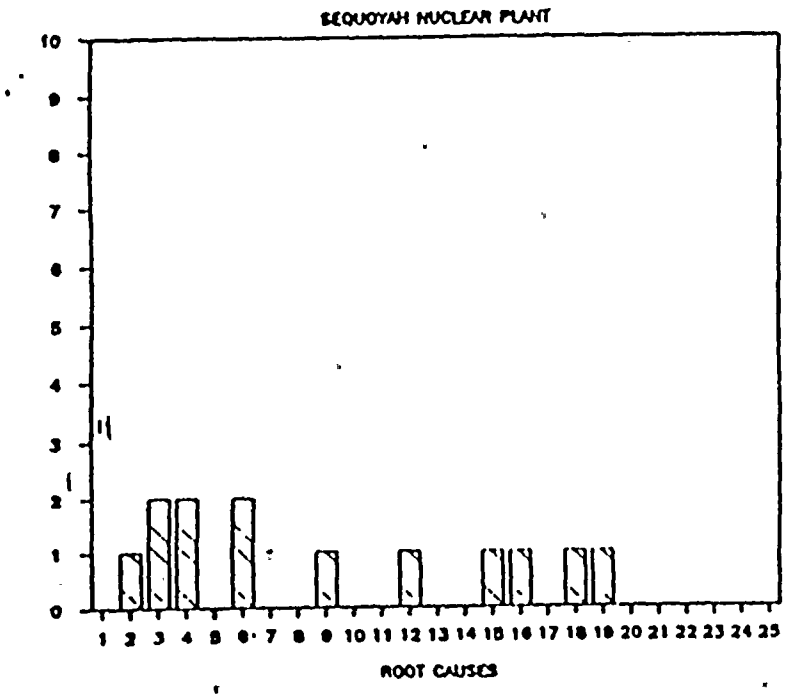


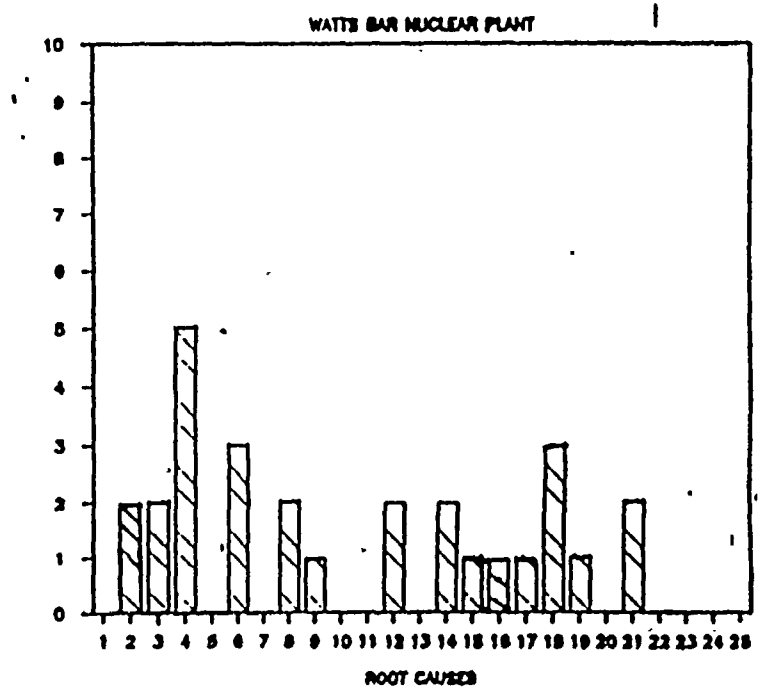


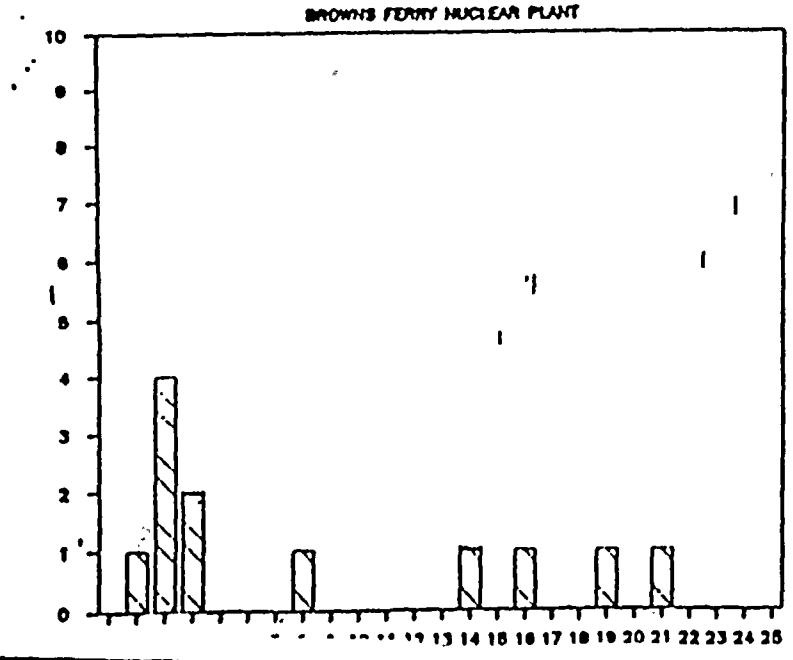
Revision 3

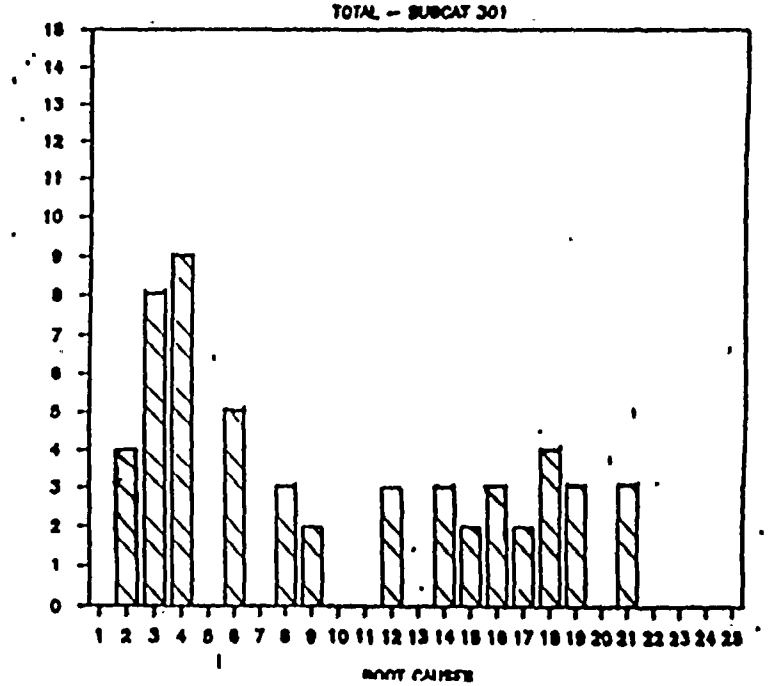
OCCURRENCES VS ROOT CAUSES

TOTAL – SUBCAT 301









ATTACHMENT G

Revision 3

ATTACHMENT H

Corrective Action Tracking Documents (CATDs)

CATD Number	Corrective Action Plan Received/Approved
30100-NPS-01	Yes
30101-WBN-01	Yes
30101-SQN-01	Yes
30101-BFN-01	Yes
30102-WBN-01	Yes
30102-WBN-02	Yes
30102-WBN-03	Yes
30102-WBN-04	Yes
30102-WBN-05	Yes
30102-WBN-06	Yes
30102-WBN-07	Yes
30102-SQN-01	Yes
30102-SQN-02	Yes
30102-BFN-01	Yes
30103-BFN-01	Yes
30103-BFN-02	Yes
30103-BFN-03	Yes
30107-WBN-01	Yes
30107-SQN-01	Yes
30107-BFN-01	Yes
30107-NPS-01	Yes
30108-WBN-01	Yes
30108-SQN-01	Yes
30112-WBN-01	Yes
30114-WBN-01	Yes
30114-SQN-01	Yes
30115-NPS-01	Yes
30115-WBN-01	Yes
30115-WBN-02	Yes
30115-SQN-01	Yes
30115-BFN-01	Yes

ECTG Corrective Action Tracking Document (CATD)

INITIATION Applicable ECTG Report No.: 30100

1. Immediate Corrective Action Required: ☐ Yes ☒ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. 30100-NPS-01 4. INITIATION DATE 04/21/87
5. RESPONSIBLE ORGANIZATION: TVA Corporate Management
6. PROBLEM DESCRIPTION: ☒ QR ☐ NQR As noted in the findings and collective significance of Report 30100, there has been a lack of corporate guidance in the maintenance and performance testing of diesel generator at all sites.

☐ ATTACHMENTS

7. PREPARED BY: NAME Eric D. Shrewsbridge DATE: 4/22/87
8. CONCURRENCE: CEG-H W.C. Kopp DATE: 5/5/87
9. APPROVAL: ECTG PROGRAM MGR. R.R. Stubbs for DATE: 5/7/87

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN:

see attached

☒ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: OLC 870730 800 DATE: —
12. CONCURRENCE: CEG-H: W.K. Kopp DATE: 8-5-87
ECTG PROGRAM MANAGER DATE:

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

2881T

ECTG C.3
Attachment A
Page 1 of 1
Revision 2

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No.: OP 301.01

1. Immediate Corrective Action Required: ☐ Yes ☒ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. OP 30101-WBN- 01 4. INITIATION DATE 11-20-86
5. RESPONSIBLE ORGANIZATION: WBN Site Director
6. PROBLEM DESCRIPTION: ☒ QR ☐ NQR 1. The seat leakage of Kerotest valves identified on NCR 2272R was partially due to foreign material in the flow lines and the valves being damaged by over-torquing. The disposition of the NCR did not address these conditions. 2. QCP 1.06 was violated when heat sealed bags were removed from Kerotest valves before placing them in storage. 3. WBN has not yet responded to the recommendation in NSRS report I-85-861-SON, R1 concerning NRC reportability of the root cause of valve failures.

☐ ATTACHMENTS

7. PREPARED BY: NAME Walter F. Stuart DATE: 1-13-87
8. CONCURRENCE: CEG-R Thomas F. Hutton for WRL DATE: 2/11/87
9. APPROVAL: ECTG PROGRAM MGR. [illegible] for DATE: 2/12/87

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN:

FINAL COMPLETION 3-4-88

☐ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: [illegible] DATE: 2/18-2/87
12. CONCURRENCE: CEG-E: [illegible] DATE: 2-18-87
SRP: _____ DATE: _____
_____ DATE: _____
_____ DATE: _____
_____ DATE: _____
ECTG PROGRAM MGR: _____ DATE: _____

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No: 301.01 SQN-Revision 1

1. Immediate Corrective Action Required: ☐ Yes ☒ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. 301.01-SQN-01 4. INITIATION DATE 10/15/86
5. RESPONSIBLE ORGANIZATION:
6. PROBLEM DESCRIPTION: ☒ QR ☐ NQR Procurement specifications for Kerotest valves do not always include a requirement that valves are to be dried and valve packing is to be removed after hydro testing and before shipment to TVA.

☐ ATTACHMENTS

7. PREPARED BY: NAME J. L. McVay for R. Sutt DATE: 10/15/86
8. CONCURRENCE: CEG-H [signature] DATE: 10/16/86
9. APPROVAL: ECTG PROGRAM MGR. [signature] DATE: 10/17/86

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN:

SEE CAP TRANSMITTED BY MEMORANDUM B25 861031 033

COMPLETED 8-11-88

Based on CAP no QR problem exist. WRL 3-20-87

☐ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: O.R. Walker DATE: 11/6/86
12. CONCURRENCE: CEG-H: W.R. [signature] DATE: 11/12/86
SRP: DATE:
DATE:
DATE:
DATE:
ECTG PROGRAM MGR: DATE:

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE TITLE DATE

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No.: 301.01 BFN Draft

1. Immediate Corrective Action Required: ☐ Yes ☒ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. 30101-BFN-01 4. INITIATION DATE 02/04/87
5. RESPONSIBLE ORGANIZATION: BFN Site Director
6. PROBLEM DESCRIPTION: ☐ QR ☒ NQR The contracts reviewed on kerotest valves did not require valves to be dried and valve packing to be removed after vendor's hydro testing prior to shipment to TVA.

☒ ATTACHMENTS DRAFT

7. PREPARED BY: NAME W. J. Elliott DATE: 2-15-87
8. CONCURRENCE: CEG-H Thomas F. Huth [illegible] DATE: 2/15/87
9. APPROVAL: ECTG PROGRAM MGR. [signature] for DATE: 2/16/87

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN: ☒ See Attachment A (CATG - CAPP 1.0) For Proposed Corrective Action Plan.

COMPLETED 1-21-88

☒ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: [signature] DATE: 3/24/87
12. CONCURRENCE: CEG-H: W. R. Laggan DATE: 3-31-87
SRP: DATE:
DATE:
DATE:
DATE:
ECTG PROGRAM MGR: DATE:

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

W.E Laggan	TOPS CEG-H	3-31-87
SIGNATURE	TITLE	DATE

3524T

Based on the C/A response from BFN this CATD will be closed out without further reviews
WEL 3-31-87

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No.: 301.02-WBN

1. Immediate Corrective Action Required: ☑ Yes ☐ No
2. Stop Work Recommended: ☐ Yes ☑ No
3. CATD No. 30102-WBN-01 4. INITIATION DATE 02/03/87
5. RESPONSIBLE ORGANIZATION: Mechanical Maintenance - WBN
6. PROBLEM DESCRIPTION: ☒ QR ☐ NQR The following problems concerning D/Gs were noted: 1) Roof leaks above exhaust mufflers, 2) No MI exists for "Starting Air Dryers", 3) Temporary sample lines were connected to day tanks with no TACF, 4) Diesel fuel and lube oil leaks, 5) Morrison Knudsen recommendations concerning maintenance history reviews are not in D/G MIs, 6) No trending analysis program for root cause analysis of D/G failures exists, 7) The D/G room floors are not painted, and 8)The D/G control relay and field flash cabinets are not protected from dust and grit entry. ☒ ATTACHMENTS FS
7. PREPARED BY: NAME B. Meers, Jr. DATE: 02/03/87
8. CONCURRENCE: CEG-H J. Thomas H. Hunter for WRL DATE: 2/14/87
9. APPROVAL: ECTG PROGRAM MGR. O.W. Burnett for DATE: 2/14/87

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN:

SEE ATTACHED CAP

☐ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: [signature] DATE: 2/21/87
12. CONCURRENCE: CEG-H: W R [signature] DATE: 3-3-87
SRP: _____ DATE: _____
_____ DATE: _____
_____ DATE: _____
_____ DATE: _____
ECTG PROGRAM MGR: _____ DATE: _____

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

26777

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No.: 301.02-WBN

1. Immediate Corrective Action Required: ☒ Yes ☐ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. 30102-WBN-02 4. INITIATION DATE 02/03/87
5. RESPONSIBLE ORGANIZATION: Electrical Maintenance - WBN
6. PROBLEM DESCRIPTION: ☒ QR ☐ NQR Metal rimmed informal tags were observed attached with string to wiring inside one D/G control cabinet.

☒ ATTACHMENTS FB

7. PREPARED BY: NAME B. Meers, Jr. [signature] DATE: 02/03/87
8. CONCURRENCE: CEG-H [signature] DATE: 2/14/87
9. APPROVAL: ECTG PROGRAM MGR. [signature] DATE: 2/16/87

COMPLETED 2-2-88

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN:

SEE ATTACHED CAP

WKL 3-18-87

☐ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: [signature] DATE: 2/2/87
12. CONCURRENCE: CEG-H: W.L. [signature] DATE: 3/2/87
SRP: DATE:
DATE:
DATE:
DATE:
ECTG PROGRAM MGR: DATE:

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE TITLE DATE

2677T

ECSP Corrective Action Tracking Document (CATD)

INITIATION — Applicable ECSP Report No.: 301.02-WBN

1. Immediate Corrective Action Required: ☑ Yes ☐ No
2. Stop Work Recommended: ☐ Yes ☑ No
3. CATD No. 30102-WBN-03 4. INITIATION DATE 02/03/87
5. RESPONSIBLE ORGANIZATION: Operations - WBN
6. PROBLEM DESCRIPTION: ☑ QR ☐ NQR The following problems concerning D/G testing were noted: 1) No formal reliability program to perform trending and root cause analysis of D/G failures exists. 2) No "valid start" documentation comparable to SON SI-7.2 was found. 3) In the review of performance of SI-8.1, no graphic (such as strip charts) record of voltage or frequency data was found. The existing instruction allows human error and response time to influence test results. 4) Diesel oil and lube oil leaks were observed. 5) Unattended flammable absorbent pads were observed "in use" to soak up diesel fuel and oil. ☑ ATTACHMENTS
7. PREPARED BY: NAME B. Meers, Jr. DATE: 02/03/87
8. CONCURRENCE: CEG-H [signature] DATE: 2/14/87
9. APPROVAL: ECTG PROGRAM MGR. [signature] DATE: 2/16/87

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN:

SEE ATTACHED CAP

Based on CAP no OK problem exist. [illegible] 3-3-87

☐ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: [signature] DATE: 2/31/87
12. CONCURRENCE: CEG-H: W.K. [signature] DATE: 3-3-87
    SRP: DATE:
    DATE:
    DATE:
    DATE:
    ECTG PROGRAM MGR: DATE:

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

[signature]
SIGNATURE TITLE DATE

2677T

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No.: 301.02-WBN

1. Immediate Corrective Action Required: ☒ Yes ☐ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. 30102-WBN-04 4. INITIATION DATE 02/03/87
5. RESPONSIBLE ORGANIZATION: DNE-WBN
6. PROBLEM DESCRIPTION: ☒ QR ☐ NQR Problems with D/G auxiliary systems design were noted: 1) Cooling air entering the D/G rooms (not the engine) is not filtered to remove dust and grit, 2) Moisture separators and air dryers drip condensate onto the floor and equipment frame causing corrosion deposits to form on both the floor and the frame, 3) Recommendations of NUREG/CR-0660 have not been implemented as recommended by the NRC, and 4) The D/G room floors are not painted which allows accumulation of cement dust on electrical and mechanical moving parts causing failures.

☒ ATTACHMENTS

7. PREPARED BY: NAME B. Meers, Jr. [signature] DATE: 02/07/87
8. CONCURRENCE: CEG-H [signature] DATE: 2/14/87
9. APPROVAL: ECTG PROGRAM MGR. [signature] DATE: 2/16/87

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN:

SEE ATTACHED CAP

Based on CAP no CK problem exist WKL 3-12-87

☐ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: [signature] DATE: 3/6/87
12. CONCURRENCE: CEG-H: W.K. [signature] DATE: 3-3-87
SRP: DATE:
DATE:
DATE:
DATE:
ECTG PROGRAM MGR: DATE:

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE TITLE DATE

2677T

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No.: 301.02-WBN

1. Immediate Corrective Action Required: ☐ Yes ☒ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. 30102-WBN-05 4. INITIATION DATE 02/03/87
5. RESPONSIBLE ORGANIZATION: Plant Manager-WBN
6. PROBLEM DESCRIPTION: ☐ QR ☒ NQR MR history on repairs and cleanup operations are not easily retrievable. The PRIME computer's stored information and program is not conducive to researching maintenance activity history.

☒ ATTACHMENTS FS

7. PREPARED BY: NAME Ben Meins-WBN DATE: 2/15/87
8. CONCURRENCE: CEG-H Thomas F. Kuhn for WRL DATE: 2/15/87
9. APPROVAL: ECTG PROGRAM MGR. [signature] DATE: 2/16/87

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN:

SEE ATTACHED CAP

☐ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR [signature] DATE: 2/17/87
12. CONCURRENCE: CEG-H: W. R. [signature] DATE: 2-20-87
SRP: [signature] DATE:
[signature] DATE:
[signature] DATE:
[signature] DATE:
ECTG PROGRAM MGR: [signature] DATE:

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

2677I

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No.: 301.02-WBN

1. Immediate Corrective Action Required: ☐ Yes ☒ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. 30102-WBN-06 4. INITIATION DATE 3/12/87
5. RESPONSIBLE ORGANIZATION:
6. PROBLEM DESCRIPTION: ☒ QR ☐ NQR The WBN D/G stator bearing temperature recorders are being evaluated for replacement with a different model (see D/G Task Force Report, T09 860718 930). This CATD is for the purpose of tracking the corrective action.

☐ ATTACHMENTS

7. PREPARED BY: NAME B. Meers, Jr. B Meers Jr DATE: 3/12/87
8. CONCURRENCE: CEG-H Thomas F Hutton for WRL DATE: 3/13/87
9. APPROVAL: ECTG PROGRAM MGR. R R Hildy for DATE: 3/20/87

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN: Tracking Only

☐ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: Tracking Only DATE:
12. CONCURRENCE: CEG-H: J. R. Longley DATE: 8-6-87
SRP: DATE:
DATE:
DATE:
DATE:
ECTG PROGRAM MGR: DATE:

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

4506T

ECTG Corrective Action Tracking Document (CATD)

INITIATION Applicable ECTG Report No.: 301.02-WBN

1. Immediate Corrective Action Required: ☒ Yes ☐ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. 30102-WBN-07 4. INITIATION DATE 04/21/87
5. RESPONSIBLE ORGANIZATION: WBN Site Director
6. PROBLEM DESCRIPTION: ☒ QR ☐ NQR Given the problems with D/G reliability as documented in the WBN "Valid start log" and as cited in ECTG Fact Sheet 301.02-WBN revision 2, please provide resolution to the question of how the D/Gs will be qualified at fuel loading.

☐ ATTACHMENTS

7. PREPARED BY: NAME B. Meers Jr. B. Meers Jr. DATE: 04/21/87
8. CONCURRENCE: CEG-H D.R. Lee DATE: 4-22-87
9. APPROVAL: ECTG PROGRAM MGR. R.R. Stubbs for DATE: 4/22/87

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN: See Attachment A.

☒ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: [signature] DATE: 11/28/51
12. CONCURRENCE: CEG-H: W.R. Lee DATE: 5/2/87
ECTG PROGRAM MANAGER _____ DATE: _____

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

4884T

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No: 301.02 SQN Revision 0

1. Immediate Corrective Action Required: ☐ Yes ☒ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. 30102-SQN-01 4. INITIATION DATE 10-05-86
5. RESPONSIBLE ORGANIZATION: Electrical Maintenance
6. PROBLEM DESCRIPTION: ☐ QR ☒ NQR Referenced Report 301.02 Diesel Generator Reliability Problems Noted: (a) overall problems in housekeeping in the DG Building.

☐ ATTACHMENTS

7. PREPARED BY: NAME Ben Meers DATE: 10-13-86
8. CONCURRENCE: CEG-H W. R. [signature] DATE: 10-15-86
9. APPROVAL: ECTG PROGRAM MGR. [signature] DATE: 10-17-86

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN: See the CAP transmitted by memorandum S53 861204 892
Transmitted to ECTG via RIMS SC3 861204 803 [initials] 2/11/87

COMPLETED 38

☐ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: [signature] DATE: 12/5/86
12. CONCURRENCE: CEG-H: Thomas F. Huth for WRL DATE: 12/8/86
SRP: ______ DATE: ______
______ DATE: ______
______ DATE: ______
______ DATE: ______
ECTG PROGRAM MGR: ______ DATE: ______

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

2049T

ECSP Corrective Action Tracking Document (CATD)

INITIATION — Applicable ECSP Report No: 301.02 SQN Revision 0

1. Immediate Corrective Action Required: ☐ Yes ☒ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. 30102-SQN-02 4. INITIATION DATE 10-05-86
5. RESPONSIBLE ORGANIZATION: Electrical Maintenance
6. PROBLEM DESCRIPTION: ☐ QR ☒ NQR Referenced Report 301.02-SQN defines the need to incorporate and implement maintenance related items referenced in NUREG/CR 0660 and NUREG/CR 2989.

☐ ATTACHMENTS

7. PREPARED BY: NAME B. Meens Jr. DATE: 10/13/86
8. CONCURRENCE: CEG-H W.K. Seagle DATE: 10/14/86
9. APPROVAL: ECTG PROGRAM MGR. _____ DATE: _____

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN: See attached CAP 301.02-SQN dated 09-29-86. RIMS S03-860926 802.

☒ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: S03 860926 802 DATE: 9-29-86
12. CONCURRENCE: CEG-H: W.K. Seagle DATE: 10-14-86
SRP: _____ DATE: _____
_____ DATE: _____
_____ DATE: _____
_____ DATE: _____
ECTG PROGRAM MGR: _____ DATE: _____

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

2049T

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No: OP-301.02-BFN

1. Immediate Corrective Action Required: ☒ Yes ☐ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. OP30102-001-BFN 4. INITIATION DATE 10/15/86
5. RESPONSIBLE ORGANIZATION: Maintenance
6. PROBLEM DESCRIPTION: ☒ QR ☐ NQR BFN does not currently implement all recommendations of NUREG/CR-0660 as noted in the referenced ECSP Report.

☐ ATTACHMENTS

7. PREPARED BY: NAME B. Meers, Jr. DATE: 10/15/86
8. CONCURRENCE: CEG-H W. K. Sorrell DATE: 10/17/86
9. APPROVAL: ECTG PROGRAM MGR. M. W. Kirkwood DATE: 10-21-86

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN: See Attached Corrective Action Plan

During close out process verify CAGE initiated

L. M. C. 3-31-87

☒ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: RB3 870219 864 DATE:
12. CONCURRENCE: CEG-H: W. K. Sorrell DATE: 3-31-87
SRP: DATE:
DATE:
DATE:
DATE:
ECTG PROGRAM MGR: DATE:

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE TITLE DATE

2062T

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No: 301.03-BFN

1. Immediate Corrective Action Required: ☐ Yes ☒ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. 30103-BFN-001 4. INITIATION DATE 10-24-86
5. RESPONSIBLE ORGANIZATION: Plant Manager
6. PROBLEM DESCRIPTION: ☐ QR ☒ NQR The Reactor Feed Water (RFW) pump low load by-pass lines (min flow line) may have excessive pipe vibration. However, this cannot be verified unless an inspection is performed during operation. The inspection should include a clearance check and thermal movement verification to establish if additional hangers are necessary.

Browns Ferry - Unit 1 ☐ ATTACHMENTS

7. PREPARED BY: NAME R.Sutt DATE: 10-10-86
8. CONCURRENCE: CEG-H W.R. Lagan DATE: 11-14-86
9. APPROVAL: ECTG PROGRAM MGR. M U Kulkarni DATE: 11-14-86

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN:

(See Attachment)

☒ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: Stan Thomas DATE: 6-12-87
12. CONCURRENCE: CEG-H: W.R. Lagan DATE: 7-7-87
SRP: N/A DATE: N/A
DATE:
DATE:
DATE:
ECTG PROGRAM MGR: W.R. Lagan for DATE: 7-7-87

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

2170T

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No: 301.03-BFN

1. Immediate Corrective Action Required: ☐ Yes ☑ No
2. Stop Work Recommended: ☐ Yes ☑ No
3. CATD No. 30103-BFN-002 4. INITIATION DATE 10-24-86
5. RESPONSIBLE ORGANIZATION: Plant Manager
6. PROBLEM DESCRIPTION: ☐ QR ☑ NQR
The Reactor Feed Water (RFW) pump low load by-pass lines (min flow line) may have excessive pipe vibration. However, this cannot be verified unless an inspection is performed during operation. The inspection should include a clearance check and thermal movement verification to establish if additional hangers are necessary.

Browns Ferry - Unit 2 ☐ ATTACHMENTS

7. PREPARED BY: NAME R. Sutt DATE: 10-10-86
8. CONCURRENCE: CEG-H [signature] DATE: 11-14-86
9. APPROVAL: ECTG PROGRAM MGR. [signature] DATE: 11-17-86

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN:
(See Attachment)

☒ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: [signature] DATE: 6-12-87
12. CONCURRENCE: CEG-H: [signature] DATE: 7-7-87
SRP: DATE:
DATE:
DATE:
DATE:
ECTG PROGRAM MGR: [signature] DATE: 7-7-87

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE TITLE DATE

2170T

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No: 301.03-BFN

1. Immediate Corrective Action Required: ☐ Yes ☑ No
2. Stop Work Recommended: ☐ Yes ☑ No
3. CATD No 87-0103-BFN-003 4. INITIATION DATE 10-24-86
5. RESPONSIBLE ORGANIZATION: Plant Manager
6. PROBLEM DESCRIPTION: ☐ QR ☑ NQR
The Reactor Feed Water (RFW) pump low load by-pass lines (min flow line) may have excessive pipe vibration. However, this cannot be verified unless an inspection is performed during operation. The inspection should include a clearance check and thermal movement verification to establish if additional hangers are necessary.

Browns Ferry - Unit 3 ☐ ATTACHMENTS

7. PREPARED BY: NAME R. Sutt DATE: 10-10-86
8. CONCURRENCE: CEG-H DATE: 11-14-86
9. APPROVAL: ECTG PROGRAM MGR. DATE: 11-17-86

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN:
(See Attachment)

☒ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: DATE: 6-12-87
12. CONCURRENCE: CEG-H: DATE: 7-7-87
SRP: N/A DATE: N/A
DATE:
DATE:
DATE:
ECTG PROGRAM-MGR: DATE: 7-7-87

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE TITLE DATE

2170T

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No: OP 301.07

1. Immediate Corrective Action Required: ☐ Yes ☒ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. OP-30107 - WBN-001 4. INITIATION DATE 11-12-86
5. RESPONSIBLE ORGANIZATION: WBN Site Director
6. PROBLEM DESCRIPTION: ☒ QR ☐ NQR The recommendations of NSRS Report I-85-817-WBN have not yet been reviewed and addressed by the plant staff. Contrary to the evaluation by WBEP, the lack of a formalized program for coatings maintenence and repair and the lack of a mechanism for including ONP identified unqualified coatings in the DNE unqualified coatings log appears to represent a significant CAQ.

☒ ATTACHMENTS

7. PREPARED BY: NAME *W.D. Elliott* DATE: *11-12-86*
8. CONCURRENCE: CEG-H *W.R. [illegible]* DATE: *12-4-86*
9. APPROVAL: ECTG PROGRAM MGR. *DW Stewart for* DATE: *12-9-86*

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN: See attached comments to NSRS Report. A formalized program for coatings maintenance and repair will be developed and in place before Unit 1 startup. A procedure will be developed requiring inspection and repairs of any areas identified as deficient during each outage.

A new procedure will be written or instructions incorporated into existing procedures to provide requirements for maintaining a formal list of unqualified coatings by 01-15-86.

During close out process insure CEG-H initials. WCL 3-19-87

☐ ATTACHMENTS

[initials] 11. PROPOSED BY: DIRECTOR/MGR: *[signature]* DATE: *2-4-87*
12. CONCURRENCE: CEG-H: *Thomas F. Hill for WRL* DATE: *2/18/87*
SRP: ______ DATE: ______
______ DATE: ______
______ DATE: ______
______ DATE: ______
ECTG PROGRAM MGR: ______ DATE: ______

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

______ SIGNATURE ______ TITLE ______ DATE

2553T

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No: OP 301.07-SQN R1

1. Immediate Corrective Action Required: ☒ Yes ☐ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. OP 30107-001-SQN 4. INITIATION DATE 10-02-86
5. RESPONSIBLE ORGANIZATION: SQN Plant Manager
6. PROBLEM DESCRIPTION: ☒ QR ☐ NQR
   The plant identified corrective actions (S01 860218 232) for SQ-CAR-86-01-001 does not specifically identify the NSRS recommendations to be resolved nor does it specify actions taken to resolve the root cause issue on a corporate level. The root cause issue was the lack of an upper-tier document controlling coating repair and maintenance. Response should address all actions/schedules taken to resolve coatings issues at SQN.

   ☒ ATTACHMENTS
7. PREPARED BY: NAME G. D. Gardner DATE: 10-02-86
8. CONCURRENCE: CEG-H W R Lagg DATE: 10-5-86
9. APPROVAL: ECTG PROGRAM MGR. M Kurek DATE: 10-7-86

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN: See attached CAP for ECSP Report OP 301.07-SQN R1

    THIS ITEM COMPLETED DATE: 9-29-88

    ☒ ATTACHMENTS
11. PROPOSED BY: DIRECTOR/MGR: [signature] DATE: 10/29/86
12. CONCURRENCE: CEG-H: W.R. Lagg DATE: 11/5/86
    SRP: DATE:
    DATE:
    DATE:
    DATE:
    ECTG PROGRAM MGR: DATE:

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

1747T

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No: 301.07-BFN

1. Immediate Corrective Action Required: ☐ Yes ☒ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. 30107-BFN-01 4. INITIATION DATE 10-31-86
5. RESPONSIBLE ORGANIZATION: BFNP PLANT MANAGER
6. PROBLEM DESCRIPTION: ☒ QR ☐ NQR The extent of deficient and unqualified coatings in Level 1 areas is indeterminate. An unqualified coatings log has not been developed and maintained to ensure that solid debris produced by unqualified coatings will not compromise the emergency core cooling system. Upper tier requirements and site instructions do not provide for periodic inspection and maintenance on Level 1 coatings. Site QA surveillance has not been performed on Level I coatings repair activities at the plant.

☐ ATTACHMENTS

7. PREPARED BY: NAME T. Elliot DATE: 10-31-86
8. CONCURRENCE: CEG-H [signature] DATE: 11-6-86
9. APPROVAL: ECTG PROGRAM MGR. [signature] DATE: 11-6-86

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN:

See attached memorandum R. L. Lewis to G. R. Hall dated December 31, 1986 (B42 861229 918) and memorandum from P. T. Becknell to T. F. Ziegler dated May 5, 1986. (R33 860505 802)

Ongoing close out verify CAQR initiated. 3-25-87

☒ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: R33 870106 847 DATE: 1/14/87
12. CONCURRENCE: CEG-H: Thomas F Heath for WHL DATE: 2/7/87
SRP: ______ DATE: ______
______ DATE: ______
______ DATE: ______
______ DATE: ______
ECTG PROGRAM MGR: ______ DATE: ______

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

1595T

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No.: 301.07

1. Immediate Corrective Action Required: ☐ Yes ☒ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. 30107-NPS-01 4. INITIATION DATE 2-5-87
5. RESPONSIBLE ORGANIZATION: DNE
6. PROBLEM DESCRIPTION: ☒ QR ☐ NQR The lack of upper tier requirements providing for periodic inspection and maintenance of protective coatings have been identified at SQN, BFN and WBN. Control of unqualified coatings was also found to be inadequate. These deficiencies appear to represent a significant condition adverse to quality for TVA.

☒ ATTACHMENTS

7. PREPARED BY: NAME W. D. Elliott DATE: 2-5-87
8. CONCURRENCE: CEG-H Thomas F. Hyatt for WRL DATE: 2/17/87
9. APPROVAL: ECTG PROGRAM MGR. [signature] DATE: 2/9/87

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN:

See attached.

☐ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: [signature] DATE: 2/17/87
12. CONCURRENCE: CEG-H: W. K. [illegible] DATE: 2-19-87
SRP: [signature] DATE:
DATE:
DATE:
DATE:
ECTG PROGRAM MGR: DATE:

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

3569T

ECSP Corrective
Action Tracking Document
(CATD)

INITIATION Applicable ECSP Report No: 301.08-WBN

1. Immediate Corrective Action Required: ☐ Yes ☒ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. 30108-WBN-01 4. INITIATION DATE 11-1-86
5. RESPONSIBLE ORGANIZATION: WBN Mechanical Maintenance
6. PROBLEM DESCRIPTION: ☐ QR ☒ NQR Please provide confirmation and schedule for implementation of Westinghouse proposal for a stud/nut and tensioner closure system for primary manways (letter to R. S. Patton, Division of Purchasing, TVA, TVA-86-581, June 9, 1986) and associated WBN Design Change Request (WB-DCR-652).

☒ ATTACHMENTS

7. PREPARED BY: NAME C. W. Touchstone DATE: 11-5-86
8. CONCURRENCE: CEG-H: Jim W.K. Lee DATE: 11-5-86
9. APPROVAL: ECTG PROGRAM MGR. M U Rudolph DATE: 11-6-86

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN: 3660 4A 11/26/86 Change No. 652 to contract 71C62-54114-1 has been issued to Westinghouse to provide primary manway studs/nuts and tensioning equipment. The studs/nuts have been received at WBN. The tensioning equipment is scheduled for delivery in late December. (Reference DCR 652, FCN WBTM-10771, FCN WBTM-10740)

This item will be completed by 3/15/87.

☐ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: W C Gilbert III/ DATE: 12/01/86
12. CONCURRENCE: CEG-H: Thomas F. Hutton for DATE: 2/6/87
SRP: _____ DATE: _____
_____ DATE: _____
_____ DATE: _____
_____ DATE: _____
ECTG PROGRAM MGR: _____ DATE: _____

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

2342I

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No: OP 301.08-SQN-Revision 2

1. Immediate Corrective Action Required: ☐ Yes ☒ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. OP 30108-SQN-01 4. INITIATION DATE 10/24/86
5. RESPONSIBLE ORGANIZATION: SQN Site Services
6. PROBLEM DESCRIPTION: ☐ QR ☒ NQR The referenced ECSP report states in Section III under "Follow-up" that a stud-nut tensioner system for S/G primary manway cover operations has been selected for use at WBN and SQN. Please provide verification of this selection. Additionally, please provide status and timeframe for implementation of SQN DCR-2247, "Platform Extension."

☐ ATTACHMENTS

7. PREPARED BY: NAME C. W. Touchstone DATE: 10/21/86
8. CONCURRENCE: CEG-H W. R. Lagergren DATE: 10-24-86
9. APPROVAL: ECTG PROGRAM MGR. M U Rudolph DATE: 10-27-86

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN: SEE THE CAP TRANSMITTED BY MEMORANDUM 553 861117 982 / 503 861124 803 JTH 12/1/86

☐ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: H. B. Rankin for DATE: 11-25-86
12. CONCURRENCE: CEG-H: Thomas F Hutton for WRL DATE: 12/3/86
SRP: _____ DATE: _____
DATE: _____
DATE: _____
DATE: _____
ECTG PROGRAM MGR: _____ DATE: _____

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

1595T

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No: OP 301.12

1. Immediate Corrective Action Required: ☒ Yes ☐ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. OP 30112-WBN-01 4. INITIATION DATE 10-14-86
5. RESPONSIBLE ORGANIZATION: WBN Operations, Inst. and Elect. Maint.
6. PROBLEM DESCRIPTION: ☐ QR ☒ NQR In the course of our evaluation related to employee concerns on General Vent Chiller Operations, some procedural discrepancies were noted. WBN plant instructions SOI-30.5E and TI-56.31 both make reference to PCV-31-349 and 364. In addition TI-56.31 makes reference to ZS-31-349 and 364 (reference 14). These instructions do not indicate that these valves have been locked in place and have had their power removed by ECN 5176 under workplans 4858 and 4866. WBN Operations and Maintenance personnel interviewed during the evaluation stated that while additional instrumentation was not an absolute necessity for system 31 operation, it would be helpful for placing the chiller packages in service. These organizations should collaborate to jointly identify desired permanent instrumentation and pursue any mutually agreeable changes utilizing the DCR process. ☐ ATTACHMENTS
7. PREPARED BY: NAME G. D. Gardner DATE: 10-14-86
8. CONCURRENCE: CEG-H W. K [illegible] DATE: 10-22-86
9. APPROVAL: ECTG PROGRAM MGR. [illegible] DATE: 10-23-86

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN: Revise SOI-30.5E to reflect 0-PCV-31-349 and 364 are preset locked throttle valves by 3/1/87. Power supplies have already been removed from SOI. Continued on attached page. ☒ ATTACHMENTS
11. PROPOSED BY: DIRECTOR/MGR: [illegible] DATE: 1/21/87
12. CONCURRENCE: CEG-H: [illegible] DATE: 2/5/87
SRP: _____ DATE: _____
_____ DATE: _____
_____ DATE: _____
_____ DATE: _____
ECTG PROGRAM MGR: _____ DATE: _____

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

2091T

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No: 301.14

1. Immediate Corrective Action Required: ☐ Yes ☒ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. 30114-WBN-01 4. INITIATION DATE 12/12/86
5. RESPONSIBLE ORGANIZATION: WBN Mechanical Maintenance
6. PROBLEM DESCRIPTION: ☒ QR ☐ NQR The attached report summarizes the evaluation of concerns on the A56/A57 airlock at WBN and SQN. Please provide verification and schedule for action planned or taken to place this airlock system into safe operation at WBN only.

☒ ATTACHMENTS

7. PREPARED BY: NAME C. W. Touchstone DATE: 12-12-86
8. CONCURRENCE: CEG-H Thomas F Kauth for WRL DATE: 1-16-86
9. APPROVAL: ECTG PROGRAM MGR. DW Stewart for DATE: 1-23-87

JFN 1/14/87

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN: See Attached

☒ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR. [illegible] DATE: 2/11/87
12. CONCURRENCE: CEG-H: [illegible] DATE: 2-20-87
SPP: _____ DATE: _____
_____ DATE: _____
_____ DATE: _____
_____ DATE: _____
ECTG PROGRAM MGR: _____ DATE: _____

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

2329T

ECSP Corrective Action Tracking Document (CATD)

INITIATION

Applicable ECSP Report No: 301.14-SQN Revision 1

1. Immediate Corrective Action Required: ☐ Yes ☒ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. 301.14-SQN-01 4. INITIATION DATE 10-14-86
5. RESPONSIBLE ORGANIZATION: Construction
6. PROBLEM DESCRIPTION: ☐ QR ☒ NQR Concerns involving airlock doors A56 and A57 at Sequoyah Nuclear Plant (SQN) in Generic Concerns Task Force (GCTF) Report IN-86-137-005.

☐ ATTACHMENTS

7. PREPARED BY: NAME T. W. White DATE: 10-14-86
8. CONCURRENCE: CEG-H [illegible signature] DATE: 10-15-86
9. APPROVAL: ECTG PROGRAM MGR. DATE:

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN: We accept your Corrective Action Plan as proposed. Note: Schedule information provided over the phone [illegible] 11-3-86

☐ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: S03 860918 804 DATE: 9-22-86
12. CONCURRENCE: CEG-H: [illegible signature] DATE: 10-15-86
SRP: DATE:
DATE:
DATE:
DATE:
ECTG PROGRAM MGR: DATE:

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE TITLE DATE

2086T

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No: OP 301.15

1. Immediate Corrective Action Required: ☐ Yes ☒ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. OP 30115-NPS-01 4. INITIATION DATE 10-17-86
5. RESPONSIBLE ORGANIZATION: Division of Nuclear Services, Corporate Configuration Management
6. PROBLEM DESCRIPTION: ☒ QR ☐ NQR Deficiencies with component identification on drawings and data bases have been identified to exist at all sites and are perceived to result from the lack of centralized control for assignment of component identification. Provide corrective action plan for resolution to the issues as discussed in the referenced report (attached). The individual Site Directors have been notified by CATDs to address missing and/or incorrect equipment tags.

☒ ATTACHMENTS

7. PREPARED BY: NAME G. D. Gardner DATE: 10-17-86
8. CONCURRENCE: CEG-H Thomas F. Huth for WRL DATE: 1-16-87
9. APPROVAL: ECTG PROGRAM GR. DWStewart for DATE: 1-23-87

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN:

~~Verbal concurrence with T. Huth in meeting with D. Warren 3-18-87~~ DEW
During close-out process issue CAQR initiated. WRL 3-19-87

ONP ☒ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/GR. DJ McAnulty for DATE: 3-19-87
12. CONCURRENCE: CEG-H: W.R. [illegible] DATE: 3-19-87
SRP: DATE:
DATE:
DATE:
DATE:
ECTG PROGRAM GR: DATE:

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No: OP 301.15

1. Immediate Corrective Action Required: ☒ Yes ☐ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. OP 30115-WBN-01 4. INITIATION DATE 10-27-86
5. RESPONSIBLE ORGANIZATION: WBN Plant Manager, WBN Project Engineer
6. PROBLEM DESCRIPTION: ☒ QR ☐ NQR Deficiencies with component identification and tagging have been identified at WBN as evidenced by previous audits, NCRs and walkdowns. Provide details for determining the extent of missing and/or incorrect tags and corrective action plans. The corporate configuration manager, Division of Nuclear Services, has been notified by CATD to address data base deficiencies related to unique identifiers.

☐ ATTACHMENTS

7. PREPARED BY: NAME G. D. Gardner DATE: 10-27-86
8. CONCURRENCE: CEG-H for W. R. Long DATE: 11-10-86
9. APPROVAL: ECTG PROGRAM GR. [signature] DATE: 11/12/86

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN: "see attached car"

☐ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/GR: [signature] DATE: 2/12/87
12. CONCURRENCE: CEG-H: [signature] DATE: 2-20-87
SRP: _____ DATE: _____
_____ DATE: _____
_____ DATE: _____
_____ DATE: _____
ECTG PROGRAM GR: _____ DATE: _____

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No: OP 301.15

1. Immediate Corrective Action Required: ☑ Yes ☐ No
2. Stop Work Recommended: ☐ Yes ☑ No
3. CATD No. OP 30115-WBN-02 4. INITIATION DATE 10-27-86
5. RESPONSIBLE ORGANIZATION: WBN Division of Nuclear Construction
6. PROBLEM DESCRIPTION: ☑ QR ☐ NQR
A draft copy of DNC inspection procedure for instrument installation and tagging (3.06-9) was reviewed during the ECTG evaluation for XX-85-102-005. Section 7.33 of this procedure states that the responsible engineer will assign ID numbers not provided by DNE; however, no criteria were specified for making the assignment or for verifying assignments conform to a prescribed standard.
☐ ATTACHMENTS
7. PREPARED BY: NAME G. D. Gardner DATE: 10-27-86
8. CONCURRENCE: CEG-H [signature] DATE: 11-10-86
9. APPROVAL: ECTG PROGRAM MGR. [signature] DATE: 11/17/86

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN: See [illegible] 870211 827

Issued on EAP [illegible] problem list.
WKL 3-10-87

COMPLETED 3-9-88

SEE NEXT PAGE

☐ ATTACHMENTS
11. PROPOSED BY: DIRECTOR/MGR: [signature] See Next Page DATE: 2-8-87
12. CONCURRENCE: CEG-H: [signature] DATE: 2-20-87
SRP: DATE:
DATE:
DATE:
DATE:
ECTG PROGRAM MGR: DATE:

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

1595T

ECSP Corrective Action Tracking Document (CATD)

INITIATION — Applicable ECSP Report No: OP 301.15-SQN Revision 0

1. Immediate Corrective Action Required: ☒ Yes ☐ No
2. Stop Work Recommended: ☐ Yes ☒ No
3. CATD No. OP 30115-SQN-01 4. INITIATION DATE 10-27-86
5. RESPONSIBLE ORGANIZATION: SQN Plant Manager, SQN DNE
6. PROBLEM DESCRIPTION: ☒ QR ☐ NQR Deficiencies with component identification tagging have been identified at SQN as discussed in the referenced report. Provide details for determining the extent of missing or incorrect tags at SQN and corrective action proposals and/or corrective actions in progress. The corporate configuration manager, Division of Nuclear Services, has been notified by CATD to address data base deficiencies related to update identifies.

☐ ATTACHMENTS

7. PREPARED BY: NAME G. D. Gardner DATE: 10-27-86
8. CONCURRENCE: CEG-H [illegible] DATE: 10-27-86
9. APPROVAL: ECTG PROGRAM GR. [illegible] DATE: 10-27-86

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN: See attached CAP TRANSM BY MEMORANDUM BLS 870101 007. This CAP was transmitted to ECTG via SQ3 861212 806 JFH 1/12/87

☐ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/GR: H B Rankin /for DATE: 1-6-87
12. CONCURRENCE: CEG-H: Thomas F. Hutton for WRL DATE: 1-12-87
SRP: _____ DATE: _____
_____ DATE: _____
_____ DATE: _____
_____ DATE: _____
ECTG PROGRAM GR: _____ DATE: _____

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

ECSP Corrective Action Tracking Document (CATD)

INITIATION Applicable ECSP Report No: OP 301.15-BFN

1. Immediate Corrective Action Required: ☐ Yes ☑ No
2. Stop Work Recommended: ☐ Yes ☑ No
3. CATD No. OP 30115-001-BFN 4. INITIATION DATE 10-2-86
5. RESPONSIBLE ORGANIZATION: BFN Configuration Control Manager
6. PROBLEM DESCRIPTION: ☐ QR ☑ NQR
   Hardware is not properly identified in the field at BFN in accordance with design documents. Response should address actions being taken at BFN to resolve this issue.

☐ ATTACHMENTS

7. PREPARED BY: NAME G. D. Gardner DATE: 10-2-86
8. CONCURRENCE: CEG-H W. K. Logan DATE: 10-2-86
9. APPROVAL: ECTG PROGRAM MGR. T. M. Ruth DATE: 10-8-86

CORRECTIVE ACTION

10. PROPOSED CORRECTIVE ACTION PLAN: The baseline program for unit 2 startup includes a system walkdown effort that identifies missing tags and incorrectly tagged equipment and corrects these problems through the Maintenance Request (MR) process. The Operations Group processes the MRs by making and attaching the tags. The Master Equipment List program, also a DNE effort, will correct misnumbered equipment on drawings which will also be corrected in the field.
    These programs are part of the overall BFN Configuration Management Program in effect at the Site Director's direction. Startup efforts for units 1 and 3 will have the same activities to correct hardware not properly identified in the field.. (continued on Page 1A)

☐ ATTACHMENTS

11. PROPOSED BY: DIRECTOR/MGR: R33 86/112 810 DATE: 11/18/86
12. CONCURRENCE: CEG-H: Thomas F. Huth for WKL DATE: 12/01/86
    SRP: _____ DATE: _____
    _____ DATE: _____
    _____ DATE: _____
    _____ DATE: _____
    ECTG PROGRAM MGR: _____ DATE: _____

VERIFICATION AND CLOSEOUT

13. Approved corrective actions have been verified as satisfactorily implemented.

SIGNATURE	TITLE	DATE

ATTACHMENT I

List of Evaluators by Element/Plant

Element 301.01

BFN	BLN	SQN	WBN
Mills	Mills	1. Mills 2. Sutt 3. McComb	McComb

Element 301.02

BFN	BLN	SQN	WBN
Meers	Meers	Meers	Meers

Element 301.03

BFN	BLN	SQN	WBN
1. McComb 2. Kincaid	N/A	N/A	1. McComb 2. Sutt

Element 301.04

BFN	BLN	SQN	WBN
N/A	N/A	N/A	Meers

Element 301.05

BFN	BLN	SQN	WBN
Aycock	Aycock	1. McComb 2. Richards	1. McComb 2. Aycock

Element 301.06

BFN	BLN	SQN	WBN
N/A	N/A	N/A	Gardner

ATTACHMENT I (con't)

Element 301.07

BFN	BLN	SQN	WBN
Elliott	N/A	1. Gardner 2. Elliott	Gardner

Element 301.08

BFN	BLN	SQN	WBN
N/A	N/A	Touchstone	Touchstone

Element 301.09

BFN	BLN	SQN	WBN
N/A	N/A	N/A	Touchstone

Element 301.10

BFN	BLN	SQN	WBN
N/A	N/A	N/A	Meers

Element 301.11

BFN	BLN	SQN	WBN
N/A	N/A	1. Mills 2. Touchstone	1. McComb 2. Mills 3. Aycock

Element 301.12

BFN	BLN	SQN	WBN
N/A	N/A	1. Meers 2. Gardner	Gardner

ATTACHMENT I (con't)

Element 301.13

BFN	BLN	SQN	WBN
N/A	N/A	N/A	Meers

Element 301.14

BFN	BLN	SQN	WBN
N/A	N/A	Touchstone	Touchstone

Element 301.15

BFN	BLN	SQN	WBN
Gardner	N/A*	Gardner	Gardner

Element 301.16

BFN	BLN	SQN	WBN
N/A	N/A	N/A	Touchstone

* No evaluation was needed for BLN as corporate CATD-30115-NPS-01 was issued for all sites.