EMPLOYEE CONCERNS

SPECIAL PROGRAM

VOLUME 4
MATERIAL CONTROL CATEGORY

SUBCATEGORY REPORT 40400
STORAGE AND HANDLING

UPDATED

TVA

NUCLEAR POWER

TVA EMPLOYEE CONCERNS
SPECIAL PROGRAM

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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
MATERIAL CONTROL CATEGORY
SUBCATEGORY REPORT 40400 "STORAGE AND HANDLING"

SUMMARY OF THE ISSUES

This subcategory report addresses 24 concerns which were originally arranged into three groups, herein referred to as issues, each of which involved employee concerns that dealt with identical or closely related subjects. After completion of the evaluation, it was determined for reasons of clarity and to develop a broader view of the subject matter that the three issues would be expanded to 11 issues. Some of the concerns are covered by more than one issue. The issues addressed are 1) storage facilities not providing adequate storage environments, 2) instruments, hanger material, snubbers, junction boxes and thermo lag material not stored in appropriate nuclear storage levels, 3) protective covers and seals not maintained on conduit and pipe ends, 4) austenitic stainless steel stored and transported in contact with carbon steel, 5) safety-related and nonsafety-related materials not adequately separated to prevent inadvertent mixing and installation, 6) heat numbers, on half-inch stainless steel instrumentation pipe, stenciled with ink sometimes rub off, 7) handling practices result in damaging material and equipment, 8) material in storage not correctly listed on warehouse records, 9) material issued to the field before being properly receipt inspected, 10) warehouses at all four nuclear plants do not have adequate fire protection, 11) maintenance and storage practices were inadequate before 1984.

Six of the eleven issues were found to be current problems during the evaluation. The problems identified ranged from being isolated to more programmatic. Problems were found in the addressed issues 1), 2), 3), 4), 5), and 6). |R4

MAJOR FINDINGS

1. There was a failure to follow procedures to put end caps or plugs on all austenitic stainless steel pipe fittings. This was a result of misinterpretation of the requirements for end caps and plugs. In addition, a lack of attention to detail to ensure capping was maintained in compliance with applicable procedures resulted in several deviations. (Reference CATD numbers 40400-BFN-03; 40400-BLN-03; 40400-SQN-01; and 40400-WBN-03 & 04)

2. Although the vast majority of items were stored and handled properly, some organizations did not always maintain proper storage environments and segregation of items after issue from the warehouse or Power Stores. Additionally, some organizations have propagated these deviations by retaining, excess, surplus and/or cannibalized material for possible future use without any controls.

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COLLECTIVE SIGNIFICANCE OF MAJOR FINDINGS

Based on the findings of this evaluation, the overall storage and handling programs were acceptable. However, several deviations were observed. It should be noted though, that most conditions adverse to quality should be identified during installation and functional inspections and/or tests. Additionally, any conditions adverse to quality which are time delayed by nature should be identified during normal routine plant operations, maintenance, tests and/or in-service inspections. |R4

CAUSES OF THE MAJOR FINDINGS

Lack of attention of detail

Lack of management oversight and procedural control

Failure to follow procedures and misinterpretation of requirements.

CORRECTIVE ACTION ON MAJOR FINDINGS

1. In response to the issue of end caps or plugs on austenitic stainless steel pipe fittings, DNE has revised the upper-tier requirements of General Construction Specification G-29. This revision deleted the requirements, for end caps or plugs on austenitic stainless steel pipe and tube fittings. Although the end cap or plug requirement has been deleted in G-29, some TVA organizations have elected to maintain end caps, plugs or equivalent on austenitic stainless steel pipe or tube fittings as an enhancement to their programs.

2. In accordance with a directive from the Manager of Nuclear Power, material for safety-related applications will be stored under warehouse or Power Stores control. This action should result in fewer areas were safety-related material is stored, as well as, positive identification and control of these areas.

   Additionally, the directive includes a requirement for control of non-safety-related material to prevent use in safety-related applications also be implemented.

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1.0 CHARACTERIZATION OF ISSUES

1.1 Introduction

This subcategory report of the Material Control Category of the Watts Bar Nuclear Plant (WBN) Employee Concern Task Group (ECTG) addresses employee concerns containing issues which involve perceived storage and handling deficiencies which exist, or which may have existed, at WBN and/or other Tennessee Valley Authority (TVA) nuclear plants. A summary of the perceived problems is that segregating material during receipt and storage is inadequate, improper handling after issue from warehouse results in contamination (not radioactive), environmental control and protection through installation is inadequate, appropriate storage levels are not being implemented, warehouse documents inaccurately list received materials, and control of materials is inadequate.

As used within this subcategory report, the abbreviation ONP refers to the Office of Nuclear Power, which is exclusive of the Division of Nuclear Construction (DNC). The distinction is necessary since the employee concerns addressed by this subcategory report relate to requirements and criteria established by the Office of Construction (now DNC), and/or to requirements and criteria established by ONP.

This subcategory report addresses 24 concerns which were originally arranged into three groups, herein referred to as issues, consisting of employee concerns which dealt with identical or closely related issues. After completion of the evaluation, it was determined for reasons of clarity and to get a better overall corporate view of specific issues that the three issues would be expanded to 11 issues. Some of the concerns are covered in more than one issue. These issues are described in greater detail in Section 1.2 of this report.

1.2 Description of Issues

1.2.1 Storage Facilities

Six concerns were expressed about the adequacy of storage environments. Concerns, WI-85-100-040, XX-85-122-045, XX-85-122-046, and XX-85-122-047 at WBN, SQN, BLN and BFN respectively, reported that storage environments were

inadequate, both during and after construction. This resulted in equipment being "in poor condition and filthy dirty." These four concerns were made generic to all TVA nuclear power plants.

Concern IN-85-927-X01 questioned the storage of instruments in a "Mini-Warehouse" that had no class of storage, in the field at WBN. This concern was made generic to BLN because BLN was in a phase of construction similar to WBN.

The final concern, WBN-223, stated in part that the instrument shop area in the Turbine Building at WBN was not environmentally suitable for certain instrumentation and parts. The remainder of concern WBN-223 was evaluated in ECTG Subcategory "Procedural Control" (40700).

Three side issues were identified during the evaluation of these concerns at SQN, BFN, and BLN. These side issues directly relate to the issues of Protective Covers and Seals, Austenitic Stainless Steel, and Identification and Marking. Although these three issues were site specific to WBN only, the side issues from the issue Storage Facilities will be discussed in the respective issues to keep like subjects together.

The question addressed in this issue was that storage facilities both in the warehouse and the field are inadequate within TVA nuclear power plants.

1.2.2 Storage Levels

Seven concerns relating to maintenance and implementation of standard nuclear storage levels were expressed. Two concerns, IN-85-845-003 and IN-85-927-X01, reported that instrument storage requirements were not maintained after issuance from the warehouse and prior to installation at WBN. These two concerns were made generic to BLN due to BLN being in a similar phase of construction as WBN. In addition, concerns IN-85-343-002 and WI-85-091-014 stated that a lack of control of snubbers and hanger material existed, referring to the manner in which they were stored and handled at WBN. Another concern, IN-85-369-004, questioned the implementation of standard nuclear storage levels at WBN.

Two more concerns were expressed relating to storage levels. One concern, IN-85-369-003, was that junction boxes were stored out-of-doors at the warehouse at WBN. The other concern, IN-86-035-001, stated that a shipment of Thermo Lag material came in on a heated trailer during severe cold weather and was unloaded on the dock. The Thermo Lag material was then left outside on the dock all weekend at WBN.

During the evaluation, a side issue was identified with items being in the wrong storage level at SQN, BFN and BLN. The issue raised was that appropriate nuclear storage levels are not implemented and/or maintained.

1.2.3 Protective Covers and Seals

Concern IN-85-978-007 stated that pipe and conduit open ends were not taped. In addition, concern IN-85-454-005 reported that black pipe was "usually very dirty inside." Both concerns were WBN site-specific.

The issue raised was that caps, plugs and/or tape were not used to seal openings in items having sensitive internal surface and to protect threads as well as weld end preparation. In addition, the evaluation at SQN, BFN and BLN revealed a lack of protective covers and seals and was identified as a side issue.

1.2.4 Austenitic Stainless Steel

Three concerns were expressed in this issue addressing austenitic stainless steel in contact with carbon steel. Concerns IN-85-118-001 and WI-85-036-001 addressed the perceived problem of austenitic stainless steel being mixed in storage with carbon steel in warehouses as well as in field storage at WBN.

The other concern, IN-85-564-001, stated that austenitic stainless steel material was transported in contact with carbon steel items and secured with chains and hooks made of carbon steel at WBN. This perceived problem with austenitic stainless steel being stored in contact with carbon steel was identified as a side issue at SQN, BFN and BLN.

The issue raised was the contamination of austenitic stainless steel with carbon steel.

1.2.5 Segregation

Two concerns were expressed about the segregation of safety (CSSC) and nonsafety (non-CSSC) related materials. Concern IN-85-443-002 stated that safety and nonsafety-related materials were not segregated during receiving and storage at WBN. This concern was made generic to SQN, BFN and BLN due to findings at WBN. The other concern, IN-86-282-001, questioned Quality Assurance (QA) and non-QA materials being stored in the warehouse adjacent to each other in the same bins or racks at WBN.

The issue raised was that safety/QA and nonsafety/non-QA related materials were not segregated sufficiently to prevent inadvertant mixing and installation.

1.2.6 Identification and Marking

One concern, IN-85-447-002, has been addressed in this issue. The concern was that austenitic stainless steel instrumentation pipe 1/2-inch and under had heat numbers stenciled on it with ink. The ink would sometimes rub-off during storage and the pipe would have to be discarded at WBN. The waste issue is addressed in the ECTG Subcategory 71100. Problems with identification and marking were identified as a side issue at SQN, BFN and BLN.

The issue raised was that material did not have proper identification and marking.

1.2.7 Material Handling

Two concerns, IN-85-978-007 and IN-85-978-013, stated that material was not properly handled and this practice resulted in damaged materials and equipment at WBN.

The issue raised was that material was not handled in a manner to prevent damage.

1.2.8 Documentation

One concern, IN-85-627-013 which stated that warehouse documents inaccurately listed material as received and in storage, has been addressed in this issue.

The issue raised was that material was not properly received and noted on warehouse documents correctly before being placed in storage.

1.2.9 Receiving

This issue addresses one concern, WI-85-089-001, involving material being sent to shacks in the field without being received or stored in accordance with standard procedures at WBN.

The issue raised was that material was not being received by the Material Services Unit (MSU) to ensure proper material and documentation were received and acceptable before going to the field.

1.2.10 Fire Protection

This issue covers part of four concerns (WI-85-100-040, XX-85-122-045, XX-85-122-046 and XX-85-122-047) which expressed a concern over fire protection of warehouses at all four nuclear power plants.

The issue raised was that the warehouses did not have adequate fire protection to prevent significant loss of material and equipment due to fire.

1.2.11 Storage and Maintenance Program

One concern, XX-85-094-008, questioned the Storage and Maintenance Program at Bellefonte Nuclear Plant (BLN) before 1984. The concern stated that the Storage and Maintenance Program did not meet code requirements until the last two or three years and this concern was made generic to WBN at the K-form level.

The issue raised was the maintenance and storage practices in effect at BLN before 1984 were not adequate and did not meet code requirements.

2.0 SUMMARY

2.1 Summary of Issues

The perceived problems expressed in the concerns of this subcategory report are that segregation of material during receipt and storage is inadequate, improper handling after issue from warehouse

resulting in contamination (not radioactive), environmental control and protection through installation was inadequate, appropriate storage levels are not being implemented, warehouse documents inaccurately lists received materials, and control of materials is inadequate (relative to storage).

2.2 Summary of Evaluation Process

The various employee concerns associated with this subcategory report were evaluated in accordance with Material Control Category Evaluation Plan. This Category Evaluation Plan was used to develop site specific evaluation plans which were utilized at each site. Since each issue was not investigated as an independent entity, the specific evaluation methodology utilized was somewhat similar because of the site evaluation plan being utilized. The evaluation methodology is summarized in Table 2-1 and consisted of the following basic steps:

a. Reviewed expurgated and working files for the concerns to determine if additional information was available.

b. Reviewed NSRS reports, NRC inspection reports and ECTG reports to determine if additional information was available or deviations had already been addressed.

c. Reviewed site procedures to determine if they implemented upper-tier criteria.

d. Performed walkdowns of warehouses, storage yards, field storage and holding areas to determine if they meet applicable requirements.

e. Performed interviews with personnel to determine if storage and handling requirements are/were maintained in compliance with applicable requirements.

2.3 Summary of Findings

A summary of the findings is given in Table 2-1 of this report and discussed more fully below.

2.3.1 Storage Facilities

The overall storage facilities used by TVA at its nuclear power plants were generally of an acceptable level with only occasional deviations being identified. However, BFN did have a significant number of inadequate storage facilities; but the BFN Power Stores Unit was in the middle of a major upgrading program to improve storage facilities.

2.3.2 Storage Levels

From the storage facilities that were observed, it was found that, with a few exceptions, the vast majority of items stored by TVA nuclear power plants are in the appropriate storage environment. The majority of items that were not maintained in the appropriate storage environment existed in field storage and holding areas. The TVA Maintenance and Modification groups have propagated this situation by retention of excess, scrap, surplus and/or cannibalized material and equipment and not maintaining appropriate storage levels.

2.3.3 Protective Covers and Seals

Although several cases of inadequate protective covers and seals were found during walkdowns of storage facilities, the majority of items having sensitive internal surfaces had appropriate protective covers and seals with the exception of austenitic stainless steel pipe fittings at all of TVA's nuclear power plants. The majority of items missing protective covers and seals had them originally, but the covers had popped off for various reasons such as temperature changes and deterioration of the covers. Regarding fittings, it was the interpretation of Power Stores management and site QA staff that protective covers and seals were not required on fittings stored in warehouses. This matter is being formally addressed by DNE to clearly define protective cover and seal requirements.

2.3.4 Austenitic Stainless Steel

From the storage facilities that were observed, isolated cases did exist were austenitic stainless steel was stored in contact with carbon steel. It was not a common practice to store or handle austenitic stainless steel with carbon steel. This was the situation at all of TVA's nuclear power plants.

2.3.5 Segregation

From the storage facilities that were observed, it was found that safety (CSSC) and nonsafety (non-CSSC) related materials were not always segregated in compliance with applicable procedures at TVA's nuclear power plants. In addition, it was found that safety and nonsafety-related material had been received with identical identification markings and heat numbers at WBN. After issue from the warehouse, adequate segregation was not maintained to prevent inadvertant installation of nonsafety related material in a safety-related system. This issue has also been addressed in the ECTG Subcategories "Procedural Control" (40700) and "Material Identification" (40500).

2.3.6 Identification and Marking

Although several cases of inadequate identification and marking were found, the majority of items had appropriate identification and marking at TVA's nuclear power plants. This lack of identification and marking could result in the item having to be scrapped or surplused. It should be noted that the installation inspection program should prevent incorrect items from being installed.

2.3.7 Material Handling

Based on interviews and observations, it was determined that appropriate handling practices were utilized to prevent material damage at WBN. Although there might have been isolated instances of mishandling, the concerns did not have a factual basis.

2.3.8 Documentation

This evaluation, with a very few exceptions, found that documentation adequately listed material as received and in storage with very few exceptions at WBN. The only problem that could result from these few exceptions would be in the location of an item.

2.3.9 Receiving

This evaluation did not identify any incidence of material not being properly received by MSU prior to being sent to the field at WBN.

2.3.10 Fire Protection

Interviews with Fire Protection Engineers revealed that fire protection was not always adequate, based on fire protection codes used for insurance purposes, if applied to TVA warehouses. Some warehouses did not have automatic sprinkler systems. They are, however, protected by fire hydrants and portable fire extinguishers. The fire protection provisions in the warehouse is an economic consideration but not a safety requirement.

2.3.11 Storage and Maintenance Program

This evaluation did not reveal any indications that storage and maintenance programs were inadequate at WBN and BLN during the time frame prior to the last two or three years. However, it was found that as result of INPO audits, the programs had been upgraded in the recent past to make them more effective.

Table 2-1
Summary of Evaluation Process and Findings

Issues	Review Expurgated Files (a)	Requirements (b)	Walk-downs (c)	Inter-views (d)	NSRS Reports (e)	Comments-Findings
Storage Facilities						(1) Storage yards not always in full compliance with applicable requirements.
WBN	Yes	4,5,12,13,16,18	Yes	Yes	Yes	(2) "Instrument Shack at WBN needs to be upgraded to level B.
SQN	Yes	2,5,12,13	Yes	Yes	Yes	(3) Hut 11 at SQN had a leaking roof.
BFN	Yes	5,6,12,13	Yes	Yes	No	(4) The Kelly Buildings at BFN did not meet indoor storage requirements.
BLN	Yes	5,8,11,12,13,14	Yes	Yes	No	(5) Poor condition of storage facilities at BFN being upgraded due to DR BF-8400-03-01 and CAR BF-CAR-86-0115.
						(6) Shed at the end of the sand blast shop at BLN does not meet Level C storage requirements.
						(7) Shed SE in the WSU yard does not meet Level C storage requirements at BLN.

Table 2-1
Summary of Evaluation Process and Findings

Issues	Review Expurgated Files (a)	Requirements (b)	Walk-downs (c)	Inter-views (d)	NSRS Reports (e)	Comments-Findings
Storage Levels						
WBN	Yes	4,5,12,13,16,18	yes	Yes	Yes	(1) DNC at WBN to develop QCI for handling and installation of snubbers in response to NSRS Report I-85-713-WDN.
SQN	Yes	2,5,12,13	Yes	No	Yes	(2) Coated pipe not stored under sheds and/or covers at SQN.
BFN	Yes	5 6 12 13	Yes	Yes	No	(3) Hut 11 at SQN contained two circuit breakers and three motor operated valves which required indoor controlled storage.
BLN	Yes	5,8,11,12,13,14,22	Yes	Yes	No	(4) Several hundred items were stored in a breezeway by switch-yard at SQN that required indoor control or indoor storage.
						(5) Nitrogen purge was not maintained on Heat Exchangers at SQN.
						(6) Several items stored in Kelly Buildings at BFN required indoor controlled storage.
						(7) Several items were not stored on cribbing, pallets, or shoring bearing full weight without distortion at all four plants.

Table 2-1
Summary of Evaluation Process and Findings

Issues	Review Expurgated Files (a)	Requirements (b)	Walk-downs (c)	Inter-views (d)	NSRS Reports (e)	Comments-Findings
Protective Covers And Seals						
WBN	Yes	4,5,11,12,13,15 16,18,20,21	Yes	Yes	No	(1) Protective covers and seals missing on valves on rare occasion at all four plants. (2) Protective covers and seals missing on austenitic stainless steel pipe on rare occasions at all four plants. (3) Austenitic stainless steel fittings were stored without protective covers and seals in the majority of cases at all four plants.
SQN	Yes	2,5,11,12,13,15	Yes	Yes	No	
BFN	Yes	5,6,11,12,13,15	Yes	Yes	No	
BLN	Yes	5,8,11,12,13,15	Yes	Yes	No	

Table 2-1
Summary of Evaluation Process and Findings

Issues	Review Expurgated Files (a)	Requirements (b)	Walk-downs (c)	Inter-views (d)	NSRS Reports (e)	Comments-Findings
Austenitic Stainless Steel						
WBN	Yes	4,5,15,16,18	Yes	Yes	No	(1) Austenitic Stainless Steel was found stored in contact with carbon steel on rare occasions at all four plants. This was not a common practice to store or transport austenitic stainless steel in contact with carbon steel.
SQN	Yes	2,5,12,13	Yes	Yes	No	
BFN	Yes	5,6,12,13	Yes	Yes	No	
BLN	Yes	5,8,11,12,13,14	Yes	Yes	No	
Segregation						
WBN	Yes	3,4,5,12,13,16,17,18	Yes	Yes	No	(1) Miscellaneous pipe fittings safety- and nonsafety-related were received with identical identification markings and heat numbers at WBN. (2) Power Stores, Maintenance, and Modifications groups did not segregate QA Level I and II items from QA Level III and non-QA items as required by applicable ONP requirements at SQN and BFN.
SQN	Yes	1,2,5,12,13	Yes	Yes	No	
BFN	Yes	5,6,12,13	Yes	Yes	No	
BLN	Yes	5,7,8,10,11,12,13,14	Yes	Yes	No	
Identification and Marking						
WBN	Yes	3,4,5,12,13,16,17,18,19	Yes	Yes	No	(1) Material did not always have proper identification and marking as required by applicable procedures at all four plants.
SQN	Yes	1,2,5,12,13	Yes	Yes	No	
BFN	Yes	5,6,12,13	Yes	Yes	No	
BLN	Yes	5,7,8,10,11,12,13,14	Yes	Yes	No	

Table 2-1
Summary of Evaluation Process and Findings

Issues	Review Expurgated Files (a)	Requirements (b)	Walk-downs (c)	Inter-views (d)	NSRS Reports (e)	Comments-Findings
Material Handling						
WBN	Yes	5, 16, 18	Yes	Yes	No	(1) No deviations to handling requirements were identified at WBN.
SQN	N/A	N/A	N/A	N/A	N/A	
BFN	N/A	N/A	N/A	N/A	N/A	
BLN	N/A	N/A	N/A	N/A	N/A	
Documentation						
WBN	Yes	5, 16, 17, 18	Yes	Yes	No	(1) Ledger cards were found to be unreliable on nine items out of 486 items checked at WBN.
SQN	N/A	N/A	N/A	N/A	N/A	
BFN	N/A	N/A	N/A	N/A	N/A	
BLN	N/A	N/A	N/A	N/A	N/A	
Receiving						
WBN	Yes	5, 16, 17, 18	Yes	Yes	No	(1) No deviations were found to items being received prior to going to the field by MSU at WBN.
SQN	N/A	N/A	N/A	N/A	N/A	
BFN	N/A	N/A	N/A	N/A	N/A	
BLN	N/A	N/A	N/A	N/A	N/A	
Fire Protection						
WBN	Yes	5	Yes	Yes	No	(1) Fire Protection for Warehouses was found to be inadequate for insurance purposes. Warehouses in most cases only protected by fire hydrants and portable fire extinguishers. This lack of fire protection was an economic consideration and not a safety concern or problem at all four plants.
SQN	Yes	5	Yes	Yes	Yes	
BFN	Yes	5	Yes	Yes	No	
BLN	Yes	5	Yes	Yes	No	

Table 2-1
Summary of Evaluation Process and Findings

Issues	Review Expurgated Files (a)	Requirements (b)	Walk-downs (c)	Inter-views (d)	NSRS Reports (e)	Comments-Findings
Storage and Maintenance Program						
WBN	Yes	5, 16, 18	Yes	Yes	N/A	(1) No evidence was found that BLN or WBN Storage and Maintenance Programs did not meet code requirements until the last two or three years.
SQN	N/A	N/A	N/A	N/A	N/A	
BFN	N/A	N/A	N/A	N/A	N/A	
BLN	Yes	5, 8, 9	Yes	Yes	N/A	

(a) Reviewed expurgated files and determined no additional information was available.
(b) Numbers represent procedures referenced in Table 3-1 of this report. These procedures implemented the requirements for ANSI N45.2.2-197.
(c) Performed walkdowns of a random sample of warehouses, storage yards, field storage and holding areas.
(d) Performed interviews with warehouse, quality control and craft personnel where applicable.
(e) Reviewed NSRS Reports..

2.4 Summary of Collective Significance

2.4.1 Management Effectiveness

The subcategory findings revealed that there is a general lack of attention to detail by management to ensure storage requirements are maintained. Existing procedures and practices that were reviewed are considered to be adequate in most cases. This lack of attention to detail has resulted in several of the concerns being factual and requiring corrective action.

The subcategory findings also revealed that a misinterpretation of procedures for capping of austenitic stainless steel fittings existed. Contrary to applicable procedures, management determined that fittings did not need to be capped or plugged while inside warehouse storage.

2.4.2 Employee Effectiveness

The subcategory findings revealed that there is a general lack of attention to detail by employees as well as management. There was also an occasional failure to follow procedures to put items in their appropriate storage levels. These two factors have resulted in several of the concerns being factual and requiring corrective action.

2.4.3 Technical Adequacy

The subcategory findings revealed that TVA has the storage facilities to maintain applicable storage conditions. The overall storage conditions and facilities of TVA were of acceptable levels with occasional deviations. In addition, TVA has the ability to maintain storage facilities and items in the appropriate storage level.

2.5 Summary of Causes

2.5.1 Storage Facilities

There was a lack of attention to detail to ensure storage facilities were maintained in full compliance.

2.5.2 Storage Levels

There was a failure to follow site procedures to put all items in their appropriate storage level and a lack of attention to detail to ensure items were placed in appropriate storage level.

2.5.3 Protective Covers and Seals

There was a failure to follow site procedures and lack of attention to detail to ensure protective covers and seals were in full compliance with applicable procedures.

2.5.4 Austenitic Stainless Steel

There was a lack of attention to detail to ensure austenitic stainless steel was not stored in contact with carbon steel.

2.5.5 Segregation

The perceived problem of safety and nonsafety-related material being received with identical identification markings and heat numbers appears to be due to a failure to recognize the need to develop adequate procedures to maintain traceability from procurement to installation by the WBN DNC.

Within ONP, there was a failure to follow site procedures. ONP did not segregate QA Level I or II from QA Level III or non-QA items as required by applicable procedures.

2.5.6 Identification and Marking

There was a lack of attention to detail and failure to follow site procedures to ensure items had appropriate identification and marking.

2.5.7 Material Handling

An evaluation for a cause is not applicable because the concerns in this issue were not valid or substantiated.

2.5.8 Documentation

There was a lack of attention to detail to ensure ledger cards were accurate.

2.5.9 Receiving

An evaluation for a cause is not applicable because the concern in this issue was not factual.

2.5.10 Fire Protection

The lack of fire protection was an economic risk and not a safety consideration that TVA decided to accept.

2.5.11 Storage and Maintenance Program

An evaluation for a cause is not applicable because the concern in this issue was not factual.

2.6 Summary of Corrective Actions Taken

The corrective actions identified in this summary are with respect to the issuance of Revision 0 of the report. This section has not been revised due to the inclusion of this data into the Executive Summary. This section is retained for historical data and to refrain from a massive format change to the report.

2.6.1 Storage Facilities

2.6.1.1 Site Specific - WBN

DNC concurred with NSRS Report I-85-480-WBN to upgrade 'instrument shack' to Level B storage in a memorandum to W. T. Cottle from Guenter Wadewitz on February 14, 1986. This corrective action is being tracked by CATD 40400-WBN-01.

2.6.1.2 Site Specific - SQN

The condition of Hut 21 has been addressed on CAR SQ-01-001 which will establish minimum requirements for paint and paint products and determine if Hut 21 will meet the minimum storage requirements. This corrective action is being tracked by CATD 40400-SQN-01.

2.6.1.3 Site Specific - BFN

The condition of Power Stores storage facilities in response to DR BF-8400-03-01 and BF-CAR-86-0115 has resulted in an effort to upgrade the storage facilities. This corrective action is being tracked by CATD 40400-BFN-001.

2.6.2 Storage Levels

2.6.2.1 Site Specific - WBN

DNC concurred with NSRS Report I-85-713-WBN to develop a QCI to delineate requirements for handling and installation of snubbers. This corrective action is being tracked by CATD 40400-WBN-02.

2.6.2.2 Site Specific - BFN

The correction of items being in the wrong storage level for Power Stores has been addressed on DR BF-8400-03-01 and BF-CAR-86-0115. This corrective action is being tracked by CATD 40400-BFN-003.

2.6.3 Protective Covers and Seals

2.6.3.1 Site Specific - BLN

The austenitic stainless steel pipe in the Warehouse Service Unit (WSU) missing end caps was identified on Storage Inspection Form 86-582. The recommended corrective action was to replace missing end caps. This corrective action is being tracked by CATD 40400-BLN-003. |R4

2.6.4 Identification and Marking

2.6.4.1 Site Specific - BLN

Some of the material in the WSU that has no identification and marking has been identified on Storage Inspection Form 86-582. The corrective action was to identify and mark material. This corrective action is being tracked by CATD 40400-BLN-002.

3.0 EVALUATION PROCESS

3.1 Evaluation Methodology

The various issues raised by the employee concerns within this subcategory were evaluated according to a site specific Initial Evaluation Plan (EP) which was developed prior to beginning the evaluation process at each individual site. Although each site had its own EP, the evaluation methodology was basically the same for each plant. Even after breaking this report down into 11 different issues, the same methodology applies to each issue.

The following is a summary of the evaluation methodology utilized in the evaluation of the issues contained within the 11 issues comprising this subcategory.

3.1.1 Storage Facilities

The employee concerns contained within this issue were evaluated utilizing the following methodology:

a. Reviewed expurgated and working files to determine if additional information was available.

b. Compiled and reviewed upper-tier criteria concerning requirements for storage facilities.

c. Compiled and reviewed site procedures concerning requirements for storage facilities to determine if they adequately implemented upper-tier criteria.

d. Performed walkdowns of a random sample of warehouses, storage yards, field storage and holding areas to determine if they were in compliance with applicable requirements.

e. Interviewed knowledgeable warehouse, quality control, and craft personnel to determine if storage facilities were maintained in compliance with applicable requirements.

f. Reviewed Nuclear Safety Review Staff (NSRS) Investigation Reports I-85-480-WBN on "Improper Instrumentation and Material Storage" and I-85-990-SQN on "Poor Equipment Storage, Fire Protection, Storage Environment" to determine if they adequately addressed the concerns.

3.1.2 Storage Levels

The employee concerns contained within this issue were evaluated utilizing the following methodology:

a. Reviewed expurgated and working files to determine if additional information was available.

b. Compiled and reviewed upper-tier criteria concerning requirements for standard nuclear storage levels.

c. Compiled and reviewed site procedures concerning requirements for standard nuclear storage levels to determine if they adequately implemented upper-tier criteria.

d. Performed walkdowns of a random sample of warehouses, storage yards, field storage and holding areas to determine if material and equipment were stored in compliance with applicable storage level requirements.

e. Interviewed knowledgeable warehouse, quality control and craft personnel to determine if adequate storage levels were maintained in compliance with applicable requirements.

f. Reviewed NSRS Investigation Reports I-85-713-WBN on "Snubber Control and Handling" and I-85-480-WBN on "Improper Instrumentation and Material Storage" to determine if they adequately addressed the concerns.

3.1.3 Protective Covers and Seals

The employee concerns contained within this issue were evaluated utilizing the following methodology:

a. Reviewed expurgated and working files to determine if additional information was available.

b. Reviewed various Nuclear Regulatory Commission (NRC) inspection reports and violations concerning capping of valves and piping to determine extent of noncompliance in the past.

c. Compiled and reviewed upper-tier criteria concerning requirements for protective covers and seals.

d. Compiled and reviewed site procedures concerning requirements for protective covers and seals to determine if they adequately implemented upper-tier criteria.

e. Performed walkdowns of a random sample of warehouses, storage yards, field storage and holding areas to determine if material and equipment were in compliance with protective cover and seal requirements.

f. Interviewed knowledgeable warehouse, quality control and craft personnel to determine if adequate protective covers and seals were maintained within compliance with applicable requirements.

3.1.4 Austenitic Stainless Steel

The employee concerns contained within this issue were evaluated utilizing the following methodology:

a. Reviewed expurgated and working files to determine if additional information was available.

b. Compiled and reviewed upper-tier criteria concerning requirements for storage and transportation of austenitic stainless steel items regarding contact with carbon steel.

c. Compiled and reviewed site procedures concerning requirements for storage and transportation of austenitic stainless steel items regarding contact with carbon steel to determine if they adequately implemented upper-tier criteria.

d. Performed a walkdown of a random sample of warehouses, storage yards, field storage and holding areas to determine if austenitic stainless steel was stored in contact with carbon steel.

e. Observed austenitic stainless steel items being transported to determine if segregation from carbon steel was in compliance with applicable requirements.

f. Interviewed knowledgeable warehouse, quality control and craft personnel to determine if austenitic stainless steel items were stored and transported in contact with carbon steel.

3.1.5 Segregation

The employee concerns contained within this issue were evaluated utilizing the following methodology:

a. Reviewed expurgated and working files to determine if additional information was available.

b. Compiled and reviewed upper-tier criteria concerning segregation of safety and nonsafety-related items.

c. Compiled and reviewed site procedures concerning segregation of safety and nonsafety-related items to determine if they adequately implemented upper-tier criteria.

d. Performed a walkdown of a random sample of warehouse, storage yards, field storage, and holding areas to determine if safety and nonsafety-related items were segregated in compliance with applicable requirements.

e. Interviewed knowledgeable warehouse, quality control and craft personnel to determine if segregation of safety and nonsafety-related items was maintained in compliance with applicable requirements.

3.1.6 Identification and Marking

The employee concerns contained within this issue were evaluated utilizing the following methodology:

a. Reviewed expurgated and working files to determine if additional information was available.

b. Compiled and reviewed upper-tier criteria concerning identification and marking requirements.

c. Compiled and reviewed site procedures concerning identification and marking requirements to determine if they adequately implemented upper-tier criteria.

d. Performed a walkdown of a random sample of warehouses, storage yards, field storage, and holding areas to determine if identification and marking of items were in compliance with applicable requirements.

e. Interviewed knowledgeable warehouse, quality control and craft personnel to determine if identification and marking of items were maintained in compliance with applicable requirements.

3.1.7 Material Handling

The employee concerns contained within this issue were evaluated utilizing the following methodology:

a. Reviewed expurgated and working files to determine if additional information was available.

b. Compiled and reviewed upper-tier criteria concerning material handling requirements.

c. Compiled and reviewed site procedures concerning material handling to determine if they adequately implemented upper-tier criteria.

d. Performed a walkdown of a random sample of warehouses, storage yards, field storage and holding areas to determine if material handling was in compliance with applicable requirements.

e. Interviewed knowledgeable craft personnel to determine if material handling was in compliance with applicable requirements.

3.1.8 Documentation

The employee concern contained within this issue was evaluated utilizing the following methodology:

a. Reviewed expurgated and working files to determine if additional information was available.

b. Interviewed knowledgeable warehouse and quality control personnel to determine if warehouse documents inaccurately listed material as received and in storage.

c. Obtained and reviewed a Project Control Unit survey involving reliability of ledger cards.

3.1.9 Receiving

The employee concern contained within this issue was evaluated utilizing the following methodology.

a. Reviewed expurgated and working files to determine if additional information was available.

b. Interviewed knowledgeable warehouse, quality control and craft personnel to determine if material was being received by MSU prior to being sent to Shacks 319 and 565.

3.1.10 Fire Protection

The employee concerns contained within this issue were evaluated utilizing the following methodology:

a. Reviewed expurgated and working files to determine if additional information was available.

b. Compiled and reviewed upper-tier criteria concerning fire protection of warehouses.

c. Interviewed knowledgeable fire protection and safety engineers to determine if warehouses were in compliance with applicable requirements for fire protection.

3.1.11 Storage and Maintenance Program

The employee concern contained within this issue were evaluated utilizing the following methodology:

a. Reviewed expurgated and working files to determine if additional information was available.

b. Compiled and reviewed upper-tier criteria concerning storage and maintenance programs.

c. Compiled and reviewed site procedures prior to and after 1984 concerning the Storage and Maintenance Program to determine if they adequately implemented upper-tier criteria.

d. Interviewed knowledgeable quality control personnel to determine if Storage and Maintenance Programs were in compliance with applicable requirements.

3.2 Requirements or Criteria Established for Individual Issues

A summary of the various requirements and criteria which were utilized in the evaluations in this subcategory report are given in Table 3-1 of this section. A brief description of these procedures is provided below.

1. SQN AI-11, Revision 32, June 20, 1986, "Receiving Inspection, Nonconforming Items, QA Level/Description Changes and Substitutions," is an instruction that defines the responsibility and establishes controls for receiving inspection of those materials, components, and spare parts procured for Critical Structures, Systems and Components (CSSC) at SQN.

2. SQN AI-36, Revision 9, March 7, 1986, "Storage, Handling and Shipping of QA Material," is an instruction that defines the storage requirements and recommended practices for safety-related material and equipment (CSSC) to ensure that the quality of items is not degraded as a result of improper storage. It also acts as a guide for achieving good storage for balance of inventory at SQN.

3. WBN AI-5.2, Revision 10, October 24, 1985, "Receipt Inspection of Materials Components and Spare Parts," is an instruction that defines responsibility and establishes control for receiving inspection of those materials, components and spare parts procured for CSSC. In addition, it covers special nuclear materials (other than nuclear fuel) and new Measuring and Test Equipment (MTE) at WBN.

4. WBN AI-5.6, Revision 8, November 5, 1986, "Material Storage Handling and Shipping Requirements for Watts Bar Nuclear Plant," is an instruction that defines the storage requirements and recommended practices for safety-related material and equipment stored by WBN Power Stores to ensure that the quality of items was not degraded as a result of improper storage. It also acts as a guide for achieving good storage practices for the balance of inventory at WBN.

5. ANSI N45.2.2-1972, "Packaging, Shipping, Receiving, Storage and Handling of Items for Nuclear Power Plant," is an industry standard practice that defines the requirements for packaging, shipping, receiving, storage and handling of nuclear power plant items.

6. BFN-Standard Practice-16.4, Revision 2, February 20, 1986, "Material, Components and Spare Parts Receipt, Handling, Storage, Issuing, Return to Storeroom and Transfer," is a standard practice to establish the method of receipt, handling, storage, issuing, return to storage and transfer of materials, components, and spare parts at BFN.

7. BNP QCP-1.1, Revision 17, April 17, 1986, "Receiving Inspection," is a procedure describing the manner in which safety-related permanent and engineering controlled materials to be used at BLN were receipt inspected and documented. Nonsafety-related permanent and engineering controlled materials were inspected to the requirements of this procedure but were not documented.

8. BNP-QCP-1.2, Revision 17, April 17, 1986, "Storage," is a procedure describing the inspection and documentation of warehouse storage areas and materials in warehouse storage from the time an item was stored upon receipt until the item was issued from the warehouse storage at BLN.

9. BNP-QCP-1.3, Revision 8, February 3, 1986, "Preventive Maintenance," is a procedure describing the Preventive Maintenance Program for safety-related equipment from time of receipt until the equipment is in a permanent configuration and an operating environment and is transferred from the DNC to the ONP at BLN.

10. BNP-Standard Practice-BLA 9.2, Revision 12, August 27, 1986, "Receipt Inspection," is a standard practice that defines the responsibilities and establishes the controls for receipt inspection of all materials components and spare parts including those procured for the CSSC items at BLN.

11. BNP-Standard Practice-BLA 9.4, Revision 8, August 27, 1986, "Storage of Procured Material," is a standard practice that defines the storage requirements and recommended practices for safety-related materials and equipment stored by Power Stores to ensure that the quality of items was not degraded as a form of improper storage. These requirements could also be applied to non-CSSC items to prevent degradation at BLN.

12. TVA ONP TS 01.00.15.14.03, Revision 0, May 24, 1985, "Equipment and Material Storage Requirements for Nuclear Power Stores," is a procedure defining the storage requirements and recommended practices for safety-related material and equipment stored by Power Stores to ensure that the quality of items was not degraded as a result of improper storage. It also acts as a guide for achieving good storage practices for the balance of inventory for the ONP.

13. TVA NQAM part III, section 2.2, Revision 0, June 20, 1986, "Receipt, Inspection, Handling and Storage of Materials, Components and Spare Parts," is a procedure that defines the responsibility and establishes controls for receiving inspection, handling and storage of those materials, components and spare parts procured for the CSSC. The controls described

within this procedure implemented ANSI N45.2.2-1972 and are consistent with the scope of work to be performed and the importance of materials, components, and parts received, handled and stored by the Nuclear Site Director's (NSD) organization for operation, maintenance and modification of nuclear plants within TVA by the ONP.

14. BLN Power Stores Section Instruction Letter PS-SIL-2, April 20, 1981, "Material Handling and Storage," is a procedure establishing proper handling and storage of materials in such a manner that preserves the quality of items by Power Stores personnel at BLN.

15. TVA Process Specification: 4.M.1.1, Revision 9, January 24, 1985 out of General Construction Specification G-29, "Process Specification for Welding, Heat Treatment, Nondestructive Examination, Allied Field Fabrication Operation," is a specification for the DNC that defines the precautions, restrictions, and/or recommendations for austenitic stainless steel materials during storage, fabrication, testing, handling or other designated operations during onsite fabrication of piping systems and installation of nuclear components.

16. WBN-QCI-1.36, Revision 13, April 1, 1986, "Storage and Housekeeping," is an instruction describing the storage and housekeeping requirements for work activities, conditions and environments that can affect the quality of safety-related and non safety-related structures, equipment and components. The requirements are intended to ensure that the quality of items are not degraded as a result of housekeeping of storage practices during construction at WBN.

17. WBN-QCP-1.06, Revision 18, November 29, 1985, "Receipt Inspection of Safety-Related Items," is a procedure that describes the manner in which safety-related items are inspected upon receipt at WBN.

18. WBN-QCP-1.36, Revision 10, April 1, 1986, "Storage and Housekeeping," is a procedure describing the storage and housekeeping requirements for work activities, conditions and environments that can affect the quality of safety-related and nonsafety-related structures, equipment and components. The requirements are intended to ensure that the quality of items are not degraded as a result of housekeeping of storage practices during construction at WBN.

19. WBN-QCP-1.50, Revision 6, July 27, 1984, "Material Verification and Validation," is a procedure describing the requirements for verifying material acceptability and validating traceability identification at WBN.

20. TVA General Construction Specification G-39, Revision 9, September 5, 1985, "Cleaning During Fabrication of Fluid Handling Components," is a specification that defines the general methods and acceptance standards for cleaning of fluid handling systems and components for the DNC.

21. WBN-QCI-4.36, Revision 6, March 12, 1985, "Cleaning and Flushing of Fluid Handling Systems and Components," is a test procedure that provides the requirements for conducting and documenting preoperational cleaning and flushing of fluid handling systems and components for WBN.

22. BNP-QCP-10.27, Revision 10, July 13, 1986, "Housekeeping," is a procedure that describes the housekeeping requirements for the control of work activities, conditions and environments that affect the quality of structures, equipment and materials during the construction phase of the BLN.

TABLE 3-1
SUMMARY OF REQUIREMENTS OR
CRITERIA ESTABLISHED FOR INDIVIDUAL ISSUES

	ISSUE	REQUIREMENTS (a)
1.	Storage Facilities	2, 4, 5, 6, 8, 11-14, 16 and 18
2.	Storage Levels	2, 4-6, 6, 8, 11-14, 16, 18 and 22
3.	Protective Covers and Seals	2, 4-6, 8, 11-13, 15, 16, 18, 20 and 21
4.	Austenitic Stainless Steel	2, 4-6, 8, 11-16 and 18
5.	Segregation	1-8, 10-14 and 16-19
6.	Identification and Marking	1-8, 10-14, and 16-19
7.	Material Handling	5, 16 and 18
8.	Documentation	5 and 16-18
9.	Receiving	5 and 16-18
10.	Fire Protection	5
11.	Storage and Maintenance	5, 8, 9, 16 and 18

(a) See section 3.2 for the procedures corresponding to the requirements.

3.3 Justification of Evaluation Process

The concerns associated with this subcategory report question the adequacy of storage and handling of permanent plant equipment. The concerns were evaluated in accordance with the Material Control Category Evaluation Plan. This Category Evaluation Plan was used to develop site specific evaluation plans which were utilized at each site for this subcategory . Since each issue was not evaluated as an independent entity, the specific methodology utilized was somewhat similar because of site specific evaluation plans being utilized. The following is justification for the evaluation process:

a. The expurgated and working files for the concerns were reviewed to ensure available information was obtained.

b. A review of NSRS reports, NRC inspection reports and ECTG reports was performed to determine if additional information was available or deviations had already been addressed.

c. Upper-tier criteria were reviewed to determine the requirements for storage and handling of permanent plant equipment.

d. Site implementing procedures were reviewed to determine if they implemented upper-tier criteria.

e. Walkdowns were performed of warehouses, storage yards, field storage and holding areas to determine if they were in compliance with applicable requirements.

f. Interviews were performed to determine if storage and handling requirements are/were maintained in compliance with applicable procedures.

4.0 FINDINGS

The findings and conclusions relative to the issues contained within each of the 11 issues which comprise this subcategory are summarized in Table 2-1, Attachment B, and discussed below on an issue basis.

4.1 Storage Facilities

Based on the findings below, the issues addressed were partially factual and required corrective action.

4.1.1 Generic

Six concerns were evaluated in this issue and five of the concerns were considered generic. Four of the concerns (WI-85-100-040, XX-85-122-045, XX-85-122-046, XX-85-122-047) are very similar and were determined to be generic to all four TVA nuclear power plants. In addition, the concern IN-85-927-X01, a WBN site-specific concern, was also determined to apply to BLN because BLN was in a construction phase similar to WBN. The concern WBN-223 for unsuitable environmental conditions for instrument storage was a site-specific concern for WBN.

Three side issues were identified during the evaluation of the concerns at BFN, BLN, and SQN. These side issues directly relate to the issues of Protective Covers and Seals, Austenitic Stainless Steel, and Identification and Marking. Although these three issues were site specific to WBN only, these side issues from the issue Storage Facilities will be discussed in the respective issues to keep like subjects together.

4.1.2 Site-Specific - WBN

A review of storage inspections revealed deviations had been noted in the past. An example of this was the difficulty with the temperature control in several of the Level B DNC warehouses. A Deficiency Report or Nonconformance Condition Report (NCR) was issued by TVA for this deficiency which was consistent with past practice to correct deviations from applicable storage procedures.

The Nuclear Safety Review Staff NSRS Report I-85-480-WBN on "Improper Instrumentation and Material Storage" did fully address the perceived problems in IN-85-927-X01. The perceived problems were that instruments were stored in gang boxes and in a mini warehouse that had no class of storage.

The NSRS report concluded that the perceived problems were substantiated. Instruments were previously stored in gang boxes, but this practice is no longer used. In addition, the mini-warehouse was not a designated storage area. A recommendation was made to upgrade the storage conditions as necessary to designate the instrument shack as a Level B storage area. In a memorandum to W. T. Cottle from Guenter Wadewitz/DNC, February 14, 1986, DNC agreed that the employee concerns were valid and that they would respond to the recommendations. DNC concurred with designating the "instrument shack" as a Level B storage and this would be initiated and incorporated into QCP-1.36. In addition, NSRS

recommended a formal instrument transaction method. DNC did not feel a more formal method was needed due to the new work control procedure (QCI-1.60) which requires more coordination between engineering and craft. This should prevent instruments from being out of proper storage.

Interviews with knowledgeable warehouse, quality control and craft personnel revealed that storage facilities were maintained in compliance with only occasional deviations occurring at WBN.

Conclusion:

This was found to be a Class D issue.

The overall storage facilities at WBN were of an acceptable level with occasional deviations. These deviations have been noted and corrected in the past by Housekeeping Inspections. The "instrument shack" was the main deviation that existed and corrective action has been initiated in response to CATD 40400-WBN-01.

4.1.3 Site Specific-SQN

In a walk down of a random sample of approximately 20 warehouses, storage yards, field storage and holding areas the following deviations were found:

a. Hut 11, an indoor storage building, had several leaks in the roof. AI-36, paragraph 5.6.1.1 states that the indoor storage shall be constructed so as to be weather tight and well drained with no standing water.

b. Storage yards were not in full compliance with AI-36, paragraph 5.5 which states outdoor storage areas shall be gravel covered or paved and well drained. Storage yards were partially covered with gravel, not well drained, and had high weed growth.

c. Hut 21 for storage of flammable paints and materials was found in poor condition. The condition of Hut 21 has been addressed on CAR SQ-01-001 which will establish minimum storage requirements for paint and paint products and determine if Hut 21 will meet the minimum requirements.

The NSRS Investigation Report I-85-990-SQN for concern XX-85-122-045 was reviewed and found not to adequately address the concerns. This investigation did not address field storage, or storage during construction and did not address several deviations that were found in this evaluation. There were two areas that were addressed by the NSRS report which were:

a. Fire protection for storage buildings outside the new Office and Power Storage Building may be inadequate because of the lack of an automatic sprinkler system (See section 4.10.3 of this report.), and

b. The storage conditions in Hut 21 and the condition of the materials stored there were both found to be poor. This situation was addressed in CAR SQ-01-001 which will establish minimum requirements for paint and paint products for Hut 21 to meet.

In addition, a review of QA Staff audits on ONP storage facilities revealed that deficiencies to storage requirements had been detected and corrected.

Conclusion:

<u>This was found to be a Class D issue</u>.

The overall storage facilities at SQN were of an acceptable level with only the aforementioned deviations existing. This is currently being addressed in response to CATD 40400-SQN-01.

4.1.4 Site Specific-BFN

In a walkdown, the following deviations were observed.

a. Storage yards for Power Stores, Maintenance and Modifications Units were not in full compliance with BF-16.4,paragraph 4.1 which states outdoor storage areas shall be gravel covered or paved and well drained. Storage yards were partially covered with gravel, not well drained and had high weed growth.

b. The Kelly Buildings used by Power Stores were not in full compliance with BF-16.4, paragraph 4.1 which states indoor storage must be weather tight and the floor should be well drained. The Kelly Buildings were not weather tight and had water standing in some of them.

Interviews with warehouse, quality control and craft personnel revealed that the storage facilities were not always in full compliance with the documents in references 6, 12, and 13 of section 3.2 of this report. In addition, it was found that the Power Stores Section was in the process of upgrading storage facilities in response to the Deviation Report (DR) Number BF-8400-03-01 and Corrective Action Report (CAR) Number CAR-86-0115 which resulted from QA surveillances. Until the upgrade effort is completed, a lack of sufficient and adequate facilities will exist.

However, the deviations in Maintenance and Modification storage and holding areas have not been addressed by the DR or CAR. Interviews revealed that a major contributing factor was lack of storage facilities. This has resulted in use of whatever facilities that were available and in the majority of cases, were inadequate.

The Maintenance and Modification groups have propagated this situation by retention of excess material and not returning it to Power Stores. They have stock piled scrap, surplus and cannibalized material and equipment for possible future use.

Conclusion:

<u>This was found to be a Class D issue</u>.

The Power Stores storage facilities being utilized at BFN had several deficiencies. These deficiencies have been noted in the past by QA Audits and have resulted in a major relocation and upgrading program at BFN. The Power Stores storage facilities should be evaluated after completion of the upgrading and relocation program.

The Maintenance and Modification storage and holding areas do not always meet applicable requirements. These deviations need to be addressed by line management in response to CATD 40400-BFN-01.

4.1.5 Site Specific-BLN

In a walkdown, the following deviations were found:

a. Storage yards were not in full compliance with BNP-QCP-1.2 paragraph 4.4 which states outdoor storage areas will be well drained and preferably gravel covered or paved. The WSU and DNC Craft storage yards were not well drained and gravel covered or paved in all cases.

b. Shed SE was not in full compliance with BNP-QCP-1.2, paragraph 4.3 which states that Level C storage shall be constructed to be weather tight. Shed SE had a leaking roof and was open on one end.

c. Shed at the end of the sandblast shop was not in full compliance with BNP-QCP-1.2, paragraph 4.3 (see paragraph 4.1.5.b above).

Interviews with warehouse, quality control and craft personnel revealed that storage facilities were usually maintained in compliance with only occasional deviations occurring. In addition, interviews revealed that BLN did not use a "mini-warehouse" (which was the source of the concern at WBN) for storage of instruments. Instruments at BLN are removed from WSU storage facilities and taken to the point of installation where they are installed. Therefore, concern IN-85-927-X01 was not applicable to BLN.

No NSRS investigation of the storage facilities at this site was found.

Conclusion:

<u>This was found to be a Class D issue</u>.

The overall storage facilities at BLN were of an acceptable level with only the aforementioned deviations existing. These deviations need to be addressed by line management in response to CATD 40400-BLN-01.

4.2 <u>Storage Levels</u>

From the findings in this investigation, some of the employee concerns were factual and required corrective action.

4.2.1 Generic

Seven concerns (IN-85-343-002, IN-85-369-003, IN-85-369-004, IN-85-845-003, IN-85-927-X01, IN-86-035-001 and WI-85-091-014), all WBN site specific, were evaluated in this issue and only two were considered generic. The two concerns, IN-85-845-003 and IN-85-927-X01, were determined to be generic to BLN because this plant was in a construction phase similar to WBN. In addition, problems were found with storage levels being maintained at other plants and were identified as a side issue.

4.2.2 Site Specific-WBN

In a walkdown of the site the following items were found:

a. Junction boxes without any internal electrical components were stored outside under a shed. The perceived problem of concern number IN-85-369-003 was that "junction boxes are being stored outside the warehouse." QCI-1.36, Revision 13, does not have a storage level assigned to junction boxes without any internal electrical components, and no junction boxes with internal electrical components were observed being stored outside.

   (1) In an interview with electrical engineering personnel, it was revealed that storage of junction boxes without electrical components under a shed did not affect the quality of the junction boxes and they could be stored outdoors.

   (2) In addition, interviews with electrical craft personnel revealed that the condition of junction boxes stored outdoors was not a concern. The majority of junction boxes are required to be painted before installation and the ones that do not require painting are inspected and touched up.

b. In storage areas for stock steel and pipe, the vast majority of items were stored with sufficient cribbing and off the ground. However, isolated cases did exist which were not in compliance with WBN-QCP-1.36, paragraph 7.3.1.3 and AI-5.6, paragraph 3.4.2.4 which state items shall be stored on pallets, cribbing, shoring or equivalent in order to permit air circulation, prevent trapping of moisture and to bear the full weight without distortion of the item.

c. Several hundred valves were not in full compliance with WBN-QCP-1.36, paragraph 3.0 of Attachment D, which states that valves require Level C storage. These valves were stored in the construction warehouse yard under sheds. According to warehouse personnel, these valves have been stored in this manner for a long time and they are surplus or to be surplused. When these exceptions are eliminated, it was determined that storage of valves will be of an acceptable level.

Interviews with warehouse clerks, Material Service Unit and craft personnel revealed that appropriate storage levels are maintained with only rare deviations occurring.

Concern IN-86-035-001 stated that a shipment of Thermo Lag material was delivered in a heated trailer during a severe cold period in 1984. It was unloaded on the dock and left outdoors all weekend. This evaluation revealed that a shipment of Thermo Lag material came in on January 12, 1985, and set on the dock outdoors over the weekend before being sent to Level B storage. Since Thermo Lag material requires Level B storage, it was determined the perceived problem was factual.

- This same shipment was stored in hut 26 in which the temperature dropped below 40°F between January 18, 1985, and January 25, 1985, which resulted in NCR 5918 being written.

- The disposition on NCR 5918 was to send a sample of the material to the vendor for evaluation for possible damage. A sample was sent to Thermo Sciences and in a letter to Gene Kirkland from R. A. Lohman (Manager, Quality Assurance, Thermo Science, Incorporated) Mr. Lohman stated that the results from sample testing were found within published standards and the material was acceptable.

From a review of the NSRS Investigation Report I-85-480-WBN, a walkdown of the site and interviews, it was found that at one time, instruments were not stored in appropriate storage levels and a mini-warehouse (instrument shack) that had no designated storage level for instruments after they left the

warehouse. In addition, some of the instruments were stored in the Turbine Building which was not environmentally controlled to Level B requirements. This has been corrected by designating the mini-warehouse as Level B storage, developing a new work control procedure that will reduce the time instruments will be in the mini-warehouse, and not storing instruments in the Turbine Building.

From a review of the NSRS Investigation Report I-85-713-WBN on "Snubber Control and Handling," it was determined that the report fully addressed the first part of the concern WI-85-091-014 [second part was addressed in ECTG Subcategory "Installation" (40300)] and IN-85-343-002. The perceived problems were that TVA had poor control over storage and handling of snubbers. The report concluded that snubbers were stored in the proper storage level. In addition, the report found no QCI's for handling of snubbers. Since a large number of snubbers had been damaged, the report concluded that the perceived problems were valid and recommended that a Quality Control Instruction be developed to delineate the requirements for the handling and installation of snubbers. In a memorandum to R. P. Denise from Guenter Wadewitz on March 10, 1986, WBN DNC agreed that a QCI should be developed and issued. The Hanger Engineering Unit is currently developing the instruction. This issue has been additionally addressed in the ECTG Construction Subcategory 11100.

Conclusion:

<u>This was found to be a Class D issue</u>.

Based on the findings above, items are stored in the appropriate storage level with only occasional deviations occurring at WBN. The problems identified with instruments and snubbers have been addressed and corrective actions proposed in response to NSRS reports that resulted from the concerns. These corrective actions are being tracked by CATD 40400-WBN-02.

4.2.3 Site Specific-SQN

During the walkdown of a random sample of approximately 20 warehouses, storage yards, field storage and holding areas on the site, the following observations were made.

a. From the Power Stores storage facilities that were observed, the following deviations were found:

(1) Random lengths of coated pipe were not stored in full compliance with AI-36, paragraph 5.6.3.3 which states that open sheds and/or covers may provide weather protection as required. Severe deterioration of the coating was observed in many instances, apparently because of the lack of protection from direct sunlight.

(2) Hut 11 contained two circuit breakers and three motor operated valves which required indoor controlled storage. Hut 11 was an indoor storage building that does not have environmental control. AI-36, paragraphs 5.11.14 and 5.11.27, states that indoor controlled storage is required for circuit breakers and motor operated valves.

(3) Approximately 10 percent of the stock material items were not in full compliance with AI-36, paragraph 5.7.3.5 which states that items shall be arranged so that racks, cribbing, or crates are bearing the weight without distortion of the item.

(4) Controls were not implemented to ensure full compliance with AI-36, paragraphs 5.6.1.3, 5.6.1.4, 5.6.2.1, and 5.6.2.2 which give temperature and dewpoint requirements. Current methods do not provide assurance that temperature and dewpoint limits have not been exceeded. SQN does not use any method to verify temperature and humidity levels.

b. From the Maintenance Groups storage facilities that were observed, the following deviations were found at two outdoor storage huts:

(1) Several hundred items that required either indoor or indoor-controlled storage were stored in a breezeway. These items included pumps, valves, motors, hangers, etc. Storage requirements by equipment/item category are listed in AI-36, paragraph 5.11, which gives the specific minimum requirements for the different categories of equipment and material.

(2) Items were not always on pallets or cribbing in compliance with AI-36, paragraphs 5.7.3.4 and 5.7.3.5 which state that items shall be stored on pallets, cribbing, shoring or equivalent in order to permit air circulation and prevent trapping moisture as well as bear full weight without distortion.

a. From the Modification Groups and Materials Section storage facilities that were observed, the following deviations or questionable conditions were found:

(1) Nitrogen pressure was not always maintained on heat exchangers in storage yards . AI-36, paragraph 5.7.1.c states that items pressurized with inert gas shall be monitored at such a frequency as to ensure that the gas pressure is maintained, within specified limits during storage.

(2) The storage yard by Hut 21 had items not in full compliance with AI-36, paragraphs 5.7.3.4 and 5.7.3.5 (see paragraph 4.2.2.b.(2) above.)

Interviews with warehouse, craft, and engineering personnel revealed that storage levels are presently maintained with only occasional deviations. However, the deviations at the maintenance storage facility are an exception. According to craft and engineering personnel, this material was either scrap, surplus, or cannibalized parts awaiting some possible future use.

Conclusion:

<u>This was found to be a Class D issue</u>.

Based on the findings above, the majority of items are stored in the appropriate storage level by Power Stores and the Modification Group at SQN with the few aforementioned deviations. The major problem with items being in the wrong storage level existed in the two out door storage huts used by the Maintenance Groups. These issues are being addressed by SQN in response to CATD 40400-SQN-01.

4.2.4 Site Specific-BFN

In a walkdown of a random sample of approximately 25 warehouses, storage yards, field storage and holding areas on the site, the following was found.

a. From the Power Stores facilities that were observed, the following deviations were found:

(1) OB-4, an indoor storage building (Level C), contained a motor operated valve, radiation monitor and Rosemount transmitters. OB-10 contained a motor operated valve. The Kelly Buildings had several items requiring indoor controlled storage (Level B) and the Kelly Buildings do not meet indoor storage requirements (Level C). BF-16.4, section 4 references TS 01.00.15.14.03 for specific storage requirements. ONP Standard TS 01.00.15.14.03, section 7.4 gives the specific minimum storage requirements for the above mentioned equipment and material which require indoor controlled storage (Level B).

(2) Approximately 5-percent of the stock material items in storage yard were not in full compliance with BF-16.4, paragraphs 4.2 and 4.6 which state all items shall be stored on cribbing, pallets, shoring or equivalent in order to permit air circulation, prevent trapping water and bear full weight without distortion of the item. Items were in contact with the ground and/or distorted.

(3) Chemicals were not stored in full compliance with BF-16.4, paragraph 4.6.c which states hazardous chemicals, paints, solvents and other materials of like nature shall be stored in well ventilated areas which are not in close proximity to important nuclear plant items. Chemicals were stored in close proximity to permanent plant items.

(4) Controls were not implemented to ensure full compliance with BF-16.4, section 4.1 reference TS.01.00.15.14.03, sections 3.3.1.2 and 3.3.1.4 which give temperature and dewpoint requirements. Current methods do not provide assurance that temperature and dewpoint limits have not been exceeded. BFN does not use any method to verify temperature and humidity levels.

b. From the Maintenance Groups storage facilities that were observed, the following deviations were found:

(1) Three Limitorque operated valves were stored outside the maintenance supply shack outside the Turbine Building shop area. Four more were stored behind OB-9 in the warehouse yard. In addition, OB-9 and OB-9A, which are indoor storage buildings, contained motors, paint, adhesive, transformers and various other items that required indoor controlled storage as stated in BF-16.4, section 4 reference TS 01.00.15.14.03.

(2) Approximately 25 percent of the stock material items were not in full compliance with BF-16.4, paragraphs 4.2 and 4.6.6 (see paragraph 4.2.4.a.(2) of this report). Material was laying on the ground and on the floor of OB-9 and OB-9A. In addition, cribbing was not bearing full weight without distortion.

c. From the Modification Groups storage facilities that were observed, the following deviations were found:

(1) Approximately ten ASME valves were stored on pallets in the storage yard near the switchyard. BF-16.4, section 4, reference TS 01.00.15.14.03 requires this type of valve to be stored in indoor storage (Level C). In addition, the trailer in this same yard contained conax connectors and Limitorque valve motors which require indoor controlled storage (Level B) as stated in BF-16.4, section 4, reference TS 01.00.15.14.03.

(2) Approximately 25 percent of the stock material items were not in full compliance with BF-16.4, paragraphs 4.2 and 4.6.b (see paragraph 4.2.4.a.(2) of this report). Material was in contact with the ground and the cribbing was not bearing full weight without distortion.

From interviews with Power Stores and craft personnel, it was found that the deviations in storage at BFN were the result of inadequate storage space for Power Stores, Maintenance and Modifications Sections. The Power Stores Section was in the process of upgrading storage facilities as previously stated in Section 4.1.4 of this report.

Conclusion:

This was found to be a Class D issue.

Based on the findings above, several items were stored in the wrong storage level at BFN in Power Stores, Maintenance and Modification Groups. The Power Stores Unit was in the process of upgrading their storage facilities and relocating items into their proper storage levels in response to DR BF-8400-03-01 and BF-CAR-86-0115. As for the Maintenance and Modification Groups, no corrective actions have been taken.

Interviews with Power Stores and craft personnel revealed that a lack of adequate storage space resulted in most of the deviations. These deviations need to be addressed by line management in response to CATD 40400-BFN-02.

4.2.5 Site Specific-BLN

A walkdown of the Power Stores, WSU and the Maintenance Section storage facilities revealed no deviations. However, controls were not implemented to ensure compliance with BLA9.4, paragraphs 1.2.1.2 and 1.2.1.9, and BNP-QCP-1.2, paragraphs 4.1 and 4.2, which give temperature and dewpoint requirements. Current methods do not provide assurance that temperature and dewpoint limits have not been exceeded.

A walkdown of the DNC craft field storage areas revealed the following deviations:

a. Several valves were stored in a shed behind the sandblast shop which are required to be in Level C storage. This shed was not weather tight. In addition, BLN does not have a procedure to govern storage of equipment and material after issue from the control of WSU except for items in Level D storage. ANSI N45.2.2-1972 requires storage to be maintained until an item is in its permanent location in the plant.

b. Items were not stored in full compliance with BNP-QCP-10.27, paragraph 6.5.3.11 reference BNP-QCP-1.2, paragraphs 4.4 and 6.2.1.3 which state items shall be stored on cribbing or equivalent to allow for air circulation and sloped to avoid trapping of water or contact with the ground or gravel. In addition, it stated items shall be stacked so that racks, cribbing, or crates are bearing full weight without distortion.

Interviews with warehouse, quality control and craft personnel revealed that storage levels are usually maintained with only rare deviations. In addition, interviews revealed that BLN did not use a "mini-warehouse" for storage of instruments which was the reason for the concern at WBN. Instruments are removed from WSU storage facilities and taken to the point of installation where they are installed. Therefore, the concerns, IN-85-927-X01 and IN-85-845-003, were not valid at BLN.

Conclusion:

This was found to be a Class D issue.

Based on the findings above, BLN had items stored in the appropriate storage with only the aforementioned deviations existing. The deviations that existed were in DNC craft storage areas and need to be addressed by line management in response to CATDs 40400-BLN-04 and 40400-BLN-09.

4.3 Protective Covers and Seals

Based on the findings below, some of the issues addressed were partially factual and required corrective action.

4.3.1 Generic

Two WBN site-specific concerns, IN-85-454-005 and IN-85-978-007, were evaluated in this issue. Neither of these concerns was originally considered to be generic to other TVA plants. However, during the evaluation of generic concerns WI-85-100-040, XX-85-122-045, XX-85-122-046, and XX-85-122-047 at BFN, BLN, and SQN in the issue Storage Facilities, similar findings of improper use of protective covers and seals were identified as a side issue that had to be addressed. To keep like subject matter together, this side issue is discussed here rather than under Storage Facilities.

4.3.2 Site Specific-WBN

A review of NRC inspection reports revealed that during past inspections, valves and piping at SQN and BLN were found without caps, plugs or other closures intact. These were severity Level 5 violations.

a. From the Power Stores storage facilities that were observed, the following deviations were found:

(1) Approximately 50 percent of the austenitic stainless steel fittings (tees, elbows, reducers, etc) were not in full compliance with AI-5.6, Attachment 1, paragraph 7.2.1. This instruction requires that austenitic stainless steel tubular products have end caps to prevent nesting or infestation of rodents, birds or insects.

b. From the WSU storage facilities that were observed, the following deviations were found:

(1) Approximately 75 percent of the austenitic stainless steel fittings (tees, elbows, reducers, etc.) were not in full compliance with QCP-1.36, paragraph 7.3.5.1.1 which requires caps and plugs to be installed on austenitic stainless steel tubular products while in storage.

(2) A few valves were not in full compliance with QCP-1.06, paragraph 7.3 which requires that proper protective packaging and seals are intact to protect the item from damage and/or contamination.

c. From the field storage areas that were observed, the following deviations were found:

Approximately 75 percent of the austenitic stainless steel fittings (tees, elbows, reducers, etc.) were not in full compliance with QCP-1.36, paragraph 7.3.5.1.1 which states caps and plugs shall be installed on austenitic stainless steel tubular products while in storage. In addition, a small percentage of austenitic stainless steel pipe had missing protective covers or seals.

Interviews with warehouse, quality control and craft personnel revealed that austenitic stainless steel pipe was required to be maintained with protective covers and seals intact. However, it was difficult to keep caps from popping off. In addition, interviews with cognizant electrical engineering personnel revealed that conduit did not require protective covers and seals.

As for capping of fittings, it was the interpretation of site procedures by both DNC and ONP site personnel that storage of fittings inside a warehouse did not require capping. However, interviews with engineering personnel in Knoxville and Chattanooga revealed that fittings needed protective covers and seals or had to be stored in covered containers per the upper-tier criteria. The upper-tier criteria in question were G-29 and TS 01.00.15.14.03.

Concern IN-85-454-005 was expressed that black pipe was usually dirty inside. Interviews with quality control personnel revealed that this could be a valid concern but it has no impact on safe operation of the plant. Carbon steel pipe has no requirement to be capped before installation. This pipe is usually sandblasted before installation and kept capped or taped through installation. After installation and before operation, systems are flushed in accordance with G-39 and QCT-4.36 to verify system cleanliness.

Conclusion:

<u>This was found to be a Class D issue</u>.

Based on the findings above, WBN maintained items with the exception of austenitic stainless steel fittings with appropriate protective covers and seals in accordance with site procedures. The use of protective covers and seals on austenitic stainless steel fittings will have to be addressed by line management in response to CATDs 40400-WBN-03 and 40400-WBN-04.

4.3.3 Site Specific-SQN

A review of NRC inspections found that SQN had received violations in the past for lack of protective covers and seals on austenitic stainless steel tubular products (50-328/85-23, 50-327, 328/83-12).

A walkdown of a random sample of storage facilities revealed the following.

a. From the Power Stores facilities that were observed, the following deviations were found:

(1) Approximately 50 percent of the austenitic stainless steel fittings (tees, elbows, reducers, etc) were not in full compliance with AI-36, paragraph 5.11.22 which requires austenitic stainless steel tubular products to have caps to prevent nesting or infestation of rodents, birds or insects.

(2) Approximately ten valves were not in full compliance with AI-36, paragraphs 5.11.24, 5.11.25, and 5.11.26 which requires caps or covers be provided for nonstainless valves 4 inches and over and under 4 inches with flanged ends. Caps for flanged openings or weld preps are also required for impact damage protection. Stainless steel valves shall have openings capped or covered, or small valves may be stored in bulk containers providing protection from insects.

b. From the Maintenance Group storage facilities that were observed, the following deviations were found at two outdoor storage huts:

(1) Austenitic stainless steel tubular products were not in full compliance with AI-36, paragraph 5.11.22 (see paragraph 4.3.3.a.(1) above).

(2) Valves were not in full compliance with AI-36, paragraphs 5.11.24, 5.11.25, and 5.11.26 which state that caps or covers shall be provided for nonstainless valves 4 inches and over and under 4 inches with flanged ends. Caps for flanged openings or weld preps shall provide impact damage protection. Stainless steel valves shall have openings capped or covered, or small valves may be stored in bulk containers providing protection from insects.

Interviews with Power Stores, QA and craft personnel revealed that austenitic stainless steel piping was maintained with protective covers and seals intact. As for capping of fittings, it was the interpretation of Power Stores and SQN QA that storage of fittings in a warehouse did not require capping. However, SQN site and ONP procedures require that fittings have protective covers and seals (see paragraph 4.3.3.a.(1) above).

Conclusion:

This was found to be a Class E issue.

Based on the findings above, SQN maintained items, with the exception of austenitic stainless steel fittings, with the appropriate protective covers and seals in accordance with site procedures. The use of protective covers and seals on austenitic stainless steel fittings is being addressed by SQN in response to CATD 40400-SQN-01.

4.3.4 Site Specific-BFN

A walkdown of the storage facilities revealed the following deviations.

a. From the Power Stores facilities that were observed, the following deviations were found:

(1) Approximately 10 percent of the austenitic stainless steel fittings (tees, elbows, reducers, etc) were not in full compliance with BF-16.4, paragraph 4.2 which states caps and plugs shall be used to seal openings in items having sensitive internal surfaces and to protect threads and weld end preparations.

(2) Approximately 5 percent of the valves were not in full compliance with BF-16.4 paragraph 4.2 which states that caps and plugs shall be used to seal openings in items having sensitive internal surfaces and to protect threads and weld end preparations.

(3) Spiral-wound gaskets were not in full compliance with BF-16.4, section 4 reference TS 01.00.15.14.03, section 7.30 which states gaskets shall be dust free in storage as would be provided by a closed drawer or full-wrap package. Several gaskets were hanging on a peg board with no protective packaging in the main Power Stores warehouse.

b. From the Maintenance Group storage facilities that were observed, the following deviations were found:

(1) Approximately 50 percent of the austenitic stainless steel tubular products were not in full compliance with BF-16.4, paragraph 4.2 which states caps and plugs shall be used to seal openings in items having sensitive internal surfaces and to protect threads and weld end preparation.

(2) Several valves in OB-9A were not in full compliance with BF-16.4, paragraph 4.2 which states caps and plugs shall be used to seal openings in items having sensitive internal surfaces and to protect threads and weld end preparation.

c. From the Modification Section storage facilities that were observed, the following deviation was found:

Approximately 10 percent of austenitic stainless steel tubular products were not in full compliance with BF-16.4, paragraph 4.2 which states caps and plugs shall be used to seal openings in items having sensitive internal surfaces and to protect threads and weld end preparations.

Interviews with warehouse and craft personnel revealed that austenitic stainless steel tubular products were maintained with protective covers and seals intact. However, it was difficult to keep caps from popping off and tape to stick because of temperature changes and required a lot of attention to maintain items in compliance. In addition, interviews revealed that sometimes personnel would not cap or tape ends once material had been used.

Conclusion:

<u>This was found to be a Class E issue</u>.

Based on the findings above, BFN maintained items, with the exception of austenitic stainless steel fittings, with appropriate protective covers and seals in accordance with site procedures. Although the Maintenance Group had a high percentage of items without protective covers and seals, they had a small amount of material in storage. The use of protective covers and seals needs to be addressed by line management in response to CATD 40400-BFN-03.

4.3.5 Site Specific-BLN

A review of the NRC inspection reports during the WBN evaluation revealed that BLN had received violations (50-438, 439/84-22-01) for lack of protective covers and seals on piping assemblies.

A walkdown of the storage facilities revealed the following deviations:

a. From the Power Stores facilities that were observed, no deviations were found.

b. From the Maintenance Groups storage facilities that were observed, no deviations were found.

c. From the WSU storage facilities that were observed, the following deviation was found:
Approximately 90 percent of austenitic stainless steel fittings (tees, elbows, reducers, etc) and less than 5-percent of the austenitic stainless steel pipe were not in full compliance with BNP-QCP-1.2, paragraph 7.2.6 which states end caps shall be installed on austenitic stainless steel pipe and tubing products.

d. From the Construction Craft field storage areas that were observed, the following deviation was found:

Approximately 10 percent of austenitic stainless steel tubular products were not in full compliance with PS4M.1.1,paragraph 3.1.8.1 which states austenitic stainless steel tubular products shall be protected by end caps or plugs.

Interviews with warehouse, quality control and craft personnel found that while they did attempt to maintain covers over the austenitic stainless steel products it was difficult to keep the tape on the products and to prevent the caps from popping off because of temperature changes. The personnel interviewed did not consider the capping of fittings a requirement, with respect to site procedures, which explains the high percentage of missing caps and covers.

Conclusion:

This was found to be Class E issue.

Based on the findings above, BLN, with the exception of austenitic stainless steel fittings, did maintain most items with appropriate protective covers and seals in accordance with site procedures. The WSU did not use appropriate protective covers and seals on austenitic stainless steel fittings. However, they did maintain, with a few exceptions, protective covers and seals on other items requiring them as did other groups at BLN. These deviations need to be addressed by line management in response to CATD 40400-BLN-03.

4.4 Austenitic Stainless Steel

Based on the findings below, some of the issues addressed were factual and required corrective action.

4.4.1 Generic

Three concerns (IN-85-118-001, IN-85-564-001 and WI-85-036-001), all WBN site specific, were evaluated in this issue and none of them were considered generic. The issue is the intermixing of carbon and stainless steel, resulting in carbon contamination of the stainless steel and the possibility of stress corrosion cracking in this material. Although none of the concerns were considered generic, the problem identified with intermixing of carbon and austenitic stainless steel was identified as a side issue at BFN, BLN, and SQN during the evaluation of generic concerns WI-85-100-040, XX-85-122-045, XX-85-122-046 and XX-85-122-047 for the element Storage Facilities. To keep like subject matter together, this side issue was discussed here rather than under Storage Facilities.

4.4.2 Site Specific-WBN

A walkdown of a sample of warehouse and field storage facilities was performed, and it was found that one piece of austenitic stainless steel plate had fallen off the austenitic stainless steel rack on to a carbon steel portion of the rack. This is out of compliance with the requirements in QCP-1.36, paragraph 7.3.1.5 which states stainless steel and nickel based alloyed material shall not be stored or placed in contact with carbon steel, low-alloy steel, lead, tin, bismuth, mercury, halogens or sulfur.

In addition, austenitic stainless steel was observed being transported by craft personnel and provisions had been taken to prevent carbon contamination.

Interviews with warehouse quality control and craft personnel revealed that austenitic stainless steel was not stored, handled, or transported in contact with carbon steel.

Conclusion:

This was found to be a Class B issue.

Based on the findings above, WBN did not store, handle or transport austenitic stainless steel in contact with carbon steel. Only one case of austenitic stainless steel in contact with carbon steel was observed and this was corrected immediately. This issue does not require any additional corrective action.

4.4.3 Site Specific-SQN

In a walkdown of a random sample of warehouses, storage yards, field storage and holding areas, the following deviations were found:

a. From the Power Stores facilities that were observed, no deviations were found.

b. From the Maintenance Group Storage facilities that were observed, the following deviation was found at two outdoor storage huts:

   Isolated cases existed where austenitic stainless steel was not stored in full compliance with AI-36, paragraph 5.7.4 which states austenitic stainless steel shall not be stored in contact with carbon steel.

c. From the Modification Group storage facilities that were observed, no deviations were found.

Interviews with warehouse and craft personnel revealed that austenitic stainless steel was not stored in contact with carbon steel. However, isolated cases did exist.

Conclusion:

<u>This was found to be a Class E issue</u>.

Based on the findings above, SQN did not store austenitic stainless steel in contact with carbon steel as a common practice. However, isolated cases did exist and are being addressed in response to CATD 40400-SQN-01.

4.4.4 Site Specific-BFN

In a walkdown of a random sample of warehouses, storage yards, field storage and holding areas, the following was found:

a. From the Power Stores facilities that were observed, no deviations were found.

b. From the Maintenance Group storage facilities that were observed, the following deviation was found.

Austenitic stainless steel was not stored in full compliance with BF-16.4, paragraph 4.2 reference TS 01.00.15.14.03 which states that austenitic stainless steel shall be stored so that it does not contact dissimilar metals.

Interviews with warehouse and craft personnel revealed that austenitic stainless steel was not stored in contact with carbon steel. However, isolated cases did exist.

Conclusion:

<u>This was found to be a Class E issue</u>.

Based on the findings above, BFN did not store austenitic stainless steel in contact with carbon steel as a common practice. However, isolated cases did exist and this needs to be addressed by line management in response to CATD 40400-BFN-04.

4.4.5 Site Specific-BLN

In a walkdown of a random sample of warehouses, storage yards, field storage and holding areas, the following was found:

a. From the Power Stores facilities that were observed, no deviations were found.

b. From the Maintenance Group storage facilities that were observed, no deviations were found.

c. From the WSU facilities that were observed, no deviations were found.

d. From the construction craft storage facilities that were observed, the following deviation was found.

In the storage area behind the sandblast shop, austenitic stainless steel fittings were not in full compliance with BNP-QCP-1.2 paragraph 6.2.1.5 which states that austenitic stainless steel shall not be stored or placed in contact with stored or placed in contact with carbon, lead, low alloy steel, tin, bismuth, mercury, halogens or sulfur.

Interviews with warehouse, quality control and craft revealed that austenitic stainless steel was not stored in contact with carbon steel. However, isolated cases did exist.

Conclusion:

<u>This was found to be a Class E issue</u>.

Based on the findings above, BLN did not store austenitic stainless steel in contact with carbon steel as a common practice. However, isolated cases did exist and this needs to be addressed by line management in response to CATD 40400-BLN-05.

4.5 <u>Segregation</u>

Based on the findings below, the issue addressed was partially factual and required corrective actions.

4.5.1 Generic

Two concerns were expressed about the segregation of safety (CSSC) and non safety-related (non-CSSC) materials. Concern IN-85-443-002, a WBN site specific, stated that safety and non-safety related materials were not segregated during receiving and storage. This concern was made generic to all four of the TVA's Nuclear Power Plants. The other concern, IN-86-282-001, a WBN site specific, questioned whether QA and non-QA materials were being stored in the warehouse adjacent to each other in the same bin or rack. This issue has also been addressed in the ECTG Subcategory "Procedural Control" (40700).

4.5.2 Site Specific-WBN

A walkdown of a random sample of warehouses, storage yards, field storage and holding areas to determine if safety (CSSC) and non-safety (non-CSSC) materials were segregated in accordance with applicable procedures. The findings were:

a. From Power Stores facilities that were observed, no deviations were found.

b. From the Maintenance Group Storage facilities that were observed, no deviations were found.

c. From the WSU Facilities that were observed, no deviations were found. QA and non-QA items were stored in separate bins and racks.

d. From the field storage areas that were observed, the following deviation was found:

In a storage trailer, miscellaneous pipe fittings were not in full compliance with WBN-QCP-1.06, section 7.1.1, which references ANSI 45.2.2-1972. Paragraph 5.6, of ANSI 45.2.2, states required marking shall be verified to provide positive identification during receiving, storage and installations. This was a potential problem because safety and nonsafety-related material had been received with identical identification markings and heat numbers.

Interviews with warehouse and quality control personnel revealed that material was identified and segregated to prevent safety and nonsafety-related items from inadvertantly getting mixed, while in the warehouse. In addition, interviews with quality control and craft personnel revealed that material was only identified by heat number and heat code printout in the field. This creates a problem since segregation of safety and nonsafety related material was not maintained in the field and miscellaneous pipe fittings were received with identical heat numbers and identification markings.

This issue has also been addressed in the ECTG Subcategory, "Procedural Control" (40700). 40700 has evaluated material traceability programs to ensure that traceability was maintained and the correct material was installed. In addition, ECTG Subcategory "Material Identification" (40500) has addressed this issue.

Conclusion:

<u>This was found to be a Class D issue</u>.

Based on the findings above, WBN maintained safety and nonsafety-related materials segregated during storage at Power Stores, Maintenance Group and WSU storage facilities that were observed. However, in a trailer that was maintained by the construction craft miscellaneous pipe fittings were not always segregated. This was a potential problem because safety and nonsafety-related material had been received with identical identification markings and heat numbers. This issue needs to be addressed by line management in response to CATD 40500-WBN-02 in ECTG Subcategory "Material Identification" (40500).

4.5.3 Site Specific - SQN

A walkdown was performed of a random sample of warehouses, storage yards, field storage and holding areas to determine if safety (CSSC) and nonsafety-related (non-CSSC) materials were segregated in accordance with AI-36. The findings were:

a. From the Power Stores storage facilities observed, the following deviation was found:

QA Level I or II items were not stored in full compliance with AI-36, paragraphs 5.8.1.3 and 5.8.1.5 which state that mixing of QA Level I and II with QA Level III and no QA items is prohibited.

b. From the Maintenance Groups storage facilities that were observed, the following deviations were found:

(1) The storage areas did not have a section designated for safety-related material, although materials were identified and boxed. The safety and nonsafety-related materials could inadvertently get mixed.

(2) The storage racks had safety and nonsafety-related stock items on the same shelf. These items were mixed but did have 575s attached to identify material. (See paragraph 4..5.2.a.(1) of this report).

c. From the Modification Group storage facilities that were observed, the following deviation was found:

In the back of the Modification Building, there was a storage area where nonsafety-related materials were stored in bins for various fabrications. This storage area was designated non-CSSC material only, but it had material that could be identified and accepted for CSSC use. This material is not segregated according to AI-36 (See paragraph 4.5.2.a.(1)). This area of concern has also been addressed in the ECTG Subcategory "Installation" in the element report MC-40307-SQN, "Scraped Material As Related to Material Control".

Interviews with Power Stores personnel and random check of ten nonsafety-related items did not reveal any evidence that safety and nonsafety-related material had been received with identical identification markings and heat numbers. However, the issue of material traceability and the use of identical heat numbers received for different TVA piping system classifications has been addressed in the ECTG Subcategory "Procedural Control" in the element report MC-40703-SQN, "Heat Code As Related to Material Control".

Conclusion:

<u>This was found to be a Class D issue</u>.

Based on the findings above, SQN did not maintain segregation of safety and nonsafety-related material. This issue has been addressed by line management in response to CATD 40400-SQN-01.

4.5.4 Site Specific - BFN

A walkdown was performed of a random sample of warehouses, storage yards, field storage and holding areas to determine if safety (CSSC) and non-safety related (non-CSSC) materials were segregated in accordance with BF-16.4. The findings were:

a. From the Power Stores storage facilities that were observed, the following deviation was found:

   QA Level I and II items were not in full compliance with BF-16.4, paragraph 4.2 reference TS 01.00.15.14.03 which states in paragraph 3.5 that mixing of QA Level I and II with any other item is prohibited. QA Level I and II items were stored on the same shelf or bin as QA Level III and no-QA items

b. From the Maintenance storage facilities that were observed, the following deviation was found.

   QA Level I and II items were not stored in full compliance with BF-16.4, paragraph 4.2 (see paragraph 4.5.3.a.(1) of this report). QA Level I and II items stored on same rack as QA Level III and no-QA items. In addition, items that had no identification were stored on these same racks.

c. From the Modification storage facilities that were observed, the following deviation was found.

   QA Level I and II items were not stored in full compliance with BF-16.4, paragraph 4.2 (see paragraph 4.5.3.a.(1) of this report). QA Level I and II items stored on same rack as QA Level III and no-QA items. In addition, items that had no identification were stored on the same racks.

This issue has also been addressed in the ECTG Subcategory, "Procedural Control" (40700). Report 40700 has evaluated the material traceability programs to ensure traceability was maintained and that the correct material was installed.

Conclusion:

<u>This was found to be a Class D issue</u>.

Based on the findings above, BFN did not always segregate QA QA Level I and II from QA Level III and no-QA items as required by BF-16.4. This issue needs to be addressed by line management in response to CATD 40400-BFN-05.

4.5.5 Site Specific-BLN

A walkdown of a random sample of warehouses, storage yards, field storage and holding areas to determine if safety (CSSC) and nonsafety-related (non-CSSC) materials were segregated in accordance with applicable requirements was performed. The following was found:

a. From the Power Stores storage facilities that were observed, the following deviation was found:

   QA Level I and II items were not stored in full compliance with BLA 9.4, paragraph 1.4.1 which states physical mixing of an item identified by use of form 6509A (Bin Description Cards for QA Level I and II items) with any other item is prohibited. Physical separation of items that can be made by use of jars, bins, trays, drawers and their dividers will be utilized. QA Level I and II items were stored in same bin as QA Level III and no-QA items.

b. From the Maintenance storage facilities that were observed, the following deviation was found.

   The stock material items on storage racks were not in full compliance with BLA 9.4, paragraph 1.4.1 (See paragraph 4.5.4.a of this report). QA Level I and II items were mixed with QA Level III and no QA items on racks.

c. From the WSU storage facilities that were observed, the following deviations were found.

(1) The warehouse and storage yards have safety and nonsafety-related items stored in the same bins and locations. Stock material was not segregated into areas designated for safety related items to prevent inadvertent mixing. However, items were identified individually. BNP-QCP-1.2 and ANSI N4.5.2.2-1972 do not require segregation, only identification.

(2) The warehouse does not segregate B31.1 QA and B31.1 non-QA tubular products. When B31.1 tubular products were received they were assigned the same BLN mark number and stored together. They were issued as the same item when B31.1 material was requisitioned, with no consideration to QA or non-QA use.

d. From the DNC Craft storage facilities that were observed, the following was found.

The storage racks had safety and non-safety related items which did not always have identification and marking to identify the item. However, these items could not be used in a safety-related application due to BNP-QCP-7.9. A Quality Control Inspector had to verify material identification at fit-up.

This issue has also been addressed in the ECTG Subcategory, "Procedural Control" (40700). Report 40700 has evaluated the material traceability programs to ensure traceability was maintained and that the correct material was installed.

Conclusion:

<u>This was found to be a Class D issue</u>.

Based on the findings above, BLN Power Stores and Maintenance Sections did not always segregate QA Level I and II items from QA Level III and no-QA items as required by BLA 9.4. This issue needs to be addressed by line management.

In addition, WSU stored safety and nonsafety-related material in the same bin location. This did not pose a problem since all items were identified by material type, size, grade, and class. Also the DNC craft did not segregate safety and nonsafety-related material nor was the material always identified. Again this did not propose a problem because of Quality Control Inspector verification at the point of installation. However, the mixing of B31.1 QA and non-QA tubular products needs to be addressed by line management in response to CATD 40400-BLN-07.

4.6 Identification and Marking

From the findings in this evaluation, the employee concern was not factual. However, material did not always have proper identification and marking.

4.6.1 Generic

One concern, IN-85-447-002, a WBN site specific, has been addressed in this issue. The concern was that austenitic stainless steel instrumentation pipe 1/2" and under had heat numbers stenciled on it with ink. The ink would sometimes rub off during storage.

The issue raised by this concern was that material did not have proper identification and marking. Although the concern was not considered generic, the problem identified with identification and marking was identified as a side issue at BFN, BLN, and SQN during the evaluation of generic concerns WI-85-100-040, XX-85-122-045, XX-85-122-046, and XX-85-122-047 for the issue Storage Facilities. To keep like subject matter together, this side issue is discussed here rather than under Storage Facilities.

4.6.2 Site Specific-WBN

A walkdown of Power Stores, Maintenance and DNC craft storage revealed only one deviation. One bundle of austenitic stainless steel tubing was observed with no identification and marking in the WSU storage yard. This bundle was removed and placed in the nonconforming materials yard. This issue has also been addressed in the ECTG Subcategory "Material Identification" (40500) and "Materials Waste and Availability as related to Management and Personnel" (71100).

Conclusion:

This was found to be a Class D issue.

Based on the findings above, identification of material was not a problem at WBN. Only one bundle of tubing had lost its identification and was placed in the nonconforming materials yard.

4.6.3 Site Specific - SQN

A walkdown was conducted of a random sample of warehouses, storage yards, field storage and holding areas to determine if materials were identified in accordance with AI-36. The findings were:

a. From the Power Stores storage facilities that were observed, the following deviation was found:

Approximately 25 percent of the stock material items in the storage yard were not in full compliance with AI-36, paragraph 5.8 which states all items or their containers shall be plainly marked so that they are easily identified. Items were partially marked or had no identification markings.

b. From the Maintenance storage facilities that were observed, the following deviation was found:

Several hundred items at two outdoor storage huts were not in full compliance with AI-36, paragraph 5.8 (See paragraph 4.6.3.a of this report). Items did not have proper identification plainly marked on all items.

c. From the Modification storage facilities that were observed, no deviations were found:

Conclusion:

<u>This was found to be a class E issue</u>

Based on the findings above, SQN did have a problem with identification and marking of material. This issue has been addressed by line management in response to CATD 40400-SQN-01.

4.6.4 Site Specific-BFN

A walkdown was conducted of a random sample of warehouses, storage yards, field storage and holding areas to determine if materials were identified in accordance with BF-16.4. The findings were:

a. From the Power Stores storage facilities that were observed, the following deviation was found.

Approximately 5 percent of the items in the storage yards and warehouses were not in full compliance with BF-16.4, paragraph 4.6.3 which requires all items or their containers shall be plainly marked in a manner which is not deleterious to the item and so that they are easily identified without excessive handling or unnecessary opening of crates and boxes. Items had no identification markings.

b. From the Maintenance storage facilities that were observed, the following deviation was found.

Approximately 50 percent of the items in storage racks outside the boilermaker shop and Turbine Building as well as material in OB-9 and OB-9A were not in full compliance with BF-16.4, paragraph 4.6.e (See paragraph 4.6.4.a of this report). Items or their containers were not identified.

c. From the Modification storage facilities that were observed, the following deviation was found.

Approximately 25 percent of the items in storage yard and trailer by the switch yard were not in full compliance with BF-16.4, paragraph 4.6.e (See paragraph 4.6.4.a of this report). Items or their containers were not identified.

Conclusion:

<u>This was found to be a Class E issue</u>.

Based on the findings above, BFN had a problem with identification and marking of materials after issue from the Power Stores storage facilities. This issue needs to be addressed along with the few deviations in Power Stores by line management in response to CATD 40400-BFN-06.

4.6.5 Site Specific-BLN

A walkdown was conducted of a random sample of warehouses, storage yards, field storage and holding areas to determine if materials were identified in accordance with BLA 9.4 for ONP and BNP-QCP-1.2 for the DNC. The findings were:

a. From the Power Stores storage facilities that were observed, no deviations were found.

b. From the Maintenance storage facilities that were observed, the following deviation was found.

The stock material items on storage racks were not in full compliance with BLA 9.4, paragraph 1.4.2 which states identification shall be stamped, etched, stenciled or otherwise marked on the item or on tags affixed to the item. The material on the racks was not always identified.

c. From the WSU storage facilities that were observed, the following deviation was found.

On rare occasions items were not identified in full compliance with BNP-QCP-1.2, paragraph 6.2.1.2 which states items shall be stored so that their identifying markings are plainly visible. Some markings were not visible and a few items were not identified.

d. From the DNC craft storage facilities that were observed, the following deviation was found.

Approximately 10 percent of the items were not identified in full compliance with BNP-QCP-10.27, paragraph 6.5.3.1.1 reference BNP-QCP-1.2, paragraph 6.2.1.2 (See paragraph 4.6.5.c above).

Conclusion:

<u>This was found to be a Class E issue</u>.

Based on the findings above, BLN had a small number of items that was not properly identified in accordance with applicable procedures. This issue needs to be addressed by line management in response to CATDs 40400-BLN-02 and 40400-BLN-08.

4.7 <u>Material Handling</u>

From the findings in this evaluation the employee concerns were found not to be factual.

4.7.1 Generic

Two concerns, IN-85-978-007 and IN-85-978-013, WBN site specific concerns, have been addressed in this issue. The issue was that material was not handled in a proper manner to prevent damage.

4.7.2 Site Specific-WBN

Reviewed QCI-1.36, Revision 13, and determined it did fully implement ANSI N45.2.2-1972 for handling of material. The following was performed:

a. Interviews with cognizant craft personnel which revealed that nylon chokers or slings were used to handle austenitic stainless steel material. Carbon steel devices are not used to handle austenitic stainless steel material.

b. Interviews with cognizant craft personnel which revealed that material was not handled roughly nor was the quality of the material affected by handling. During a walkdown of a random sample of storage areas, no material was observed to be damaged due to rough handling.

c. Interviews with cognizant craft personnel which revealed that austenitic stainless steel material was not transported in contact with carbon steel material. In addition, austenitic stainless steel material was observed being transported and precautions had been taken to prevent contact with carbon steel material.

Conclusion:

<u>This was found to be a Class A issue</u>.

Based on the findings above, WBN did not improperly handle material and the concern could not be determined to be factual.

4.8 <u>Documentation</u>

From the findings in this evaluation, the employee concern was factual, but no corrective action was required.

4.8.1 Generic

One concern, IN-85-627-013, a WBN site specific, has been addressed in this issue. The issue raised was that material was not properly documented as received and in storage.

4.8.2 Site Specific-WBN

Interviews with cognizant Warehouse and Material Services personnel did not reveal any significant problems with warehouse documents inaccurately listing material as received and in storage. Through interviews and program evaluation it was determined the documents in question were the ledger cards. The Project Control Unit did a random check for reliability of ledger cards on 486 items. They found nine items or 1.9 percent of the sample that could not be accounted for.

Conclusion:

This was found to be a Class B issue.

Based on the findings above, WBN did not have a problem with warehouse documents accurately listing material as received and in storage. Since the documents in question were determined to be ledger cards, the only problem that could result would be in locating an item and this would not be a safety-related issue. In addition, only a small percentage of ledger cards were determined to be inaccurate.

4.9 Receiving

From the findings in this evaluation the employee concern was not factual.

4.9.1 Generic

One concern, WI-85-089-001, a WBN site specific, has been addressed in this issue. The issue raised was that QA material was not being received by the Material Services Unit (MSU) prior to being sent to shacks 319 and 565.

4.9.2 Site Specific-WBN

Interviews with cognizant warehouse clerks, Material Services Unit and craft personnel revealed that material was received before being sent to shacks 319 and 565. Cognizant craft personnel stated that no material was received at the above mentioned shacks without a TVA 575 unless it was being returned from field which had been initially issued from shack 319. No evidence was found to confirm that these shacks had received material that had not been properly received.

Conclusion:

This was found to be a Class A issue.

Based on the findings above, no material was being sent to shacks 319 and 565 without being properly received by WSU and MSU.

4.10 Fire Protection

From the findings in this evaluation, the employee concern was factual, but no corrective action was required.

4.10.1 Generic

This issue covers part of four identical concerns (WI-85-100-040, XX-85-122-045, XX-85-122-046 and XX-85-122-047) which were site specific concerns, respectively, for each of TVA's four nuclear power plants and were considered generic to all four nuclear plants. The issue raised was that fire protection for warehouses was inadequate.

4.10.2 Site Specific-WBN

Interviews with safety personnel and Fire Protection Engineers revealed that fire protection was not always adequate for insurance purposes. This lack of fire protection was an economic consideration and not a safety consideration. The warehouses are protected by a fire hydrant system and portable fire extinguishers at a minimum. According to ANSI N45.2.2-1972, fire protection shall be commensurate with type of storage area.

4.10.3 Site Specific-SQN

Interviews with Fire Protection Engineers revealed that the new Power Stores warehouse has adequate fire protection, and the old warehouses in the yard are protected by a fire hydrant system and portable fire extinguishers which were not adequate for insurance purposes. This lack of fire protection was an economic consideration and not a safety consideration. Fire protection shall be commensurate with type of storage facilities according to ANSI N45.2.2-1972.

4.10.4 Site Specific-BFN

Interviews with Fire Protection Engineers revealed that fire protection was not always adequate for insurance purposes. This lack of of fire protection was an economic consideration and not a safety consideration. The warehouses are protected by a fire hydrant system and portable fire extinguishers at a minimum. According to ANSI N45.2.2-1972, fire protection shall be commensurate with type of storage area.

4.10.5 Site Specific-BLN

Interviews with Fire Protection Engineers revealed that fire protection was not always adequate for insurance purposes. This lack of fire protection was an economic consideration and not a safety consideration. The warehouses are protected by fire hydrant system and portable fire extinguishers at a minimum if should also be noted that Power Stores is in the process of installing a sprinkler fire suppression system. According to ANSI N45.2.2-1972, fire protection shall be commensurate with type of storage area.

Conclusion:

<u>This was found to be a Class B issue.</u>

Based on the findings above, TVA did not always have adequate fire protection in warehouses for insurance purposes. This was an economic consideration and not a safety consideration. The warehouses were protected by fire hydrant systems along with portable fire extinguishers at a minimum. In addition, some warehouses are protected by automated sprinkler fire protection systems.

4.11 Storage and Maintenance Program

From the findings in this evaluation, the employee concerns were found not to be factual.

4.11.1 Generic

One concern, XX-85-094-008, a BLN site specific, has been addressed in this issue. The issue was that the BLN storage and maintenance program before 1984 did not meet code requirements. This issue was made generic to WBN at the K-form level.

4.11.2 Site Specific-WBN

Interviews with warehouse, Material Services Unit and quality control personnel revealed that the material storage and maintenance programs were of an acceptable level and had been of an acceptable level. They had no knowledge of any significant changes in the past 2-3 years to suggest programs were inadequate before then.

Review of a 1984 Institute of Nuclear Power Operations (INPO) report revealed that the storage and maintenance programs needed upgrading. This resulted in WBN upgrading procedures for storage, housekeeping, and maintenance.

4.11.3 Site Specific-BLN

Interviews with warehouse and quality control personnel revealed that material storage and maintenance programs had always been of an acceptable level. The interviews did reveal that in 1983 the Institute of Nuclear Power Operations (INPO) had identified a few areas of improvement in warehouse storage facilities and the maintenance programs. These INPO findings resulted in forming a separate Preventive Maintenance group and an upgrading of site procedures.

Conclusion:

This was found to be a Class A issue.

Based on the findings above, this concern could not be determined to be factual at WBN or BLN.

5.0 COLLECTIVE SIGNIFICANCE

5.1 Significance of Each Issue

The following is a summary of collective significance for each of the eleven issue level investigations comprising this subcategory.

5.1.1 Storage Facilities

5.1.1.1 Management Effectiveness

The overall storage facilities used by TVA at its nuclear power plants were of an acceptable level with a few exceptions. Some examples of these exceptions are a few warehouses with leaking roofs, storage yards had high weed growth and storage yards were not always well drained. BFN was the only plant that had a significant amount of inadequate storage facilities, but the Power Stores Unit was in the middle of a major upgrading program. Even though adequate storage procedures, requirements and standards are in place, a few problems persist. This appears to be the result of lack of attention to detail, by management, to ensure storage facilities were in full compliance.

5.1.1.2 Employee Effectiveness

The deviations in storage facilities appears to be the result of a lack of attention to detail by employees as well as management. This has contributed to the poor condition of some storage facilities going uncorrected.

5.1.1.3 Technical Adequacy

The overall storage facilities used by TVA at its nuclear power plants were of an acceptable level with the previously mention exceptions. The vast majority of storage facilities met or exceeded established requirements. TVA has the ability to maintain storage facilities in full compliance with applicable requirements.

5.1.2 Storage Levels

5.1.2.1 Management Effectiveness

The vast majority of items stored at TVA nuclear power plants are stored in the appropriate storage level. Even though adequate storage facilities, procedures, requirements, and standards, are in place, a few deviations do exist. Some examples of these are maintaining sufficient cribbing to prevent contact with the ground and distortion of the item, maintaining items in proper storage level, and maintaining nitrogen purge. This appears to be the result of lack of attention to detail, by management, to ensure items were stored and maintained in appropriate storage levels.

5.1.2.2 Employee Effectiveness

The deviations of items stored in the wrong storage level appears to have resulted from the lack of attention to detail by employees as well as management. This has contributed to items being placed and maintained in the wrong storage level.

5.1.2.3 Technical Adequacy

TVA has adequate storage facilities to maintain equipment in the appropriate storage level, with the exception of BFN. BFN was in the process of upgrading power stores storage facilities to be in full compliance.

However, a lot of items after issue from Power Stores and WSU were not maintained in the appropriate storage levels in the field storage and holding areas. TVA Maintenance and Modification groups have propagated this situation by retention of excess, scrap, surplus and/or cannibalized material and equipment. This issue of retaining scrap, surplus and/or cannibalized material and equipment has also been addressed in the ECTG Subcategory "Installation" (40300).

5.1.3 Protective Covers and Seals

5.1.3.1 Management Effectiveness

Although several cases of inadequate protective covers and seals were found, the majority of items having sensitive internal surfaces with the exception of austenitic stainless steel fittings, had appropriate protective covers and seals. Some examples of these items are austenitic stainless steel pipe and valves. The majority of items that were missing protective covers and seals appear to be the result of lack of attention to detail, by management, to ensure full compliance with requirements. However, contrary to site and upper-tier criteria, it was found that protective covers and seals were not always used on austenitic stainless steel fittings, elbows, flanges, etc. This lack of protective covers and seals on fittings was the result of misinterpretation by management of site procedures and upper-tier requirements.

5.1.3.2 Employee Effectiveness

The deviation of items with the lack of protective covers and seals appears to be because of lack of attention to detail by both employees and management. This has contributed to items not having appropriate protection covers and seals.

5.1.3.3 Technical Adequacy

TVA has the procedures and ability to maintain protective covers and seals in compliance with applicable procedures and requirements. This will take a lot of attention to ensure that protective covers and seals are maintained in place.

5.1.4 Austenitic Stainless Steel

5.1.4.1 Management Effectiveness

No Collective Significance Assigned

5.1.4.2 Employee Effectiveness

From the storage facilities that were observed, isolated cases existed in which austenitic stainless steel was stored in contact with carbon steel. Some examples are austenitic stainless steel plate in contact with carbon steel rack, austenitic stainless steel pipe stored with carbon steel pipe and storage of austenitic stainless fittings with carbon steel fittings.

This was the result of lack of attention to detail to ensure austenitic stainless steel was not stored in contact with carbon steel.

5.1.4.3 Technical Adequacy

TVA has the procedures and ability to maintain austenitic stainless steel segregated from carbon steel and not stored in contact.

5.1.5 Segregation

5.1.5.1 Management Effectiveness

The perceived problem of safety and nonsafety-related material being received with identical identification markings and heat numbers appears to be the failure of WBN-DNC management to recognize the need to develop adequate procedures to maintain traceability of safety-related material from procurement to installation. The issue of material traceability has also been addressed in the ECTG Subcategory "Procedural Control" (40700).

Another problem was that QA Level I or II items were not always segregated from QA Level III and No-QA items. Even though adequate procedures, requirements and standards were in place, the problem still persists. This was the result of a lack of adequate enforcement of such procedures and standards by management.

5.1.5.2 Employee Effectiveness

The deviations of items not always being segregated was the result of failure of employees, as well as management, to follow procedures . The lack of understanding by employees of the importance of segregation also contributed to this situation.

5.1.5.3 Technical Adequacy

TVA has the procedures and ability to maintain segregation of safety and nonsafety-related items, but failed to maintain it during storage.

5.1.6 Identification and Marking

5.1.6.1 Management Effectiveness

Although several cases of inadequate identification and marking were found, the majority of items had appropriate identification and marking. This appears to be the result of lack of attention to detail, by management, to ensure items had the appropriate identification and marking.

5.1.6.2 Employee Effectiveness

The deviations of items with inadequate identification and marking appears to have been propagated by the employees, as well as management, lack of attention to detail. This has resulted in items not having proper identification and marking.

5.1.6.3 Technical Adequacy

TVA has the procedures and ability to maintain items with proper identification and marking. This will take more attention to detail to ensure proper identification and marking is maintained.

5.1.7 Material Handling

5.1.7.1 Management Effectiveness

Not Applicable

5.1.7.2 Employee Effectiveness

Not Applicable

5.1.7.3 Technical Adequacy

Not Applicable

5.1.8 Documentation

5.1.8.1 Management Effectiveness

Not Applicable

5.1.8.2 Employee Effectiveness

Not Applicable

5.1.8.3 Technical Adequacy

Not Applicable

5.1.9 Receiving

5.1.9.1 Management Effectiveness

Not Applicable

5.1.9.2 Employee Effectiveness

Not Applicable

5.1.9.3 Technical Adequacy

Not Applicable

5.1.10 Fire Protection

5.1.10.1 Management Effectiveness

Not Applicable

5.1.10.2 Employee Effectiveness

Not Applicable

5.1.10.3 Technical Adequacy

Not Applicable

5.1.11 Storage and Maintenance Program

5.1.11.1 Management Effectiveness

Not Applicable

5.1.11.2 Employee Effectiveness

Not Applicable

5.1.11.3 Technical Adequacy

Not Applicable

5.2 Collective Significance of the Subcategory

5.2.1 Generic

Based on the findings of this evaluation, some of the issues addressed by this subcategory were determined to be factual and needed corrective actions. The subcategory findings revealed that the overall storage methods, handling practices and storage facilities used by TVA were of an acceptable level; although, several deviations were observed. WBN, SQN, BFN, and BLN have programs and procedures in place to govern the storage and handling of permanent plant material and equipment. These procedures include specific requirements to protect material and equipment to ensure satisfactory performance of material and equipment once installed and placed into operation.

Some groups at SQN and BFN have contributed to these deviations by retaining excess, surplus and cannibalized material for some possible future use. In addition, they did not always maintain proper storage levels for this material and this material took up storage space for other items.

Although the vast majority of items were stored and handled properly, management and employees did not always ensure that all items were stored and maintained in compliance with applicable procedures and requirements. This lack of attention to detail has resulted in several of the concerns in this subcategory being determined to be factual.

However, it should be noted that the Manager of Nuclear Power has stressed a new philosophy in TVA referred to as "Walking-Your-Spaces". This philosophy encourages managers and supervisors to perform walkdowns of their work spaces/areas regularly to observe work, as well as talk and listen to employees. This will result in management involvement with job performance on a real time bases. Since the involvement is on real time assessment or involvement in job performance, factors not otherwise determinable can be noted. "Walking-your-spaces" affords an opportunity for management to learn about items such as: (a) Safety Practice, (b) Work Environment, (c) Procedural Compliance, (d) Procedural Adequacy, (e) Intra Group Communications, and (f) Individual Skills. In addition, this allows the employee to benefit from real time feedback on his job performance whereas the observing manager learns more about the work performance, procedure compliance as well as the opportunity to know for himself how the work is progressing. In an effort to increase the effectiveness of the "walking-your-spaces" concept, the Division of Nuclear Training at the POTC has developed courses for managers and engineers. These courses are for the development of "walking-your-spaces"techniques.

This increased management awareness should help eliminate the lack of attention to detail by management as well as employees.

Additionally, it should be noted that when you take into consideration the enormous amount of material stored by TVA, only a small percentage of items were improperly stored. It is difficult to maintain this large volume of material without a few deviations. In the past, QA audits and inspections have resulted in deviations being documented and corrective actions being taken.

TVA has also developed and implemented a new tracking program for deviations, conditions adverse to quality, audits, etc. This program has a mechanism to categorically trend like conditions resulting from different sources and identify the need for programmatic corrective actions.

Although several of the concerns were determined to be factual, the overall storage and handling programs were acceptable. It should also be noted that during installation and functional inspections/tests, any adverse conditions should be identified. Additionally, any adverse conditions which are time delayed by nature should be identified during normal routine plant operations, maintenance, tests and in-service inspections.

5.2.2 Site Specific

5.2.2.1 WBN

Some of the perceived problems at WBN were factual in the past and have been addressed by NSRS reports, QC Inspections, and NRC inspection reports for which TVA has taken corrective actions. During the evaluation, only a few isolated deviations were observed. Two of these observations are discussed here. The first observation was that austenitic stainless steel fittings, without end caps as required, were stored in warehouses. The second observation being a potential problem was the receipt of safety and nonsafety-related materials with the same identification markings and heat numbers. The other deviations such as material stored on the ground and pipe with uncapped ends were determined to be only rare happenings, and these deviations were corrected when discovered.

The crafts have foremen who check these items on a weekly basis; however, if the foreman fails to find the deviations, the monthly housekeeping inspections should identify them. These monthly housekeeping inspections are very detailed. These inspections document and correct any deviations that are uncovered. The overall storage and handling programs at Watts Bar Nuclear Plant were of an acceptable level with only the few aforementioned deviations.

5.2.2.2 SQN

Many of the perceived problems indicated by the concerns for SQN were factual and required corrective action. During the evaluation, several deviations were observed along with conditions that were questionable. The overall storage facilities at SQN were acceptable except for the leaking roof in Hut 11, the high weed growth in the storage yards, the storage yards not being well drained, and the poor condition of Hut 21.

The deviations to specified storage requirements that were observed include the following:

a. Items were not always plainly marked or identified in various storage locations.

b. Items were sometimes stored with inadequate or no cribbing.

c. Items were not always stored in the appropriate storage level.

d. Several items in various locations did not have caps or plugs. These included valves, austenitic stainless steel pipe and fittings.

e. Proper segregation was not always maintained for safety and nonsafety-related materials.

f. Austenitic stainless steel was stored in contact with carbon steel in some cases.

g. No access control to some of the storage areas.

h. Nitrogen pressurization was not always being maintained on heat exchangers.

i. Inadequate methods were being used to determine if temperature and humidity levels were maintained within specified limits.

5.2.2.3 BFN

Many of the perceived problems identified by the concerns at BFN were factual and required corrective actions. The storage conditions of permanent plant material and equipment (safety and nonsafety-related) were very poor. Several conditions adverse to quality exist in Power Stores, Maintenance and Modification storage facilities. The problems appear to stem mainly from lack of adequate storage facilities.

The Maintenance and Modifications Groups have propagated this situation by retention of excess material rather than returning it to Power Stores, and by stockpiling scrap, surplus or cannibalized material and equipment for future use. The issue of retaining scrap, surplus or cannibalized material and equipment has also been addressed in the ECTG Subcategory "Installation" (40300).

Due to the previous QA audits and deviations, the Power Stores unit is in the process of a major material relocation program. This program includes additional training of Power Stores personnel, relocating items to appropriate storage levels, repackaging of items in appropriate containers, ensuring material traceability and upgrading existing storage facilities. However, it does not appear that enough storage space is available to correct all the deviations. A reevaluation should be performed after completion to ensure compliance with applicable requirements.

The deviations to specified storage requirements observed at BFN include the following:

a. Kelly Buildings and storage yards did not always meet applicable storage level requirements.

d. Items were not always plainly marked or identified in various storage locations.

c. Items were sometimes stored with inadequate or no cribbing.

d. Items were not always stored in the appropriate storage level.

e. Several items in various locations did not have caps or plugs. These included valves, austenitic stainless steel pipe and fittings.

f. Proper segregation was not always maintained for safety and nonsafety-related materials.

g. Austenitic stainless steel was stored in contact with carbon steel in some cases.

h. No access control to storage areas in the field.

i. Several items did not have protective packaging or were not stored in drawers to protect them from dust as required.

j. Inadequate methods were being used to determine if temperature and humidity levels were maintained within specified limits.

k. Chemicals were stored in close proximity to permanent plant components.

5.2.2.4 BLN

Some of the perceived problems indicated by the concerns were factual and required corrective action. During the evaluation, a few deviations were observed along with some conditions that were questionable. The overall storage facilities at BLN were of an acceptable level except for the deficiencies of the shed SE and the storage yards.

The deviations to specified storage requirements that were observed include the following:

a. Items not always plainly marked or identified in various storage locations.

b. Items were sometimes stored with inadequate or no cribbing.

c. Isolated cases of items not stored in appropriate storage levels.

d. Several items in various locations did not have caps or plugs. These included valves, austenitic stainless steel pipe and fittings.

e. Proper segregation was not always maintained for safety and nonsafety-related materials.

f. Isolated cases of austenitic stainless steel in contact with carbon steel.

g. Inadequate methods were being used to determine if temperature and humidity levels were maintained within specified limits.

6.0 CAUSES

The following is a summary of the causes of those findings which require corrective action.

6.1 Storage Facilities

There was a lack of attention to detail in maintaining storage facilities. This has resulted in deteriorating storage facilities which need repair to bring them back into compliance with applicable procedures by DNC and ONP.

6.2 Storage Levels

There was a failure to follow procedures to put all items in their appropriate storage level which resulted in items being stored in the wrong storage level. Along with failure to follow procedures, a lack of attention to detail contributed to items being stored in the wrong storage level by DNC and ONP.

6.3 Protective Covers and Seals

There was a failure to follow procedures to put end caps or plugs on all austenitic stainless steel pipe fittings. This was a result of misinterpretation of the upper-tier requirements for end caps and plugs. In addition, a lack of attention to detail to ensure capping was maintained in compliance with applicable site procedures resulted in several deviations.

6.4 Austenitic Stainless Steel

Even though adequate procedures existed, incidents were found where austenitic stainless steel was in contact with carbon steel. However, it was not a common practice to store stainless steel in contact with carbon steel.

6.5 Segregation

The perceived problem of safety and nonsafety-related material being received with identical markings, and heat numbers appears to be due to a failure to recognize the need to develop adequate procedures to maintain traceability of safety-related material from procurement to installation by the WBN DNC.

In addition, there was a failure to follow procedures by ONP. ONP did not always segregate QA Level I or II from QA Level III or no-QA items as required by applicable procedures.

6.6 Identification and Marking

There was a lack of attention to detail and failure to always follow procedures by DNC and ONP. This resulted in several items not being properly identified and marked.

6.7. Material Handling

An evaluation for a cause is not applicable because the concerns in this issue were not factual.

6.8 Documentation

There was a lack of attention to detail resulting in discrepancies in ledger cards.

6.9 Receiving

An evaluation for a cause is not applicable because the concern in this issue was not factual.

6.10 Fire Protection

The lack of fire protection was an economic risk that TVA decided to accept and not a safety issue. Therefore, no further evaluation was performed.

6.11 Storage and Maintenance Program

An evaluation for a cause is not applicable because the concern in this issue was not factual.

7.0 CORRECTIVE ACTION

7.1 Corrective Action Already Taken or Planned

7.1.1 Storage Facilities

7.1.1.1 Site Specific - WBN

In response to CATD 40400-WBN-01, DNC stated that they will initiate a revision request to QCI 1.06 to incorporate instrument shack #319 to level B storage. DNC initiated a revision request (RR No. 5674) to QCI 1.06 on February 16, 1987 to add Instrument Shack # 319 and #9 to Attachment A as level B storage.

7.1.1.2 Site Specific - SQN

The condition of Hut 21 has been addressed on CAR SQ-01-001 which will establish minimum requirements for paint and paint products and determine if Hut 21 will meet the minimum storage requirements.

7.1.1.3 Site Specific - BFN

In response to CATD 40400-BFN-01, BFN submitted the following Corrective Action Plan:

Power Stores

Standard Practice BF-16.4, Paragraph 4.1 does not address storage yards (ANSI Level D). ANSI N45.2.2 requires outdoor storage areas to be well drained, preferably gravel covered or paved. Power Stores yard 1 is being reworked in order to improve appearances and provide adequate drainage. Improvements are also being considered for yard 5. Completion of this work

and full compliance with ANSI N45.2.2 Level D criteria is scheduled. Work requests are being written each month for control of weed growth in Power Stores yard areas.

The Kelly Buildings were determined by Power Stores to be Level D storage areas in a memorandum dated September 17, 1986 (R18 860917 808); therefore, they are not required to be weathertight. Adequate drainage will be provided in the Kelly Buildings.

Deviation Report (DR) number BF-8400-03-01 and Corrective Action report (CAR) number CAR-86-0115 have been closed.

Maintenance

Maintenance storage areas no longer contain CSSC materials due to S. A. White's memorandum dated February 10, 1987 (R00 870210 910); therefore, drainage problems do not exist.

Modification

Modification storage yards areas no longer contain CSSC materials due to S. A. White's memorandum dated February 10, 1987 (R00 870210 910); therefore, drainage problems do not exist.

7.1.2 Storage Levels

7.1.2.1 Site Specific - WBN

In response to CATD 40400-WBN-02, WBN submitted the following Corrective Action Plan:

A procedure, applicable to mechanical shock arrestors (snubbers) not yet transferred to the plant organization, is currently being prepared. This procedure will contain the recommendations/cautions specified in PSCO document number 141 in order that proper handling and installation of snubbers is ensured. Presently, snubbers are verified to operate properly at the time of inspection (prior to transfer) as indicated in WBN-QCP-4.23-5. If damage occurred prior to this inspection, it would be identified at that time.

A maintenance instruction, applicable to mechanical shock arrestors (snubbers) transferred to ONP, is currently being prepared. This instruction will contain the requirements/cautions specified in PSC document number 141 in order that proper handling, removal, and installation of snubbers is ensured. Presently, snubbers are verified to look and operate properly per Surveillance Instruction (SI) SI-4.14 and SI-4.18.

DATE 2-27-88

7.1.2.2 Site Specific - BFN

In response to CATD 40400-BFN-02, BFN submitted the following Corrective Action Plan:

Power Stores

Note 1: Nuclear Power Standard TS 01.00.15.14.03 is for information and guidance, and in accordance with PMP 1707.01.01, does not require execution of a waiver when not followed. Storage requirements specified in NQAM III, Section 2.2 are implemented in site procedures BF 16.4 and SDSP 16.3.

The items identified in warehouses OB-4 and OB-10 have been placed in the proper storage environment. Items in the Kelly Buildings are being evaluated and will be relocated if needed.

Items in the yards that were not on cribbing are being properly stored.

Note 2: All storage areas will be inspected to ensure that safety related items previously stored improperly have been identified and documented as a condition adverse to quality. Evaluations and disposition instructions will be provided by DNE.(see memorandum B22 870218 009).

Warehouse OB-10A has been insulated and heated to provide isolated chemical storage. There are no chemicals presently stored in close proximity to permanent plant items. See the Browns Ferry Materials Management Improvement Project, page 6, section D8, for additional information.

Environmental controls specified in ANSI N45.2.2, Section 6.1.2 are being monitored in Level A and Level B areas by using calibrated temperature/ humidity chart records. Each weekly chart is reviewed and signed by a QC representative. Unacceptable conditions are reported in accordance with applicable procedures.

Maintenance

The valve storage problems have been corrected outside the maintenance supply shack and turbine building shop areas. Storage conditions in and around warehouse OB-9 and OB-9A will be corrected. Safety related material has been returned to Power Stores. See Note 2 above.

Modifications

Due to S. A. White's memorandum dated February 10, 1987, the CSSC valves, motors, and conax connectors have been returned to Power Stores for proper storage. See Note 2 above.

The modification laydown yard is in the process of being leveled and coated with gravel. A security fence has been erected and new storage racks and cribbing will be in place. The material and yard is being transferred under Power Stores control.

7.1.3 Protective Covers and Seals

7.1.3.1 Site Specific - BLN

The austenitic stainless steel pipe missing end caps was identified on Storage Inspection Form 86-582. The recommended corrective action was to replace missing end caps. Additional information is contained in section 7.2.3.2.4 of this report. (Reference CATD-40400-BLN-03)

CORRECTED 3-4-88

THIS ITEM COMPLETED
DATE: 6-14-88
40400-BLN-02

7.1.4 Identification and Marking

7.1.4.1 Site Specific - BLN

Corrective actions for Warehouse Services Unit has been addressed on Storage Inspection Form 86-582. The corrective action to identify and mark material. Additional information is contained in section 7.3.6.2.4 of this report. (Reference CATDs 40400-BLN-02 and 40400-BLN-03)

THIS ITEM COMPLETED
DATE: 6-20-88
40400-BLN-02

7.2 Corrective Action Required As Result of Evaluation

7.2.1 Storage Facilities

7.2.1.1 Generic

The required corrective actions were not determined to be generic because the problems identified at WBN, SQN and BLN were isolated while problems at BFN were broader in scope.

7.2.1.2.1 Site Specific - WBN

The Corrective Action Plan for CATD 40400-WBN-01 is contained in section 7.1.1.1. of this report.

7.2.1.2.2 Site Specific - SQN

In response to CATD 40400-SQN-01, SQN submitted the following corrective actions on storage facilities:

a. The roof leak identified in Hut 11 was corrected by site building maintenance personnel. All warehouse facilities are inspected at specific intervals and any future leaks will be addressed and corrected as they are discovered.

b. The weed control problem identified in the Power Stores' Yard has been addressed. Power Stores and Natural Resources personnel will be

responsible for controlling the weed growth in the storeroom yard areas. Natural Resources cut the existing weed growth in the yard and will maintain and control the yard areas in the future. Areas requiring additional gravel or paving have been brought up to standards, providing adequate drainage.

7.2.1.2.3 Site Specific - BFN

The Corrective Action Plan for CATD 40400-BFN-01 is contained in section 7.1.1.3 of this report.

7.2.1.2.4 Site Specific - BLN

In response to CATD 40400-BLN-01, BLN submitted the following Corrective Action Plan:

The governing QCP and corresponding ANSI (N45.2.2) do not require gravel covering in outside storage yards. However, in most cases, the storage yards are graveled.

On June 23, 1987, BLN received a significant rainfall, at that time all storage areas were inspected for proper drainage. Three areas were identified which require rework to improve the drainage.

The repairs to shed (SE) are complete.

The shed at the end of the sandblast shop will not be utilized as a storage area and all permanent material has been returned to the warehouse. With regard to Mr. White's memo regarding the elimination of craft storage areas, BLN is working to cleanup all field material storage areas, provide designated, identified storage areas and eliminate or consolidate these areas.

7.2.2 Storage Levels

7.2.2.1 Generic

The required corrective actions were not determined to be generic. However, similar deviations did exist at WBN, SQN, BFN, and BLN. These deviations were not determined to be generic because they were governed by site-specific procedures and usually the result of a lack of attention to detail.

7.2.2.2 Site Specific

7.2.2.2.1 Site Specific - WBN

The Corrective Action Plan for CATD 40400-WBN-02 is contained in section 7.1.2.1 of this report.

7.2.2.2.2 Site Specific - SQN

In response to CATD 40400-SQN-01, SQN submitted the following Corrective Action Plan for storage levels:

Power Stores

a. The random lengths of coated pipe stored in the outdoor yard were covered to protect the coating surface from direct sunlight.

b. The circuit breakers stored in Hut 11 were removed from the site and transferred to PSDS at Hartsville Nuclear Plant. The breakers were surplus SQN Construction items.

The Limitorque valve operators located in Hut 11 were Non-CSSC items and do not require an indoor controlled environment, but they were relocated to Hut 12 which has a Class B environment.

c. The material in the Power Stores yard that required additional cribbing to support the material was corrected by adding a third supporting timber to help bear the load.

d. The ECTG concern which questioned the implementation of AI-36 storage procedures to require temperatures and humidity recording devices was addressed in resolving CAR 83-08-026. Plant management determined that the recording devices were not required and this was documented in surveys 3F-84-S-008, 009, 010, 011, 012 and 013 as well as the CAR response. The referenced surveys, as well as material inspection, have not found any problems due to humidity. The warehouse areas are inspected on a daily basis per Power Stores SIL-30 which is an AI-36 requirement which allows Power Stores to monitor any variances in environmental conditions.

Maintenance

The following items address the maintenance storage issues as referenced in section 4.2.3.(2) of this report and are intended to resolve those items.

a. Administrative Instruction (AI-36), Storage, Handling, and Shipment of QA Material, will be revised to require scrap or salvageable material storage areas to be so designated and access to be controlled through administrative procedures.

b. Maintenance Section Superintendent will issue a memorandum to establish administrative controls for key control and access to the maintenance groups storage areas.

c. Maintenance Group will place signs on scrap/salvage storage huts to designate these areas as referenced in AI-36. Signs will specify material evaluation requirements for scrap/salvage material stored in the maintenance storage areas.

d. Maintenance will revise SQM-1 to define the requirements and responsibilities for spare part storage areas within the section and for controls of salvageable material usage in plant applications. Elements to be included in the revision are:

1. Include requirements for maintenance section to review storage requirements for materials kept and issued by the sections for spare parts and to initiate action to ensure that storage requirements of AI-36 are met. (NOTE: This only applies to spare parts and not material retained for cannibilization).

2. Include requirements for sections to evaluate, prior to use, materials salvaged or cannibilized from used material, material left over from previous work, or material retired to ascertain that the material is fully acceptable for its intended use. Since the quality of this type of material may not be initially known, all items being evaluated for use on CSSC systems shall be nonconformed per AI-11 requirements. Material shall also be evaluated, dispositioned, and documented per AI-11 procedures. Also, in order to upgrade material for QA applications, traceability must be

maintained during storage per SQA45 requirements. It should be noted that currently the NQAM Part III, Section 7.1 requires PORC review, the Plant Manager's approval, and DNE approval of nonconforming items which are recommended to be dispositioned "use-as-is" or "repair". This NQAM requirement will be implemented at SQN in AI-11 within the required timeframe. The proposed revision to SQM-1 will be completed. The proposed revision to SQM-1 will be completed. The process of upgrading material for QA applications is not routinely used. It is limited to occurrences of extreme urgency.

3. Maintenance will request that AI-11 be revised to reflect the requirements of the SQM-1 revision.

4. Maintenance Group storage huts will be purged in an effort to reduce their inventory. Identified scrap material will be disposed of through the Power Stores scrap yard. Surplus material will be returned to Power Stores to place the material in inventory for future usage.

5. SQA 66, Plant Housekeeping Instructions, have been revised and strengthened to require a final checklist and sign off after completion of maintenance and modification work. Items included in the final checklist are: proper designation for removal and disposal of waste material, unused material, expendable items, old parts, removed components, and

package material. The foremen are required to review and ensure that the final check-list complies with the requirements of SQA 66. SQA 66 revision was approved on October 14, 1986 and is being implemented.

Modifications

The following action will be taken to address Modification and Materials Sections issue as referenced in section 4.2.3(3) of this report:

a. Measure dewpoint of existing nitrogen blanket gas in feedwater heaters.

b. If the dewpoint of any feedwater heaters exceeds +20 degrees F, perform inspection of the feedwater heater with the highest dewpoint above +20 degrees F to determine acceptability for service and if any additional feedwater heaters need to be inspected and evaluated. Appropriate corrective action will be taken if necessary.

c. Purge feedwater heaters to obtain dew-point not in excess of +20 degrees F.

d. Monitor feedwater heaters' nitrogen blanket pressure with the plant preventative maintenance program to maintain approximately 10 psig.

e. Items a. through c. have been initiated. Item d. was implemented in January 1987.

f. The weed growth in the ECN storage yard will be controlled by Natural Resources personnel as identified.

g. The cribbing deficiencies identified in the ECN storage yard was corrected to provide adequate support for all material.

h. The ECN storage yard was posted as a non-QA storage area for Modification material. Material has been evaluated as having potential use, and will be retained for non-QA applications as shop spares.

Additional Corrective Action

In accordance with a directive from the manager of Nuclear Power, spare material for safety-related applications will be stored only under Power Stores Control. This action will result in fewer areas where safety-related material is stored and positive identification and control of those areas.

The directive also includes a requirement for control of non-safety-related material to prevent use in safety-related applications that will also be implemented.

In accordance with existing procedures (AI-36, paragraph 5.10), a quarterly inspection of all storage areas is performed by Power Stores to ensure compliance with procedural requirements. Inspections are documented in accordance with AI-36 in Power Stores files. A special inspection of all safety-related material storage areas will be completed by Power Stores. The purpose of this inspection is to identify and correct deficiencies similar to those identified in ECTG Report MC-40400-SQN.

7.2.2.2.3 Site Specific - BFN

The Corrective Action Plan for CATD 40400-BFN-02 is contained in section 7.1.2.2 of this report.

7.2.2.2.4 Site Specific - BLN

In response to CATDs 40400-BLN-04 and 40400-BLN-09, BLN submitted the following Corrective Action Plans:

Craft Storage

THIS ITEM COMPLETED
DATE: 5-25-89
40400-BLN-09
ONLY

The shed referenced in report 40400 is not utilized as a storage facility. The material in this area has been evaluated by the responsible Mechanical Engineer and returned to the Warehouse.

Personnel who move materials from the warehouse to the point of installation/ fabrication have been instructed to insure the material is placed in a protected environment at time of delivery.

All areas of the plant are checked monthly by trained craft management, QC and engineering representatives for compliance with the requirements of BNP-QCP-10.27. Deviations are identified and corrected per Attachment A of QCP-10.27.

The Revision Request (See Below) has been submitted to PTU to revise BNP-QCP-10.27. This information will also be included in the Craft Training Module (BN-TM-003).

BLN is working to cleanup all field material storage areas in accordance with Mr. White's memorandum. Designated storage areas are being identified and material consolidated. Proper cribbing and drainage are incorporated in this effort.

Revision Request

The following are the pertinent additions to BNP-QCP-10.27.

The following will be added to section 6.4.1.3 of BNP-QCP-10.27:

Assures materials which are issued from the warehouse but are not installed in their permanent location are delivered to a temporary storage or fabrication facility that will provide protection from the elements and provide an environment which will maintain the quality of the material or equipment i.e., to minimize the possibility of damage or lowering of quality due to corrosion, contamination, deterioration or physical damage. This facility may be a permanent plant building, fabrication shop or other suitable enclosure.

The following new paragraph will be inserted and subsequent paragraphs renumbered:

a. No water damage or standing water in indoor storage areas.

b. No trash or food scraps in storage areas.

c. No visual evidence of physical damage.

d. Stainless steel and nickel based alloyed materials are not placed in contact with carbon steel.

e. End caps are installed on austenitic stainless steel pipe and tubing.

f. Covers, caps, plugs are installed as required to maintain internal cleanliness as required.

Power Stores

This concern has been addressed through DNQA audit report deviation number QBL-A-87-0001-D01. To correct the deviation BLN will (1) revise BLA9.4 to include the requirement of TS 01.00.15.14.03 paragraph 3.3.1.4, (2) install continuous recording instruments in all indoor controlled storage areas so that we can meet the requirement of knowing that we have not exceeded the dewpoint for a continuous period of five hours and (3) review CCSC stock which is sensitive to moisture to evaluate whether there has been any degradation.

7.2.3 Protective Covers and Seals

7.2.3.1 Generic

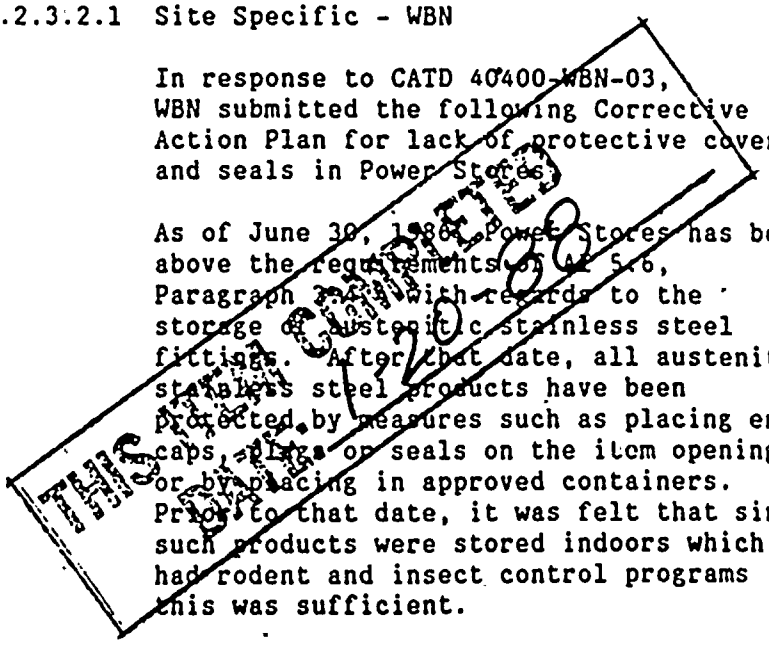
The corrective actions required were not determined to be generic. However, similar deviations did exist at WBN, SQN, BFN, and BLN. These deviations were not determined to be generic because they were governed by site-specific procedures and usually the result of a lack of attention to detail.

7.2.3.2 Site Specific

7.2.3.2.1 Site Specific - WBN

In response to CATD 40400-WBN-03, WBN submitted the following Corrective Action Plan for lack of protective covers and seals in Power Stores.

As of June 30, 1986, Power Stores has been above the requirements of AI 5.6, Paragraph 3.4.3 with regards to the storage of austenitic stainless steel fittings. After that date, all austenitic stainless steel products have been protected by measures such as placing end caps, plugs or seals on the item openings or by placing in approved containers. Prior to that date, it was felt that since such products were stored indoors which had rodent and insect control programs this was sufficient.



Language will be incorporated into AI 5.6 revision 13 which will change storage instructions paragraph 7.21 sub part 1 to read as follows: "all austenitic stainless steel products are to be protected by measures such as placing end caps, plugs or seals on the item openings or by placing in approved containers."

As a footnote, please be advised that the DNE Materials Branch (Kirk Cooper) is undertaking a test with Singleton Labs at this time to see if this much conservatism is required, so the program might be relaxed in the future. The aforementioned provisions will be kept in place until it can be proven conclusively that there is no detrimental affect for leaving them unprotected.

NOTE: In addition, it should be noted that WBN QA initiated CAR No. WB-CAR-86-35 to address protective end caps on austenitic stainless steel fittings as a result of the ECTG evaluation.

In response to CATD 40400-WBN-04, WBN submitted the following Corrective Action Plan for DNC for the lack of protective covers and seals:

Nonconformance Report 6805 was initiated as a result of the ECTG evaluation report number 40400. Corrective action for the NCR was referred to DNE (Kirk Cooper).

Process specification 4.M.1.1, section 3.1.7.1, was revised on August 25, 1986. This provision states:

> Austenitic stainless steels should be stored under cover with sufficient protection from the elements. Tube and piping shall have end caps while in storage. End caps are not mandatory during fabrication and installation or on tube or pipe fittings.

QCP-1.36 is being cancelled; however, QCI-1.36 will act in its place.

QCI-1.36 and QCI-1.06 will be revised to include the new provisions of 4.M.1.1, which eliminated the requirements for capping stainless steel fittings at any time.

The DNE position that end caps are not required for stainless steel fittings while in storage will be validated by tests performed by TVA's Singleton Materials Engineering Laboratory under the lead of Kirk Cooper.

7.2.3.2.2 Site Specific - SQN

The discrepancy identified concerning the storage of austenitic stainless steel fittings is being addressed per the memorandum from J. R. Staley to J. A. Teague dated December 16, 1986.

An evaluation of the intent of DPM N82A17, regarding capping or plugging austenitic stainless steel tubular products, Paragraph 7.21, item 2, was requested through James A. Teague, Supervisor, Electrical Component Engineer and Service Group. Specific attention was directed to item 2 which references a "Recommended Practice." The evaluation requested is for a clarification of the terminology "Recommended Practice" within the DPM.

The following is the pertinent contents of the memorandum to the Electrical Component Engineer and Service Group on December 16, 1986 (A23 861217 250) requesting clarification of the DPM:

> In order to resolve the Sequoyah Nuclear Plant Employee Concerns Task Group Subcategory Report (MC-40400-SQN), an engineering evaluation is needed. The specific area that needs to be addressed

is DPM82A17, paragraph 7.21 (storage of pipe, tubular products etc). The evaluation is required to resolve item 2 of paragraph 7.21 which referenced the "Recommended Practice" for storage of bulk small pipe fittings, etc.

The ECTG evaluation of Power Stores compliance with AI-36, paragraph 5.11.22 (same as DPM N82A17, paragraph 7.21), stated we were not complying with the requirements of paragraph 5.11.22 with specific emphasis directed toward the "Recommended Practice" of storing bulk fittings. Power Stores and Site Quality Assurance Staff personnel interpret this procedure to read that a recommended practice is not an enforceable procedure, but a recommendation if there appears to be substantiated evidence that degradation to material might occur, in which case steps should be taken to protect material as recommended.

In order to resolve this issue, the DPM should be reviewed to address the following comments.

1. Is the intent of a "Recommended Practice" to be an enforceable procedural requirement? If it is, then revise the terminology of the DPM to reflect an enforceable requirement or;

2. If not an enforceable issue, and if there is not any documented evidence to support the DPM requirements, drop all reference to the bulk storage requirements for fittings.

3. Is the intent of paragraph 7.21 to address austenitic stainless steel products only, or does it also include carbon steel products? If it does, the procedure should address both products.

4. If, as a result of this evaluation, it is determined that pipe fittings require special storage requirements, it might resolve some of the individual interpretations if there was one paragraph for pipe and tubing products, and one paragraph for fittings, with emphasis placed on specific S/S or C/S storage requirements.

General Construction Specification G-29, Volume IV, Section P.S.4.M.1.1, paragraph 3.1.7.1 was revised under Revision 10, to delete end caps for tube or pipe fittings. TVA Metallurigal Engineers are currently conducting a study through Singleton Lab in Knoxville to document this revision to G29.

Note: The purpose for the study is to determine if storage environments at TVA sites allow for contamination of stainless steel pipe that may have long-term deleterious effects, such as, stress corrosion cracking as a result of chloride contamination. The study will be used to determine the need for capping tube and pipe fittings.

In addition, the Corrective Action Plan contained the following in response to section 4.3.3.b.(2) of this report. |R4

All valves identified which lacked proper capping were corrected. A review of all existing valves was conducted and storage conditions were bought into compliance with AI-36 storage specifications.

The Corrective Action Plan for section 4.3.3.a.(2) and 4.3.3.b.(2) of this report are contained in section 7.2.2.2.2 of this report. |R4

7.2.3.2.3 Site Specific - BFN

In response to CATD 40400-BFN-03, BFN submitted the following Corrective Action Plan:

Power Stores

All items that require caps or seals have been inspected and protective covers are in place. Spiral wound gaskets in the main storeroom will be removed from peg-boards and placed in enclosed cabinets. This will provide dust-free storage and allow the gaskets to be supported to prevent deformation.

Maintenance

Maintenance storage areas no longer contain CSSC materials due to S. A. White's memorandum dated February 10, 1987 (R00 870210 910), and therefore this problem does not exist now.

Modification

Problems no longer exist in modification storage facilities. Non CSSC tubular products have been properly sealed and capped, and followup weekly inspections are being performed. An increased management awareness within the Modification Section will eliminate recurring storage deviations.

All CSSC tubular products have been transferred to Power Stores and are properly sealed.

7.2.3.2.4 Site Specific - BLN

In response to CATD 40400-BLN-03, BLN submitted the following Corrective Action Plan:

Warehouse Storage Unit

Continuing efforts are made to keep caps on SS piping and tubing. Due to temperature changes, they will occassionally pop off. PACP 1.2 R19 paragraph 7.2.6 states, "End caps are installed on austenitic stainless steel pipe and tubing." Caps are not required on pipe or tube fittings.

Personnel will be retrained to maintain and replace missing caps. A review of the Warehouse area will be performed and missing caps replaced.

Construction Craft Field Storage Areas

As part of the cleanup, materials are being reviewed for compliance with these requirements. Stainless steel tubing and piping will be stored in designated areas in accordance with Mr. White's memorandum until fabricated or installed/erected. Craft Managers are responsible for

maintenance of these designated storage areas including caps and closure on SS tubing and pipe. The Construction Managers and craftsmen designated to maintain these closures will be retrained to the storage and maintenance requirements as stated in the acceptance criteria in BNP-QCP-10.27. Replacement of caps and cleanup are scheduled.

7.2.3.3 Generic Assessment

As a result of comments from the Senior Review Panel, DNE has provided the following clarification of their position for TVA. The testing by DNE, previously described in section 7.2.3.2 above, to verify that end caps are not required will not be performed. They have decided not to conduct any testing because there is no clear test scheme or acceptance criterion for such work.

In addition, G-29, Process Specification 4.M.1.1, paragraph 3.1.7.1, which does not require capping for austenitic stainless steel fittings, will not be further revised. DNE removed the requirement for capping of austenitic stainless steel fittings during storage based on engineering evaluation as well as industry practices.

Another consideration for removing the capping requirement was the cleanliness verification and cleaning procedures at the point of installation.

The current methods and acceptance standards for cleaning of fluid handling systems and components are defined by TVA General Specifications No. G-39 (Cleaning During Fabrication of Fluid Handling Components) and No. G-29 (Process Specifications for Welding, Heat

Treatment, Nondestructive Examination, and Allied Field Fabrication Operations). The methods for examination for cleanliness include visual examinations, swipe tests, and wipe cloth examinations for both internal and external surfaces. Additionally, proof flushing is utilized for internal surface examination for cleanliness.

The corrective action plans described in section 7.2.3.2 above will result in all TVA nuclear plants implementing the minimum upper-tier requirements of G-29 for the installation and maintenance of protective covers and seals on austenitic stainless steel pipe, tube and fittings. The minimum requirements do not require the use of protective covers and seals on austenitic stainless steel fittings. However, some sites took a more conservative approach and included capping of fittings in their site procedures. This resulted in the appearance of inconsistent corrective action.

7.2.4 Austenitic Stainless Steel

7.2.4.1 Generic

The required corrective actions were not determined to be generic. However, similar deviations did exist at WBN, SQN, BFN, and BLN. These deviations were not determined to be generic because they were governed by site-specific procedures and usually the result of a lack of attention to detail.

7.2.4.2 Site Specific

7.2.4.2.1 Site Specific - WBN

No corrective actions were required.

7.2.4.2.2 Site Specific - SQN

The Corrective Action Plan for this issue is contained in section 7.2.2.2.2 of this report.

7.2.4.2.3 Site Specific - BFN

In response to CATD 40400-BFN-04, BFN submitted the following Corrective Action Plan:

The consequence of carbon steel and stainless steel coming into contact during storage and being installed in the plant was evaluated. At normal operating temperature (approximately 560 degrees F), no significant diffusion of the steel constituents is expected over the life of the plant. Therefore, no corrective action is recommended. To preclude such storage practices in the future, Plant Manager Instruction PMI 6.10 has been implemented to limit the time frame material is outside of Power Stores before it is used. (Reference RIMS L29 870331 956 for full evaluation.)

BFN Maintenance and Modification no longer will store austenitic stainless steel and carbon steel items. Power Stores will establish a satellite storage area inside protective fence for this material storage. This material will be requisitioned in small quantities for immediate process usage. Any excess will be returned to power stores or scrapped. All areas which were used for storage no longer exist, these storage areas were eliminated. Any condition that could exist during the evaluation period is now impossible.

7.2.4.2.4 Site Specific - BLN

In response to CATD 40400-BLN-05, BLN submitted the following Corrective Action Plan:

BLN is working to cleanup all field material storage areas in accordance with Mr. White's memorandum. Designated storage areas are being identified and material consolidated. The stainless material items found in the referenced area were visually inspected by the system engineers. All identifiable material was evaluated for physical damage, acceptable items were returned to the Warehouse. All damaged material was either scrapped or designated for temporary construction use and segregated.

All areas of the plant are checked monthly by trained craft management, QC and engineering representatives per BNP-QCP-10.27 for compliance with the acceptance requirements of BNP-QCP-1.2. Deviations are identified and corrected per Attachment A of QCP-10.27.

7.2.5 Segregation

7.2.5.1 Generic

The required corrective actions were not determined to be generic. However, similar deviations did exist at WBN, SQN, BFN, and BLN. These deviations were not determined to be generic because they were governed by site-specific procedures and usually the result of a lack of attention to detail.

7.2.5.2 Site Specific

7.2.5.2.1 Site Specific - WBN

Corrective action to be provided by line management and identified on NCR 6834. This corrective action is being tracked by CATD 40500-WBN-02, as a result of evaluation in the ECTG Subcategory "Material Identification" (40500).

7.2.5.2.2 Site Specific - SQN

In response to CATD 40400-SQN-01, SQN submitted the following Corrective Action Plan for segregation:

Power Stores

The bin locations that contained QA I, II, III and No QA material were inspected and corrective action taken so that only QA I and II material is in the same bin location.

Maintenance

The Corrective Action Plan for this portion of CATD 40400-SQN-01 is contained in section 7.2.2.2.2 of this report.

7.2.5.2.3 Site Specific - BFN

In response to CATD 40400-BFN-05, BFN submitted the following Corrective Action Plan:

Power Stores, Maintenance, and Modification

Note 1: Nuclear Power Standard TS 01.00.15.14.03 is for information and guidance, and in accordance with PMP 1707.01.01, does not require execution of a waiver when not followed. Storage requirements specified in NQAM III, Section 2.2 are implemented in site procedures BF 16.4 and 16.3.

Standard Practice BF 16.4 and ANSI N45.2.2 do not state that QA Level I and II items cannot be stored on the same racks with QA Level III and non-QA items.

All material in Power Stores warehouses now have individual identification labels, container markings, or information tags.

7.2.5.2.4 Site Specific - BLN

In response to CATD 40400-BLN-06, BLN submitted the following Corrective Action Plan:

A review of storage segregation of QA Level I, II, III and non-QA items (material/components) within BLN Power Stores and Maintenance areas has been conducted. Maintenance is in the process of returning safety-related items to Power Stores as a part of implementing the BLN Replacement Parts Program. We cannot find an area not in compliance with its procedural requirements, BLA9.4 and its upper-tier documents. TVA NQAM Part III, Section 2.2, TVA ONP TS 01.00.15.14.03, or ANSI N45.2.2-1972 on storage and segregation of material/components.

As stated, our review of BLN Power Stores segregation of material/components meet all procedure requirements and commitments. BLN will continue to monitor (audit) for compliance, however, we feel no further action is required at present.

In response to CATD 40400-BLN-07, BLN submitted the following Corrective Action Plan from DNE:

CAQR BLF870193 has been written to address the concern that DNE and DNC controlling documents do not adequately define the NQAM requirements for QA(L). At this time, no specific deficiencies have been identified. However, a review of DNE and DNC controlling documents will be performed to verify any deficiencies or weaknesses. Once the review is complete, any corrective actions, as appropriate, will be identified and implemented.

Note: The description of the condition on CAQR BLF870193 states:

DNE and DNC controlling documents do not adequately define requirements for the NQAM, Part 1, Section 1.3, "Limited Quality Assurance Program Requirements." Limited quality assurance is required for seismic Category I(L) and special programs/features as defined in the referenced NQAM section, however, procurement document control, identification and control of purchased items, inspection and records control requirements have not been adequately addressed or implemented.

In addition to the DNE Corrective Action Plan, BLN submitted the following additional corrective actions:

BLN - Construction - will provide a corrective action plan and completion date three months after notification by DNE of any change required as a result of their review.

7.2.6 Identification and Marking

7.2.6.1 Generic

The required corrective actions were not determined to be generic. However, similar deviations did exist at WBN, SQN, BFN, and BLN. These deviations were not determined to be generic because they were governed by site-specific procedures and usually the result of a lack of attention to detail.

7.2.6.2 Site Specific

7.2.6.2.1 Site Specific - WBN

No corrective action required.

7.2.6.2.2 Site Specific - SQN

In response to CATD 40400-SQN-01, SQN submitted the following Corrective Action Plan for Identification and Marking:

Power Stores

The material in the Power Stores yard that was not properly marked or identified was re-identified and remarked to provide positive traceability on each item to conform to AI-36 requirements.

Material that has lost it's positive traceability due to age of the material, rust and corrosion was segregated in a separate area and marked as "Non-CSSC" material only.

Maintenance

The Corrective Action Plan for this portion of CATD 40400-SQN-01 is contained in section 7.2.2.2.2 of this report.

7.2.6.2.3 Site Specific - BFN

In response to CATD 40400-BFN-06, BFN supplied the following Corrective Action Plan:

Power Stores

Material in Power Stores is being reviewed to determine if tags and markings are easily visible to prevent excess handling. Material in storage yards will be inspected to ensure that time or weathering has not caused markings to become illegible or unattached.

Maintenance

Items have been inspected in storage racks outside the Boilermaker Shop and Turbine Building, as well as in warehouse OB-9 and OB-9A and all maintenance areas. CSSC material properly identified was returned to Power Stores and remaining CSSC materials tagged as surplus; non-QA materials will remain in place and be used in non-QA applications.

Modification

Material in areas adjacent to the switchyard has been inspected. CSSC material properly identified was returned to Power Stores and remaining CSSC materials tagged as surplus; non-QA materials will remain in place and be used in non-QA applications.

7.2.6.2.4 Site Specific - BLN

In response to CATD 40400-BLN-02 and 40400-BLN-08, BLN submitted the following Corrective Action Plans:

Warehouse Storage Facility

A walkdown is in process at this time to review proper identification of materials. In addition the warehouse personnel will be retrained to the requirements of BNP-QCP-1.2.

THIS ITEM COMPLETED
DATE 6-14-88

40400-BLN-02

Craft Storage Facility

In accordance with Mr. White's memorandum, craft storage areas are presently being cleaned up and consolidated. As part of this effort, proper identification and markings are being addressed by review of these areas and additional training for the craft personnel responsible to maintain these areas.

Maintenance

6-20-88

40400-BLN-08

Maintenance is in the process of returning the maintenance stored material to Power Stores. Items lacking identification markings will be designated for non-CSSC application. If maintenance should store any CSSC items in the future, the storage requirements of BLA 9.4 will be complied with. The return of items to Power Stores is part of implementing the Replacement Parts Program at BLN.

7.2.7 Material Handling

No corrective action required.

7.2.8 Documentation

No corrective action required.

7.2.9 Receiving

No corrective action required.

7.2.10 Fire Protection

No corrective action required.

7.2.11 Storage and Maintenance Program

No corrective action required.

8.0 ATTACHMENTS

Attachment A - Subcategory Summary Table (List of concerns indicating safety relationship and plant applicability)

Attachment B - Summary of Issues

Attachment C - List of Concerns by Issue/Element

CONCERN NUMBER	CAT	SUB CAT	PLT LOC	PLANT APPL B B S W F L Q B	QIC/NSRS INVESTIGATION REPORT	P* S R	CONCERN DESCRIPTION	REFERENCE SECTION # CATEGORY - MC SUBCATEGORY - 404	
IN 85-118-001 I50014	MC	404	WBN	N N N Y REPORT		SR	STAINLESS STEEL MATERIAL STORED IN CONTACT WITH CARBON STEEL MATERIAL IN STORAGE SHED "E" AFTER CRAFT HAS REQUISITIONED MATERIAL FROM WAREHOUSE	1.2.4, 2.2, 2.3.4, 2.5.4, 3.1.4, 3.2, 4.4, 5.1.4, 6.4, 7.1.4, 7.2.4	IR4
IN-85-343-002 I50040	MC	404	WBN	N N N Y REPORT		SR	LACK OF CONTROL OF HANGER MATERIALS. THERE IS SOME ACTION PRESENTLY BEING TAKEN. THE CONCERN WAS OBSERVED IN 1978 & TO THE BEST KNOWLEDGE OF THE INDIVIDUAL THE CONCERN IS STILL ACTIVE.	1.2.2, 2.2, 2.3.2, 2.5.2, 2.6.2, 3.1.2 3.2, 4.2, 5.1.2, 6.2, 7.1.2, 7.2.2	IR4
IN-85-369-003 I50023	MC	404	WBN	N N N Y REPORT	IN-85-369-003	NO	JUNCTION BOXES ARE BEING STORED OUTSIDE WAREHOUSE	1.2.2, 2.2, 2.3.3, 2.5.2, 2.6.2, 3.1.2 3.2, 4.2, 5.1.2, 6.2, 7.1.2, 7.2.2	IR4
IN-85-369-004 I50023	MC	404	WBN	N N N Y REPORT		SR	STANDARD NUCLEAR STORAGE LEVELS ARE NOT IMPLEMENTED ON WBNP	1.2.2, 2.2, 2.3.2, 2.5.2, 2.6.2, 3.1.2, 3.2, 4.2, 5.1.2, 6.2, 7.1.2, 7.2.2	IR4
IN-85-443-002 I50034	MC	404	WBN	Y Y Y Y REPORT		SS	SAFETY AND NON-SAFETY MATERIALS ARE NOT KEPT SEGREGATED IN RECEIVING AND STORAGE.	1.2.5, 2.2, 2.3.5, 2.5.5, 3.1.5, 3.2, 4.5, 5.1.5, 6.5, 7.1.5, 7.2.5	IR4

CONCERN NUMBER	CAT	SUB CAT	PLT LOC	PLANT APPL B B S W F L Q B	QIC/NSRS INVESTIGATION REPORT	P# S R	CONCERN DESCRIPTION	REFERENCE SECTION # CATEGORY - MC SUBCATEGORY - 404	
IN-85-447-002 T50034	MC MP	404 711	WBN	N N N Y REPORT	IN-85-447-002 NOTE: Only the underlined portion of the concern is addressed by this subcategory.	NO	ALL STAINLESS STEEL INSTRUMENTATION PIPE 1/2" AND UNDER COMES WITH THE HEAT NUMBER STENCILED ON WITH AN "INK" THAT RUBS OFF. SS PIPE IS STORED OUTSIDE AND FREQUENTLY THE HEAT NUMBER CANNOT BE READ AND THE PIPE MUST BE DISCARDED.	1.2.6, 2.2, 2.3.6, 2.5.6, 2.6.4, 3.1.6, 3.2, 4.6, 5.1.6, 6.6, 7.1.6, 7.2.6	IR4
IN-85-454-005 T50030	MC	404	WBN	N N N Y REPORT		NO	BLACK PIPE IS USUALLY VERY DIRTY INSIDE	1.2.3, 2.2, 2.3.3, 2.5.3, 2.6.3, 3.1.3 3.2, 4.3, 5.1.3, 6.3, 7.1.3, 7.2.3	IR4
IN-85-564-001 T50048	MC	404	WBN	N N N Y REPORT		SR	CARBON CONTAMINATION OF STAINLESS STEEL ITEMS DUE TO IMPROPER HANDLING OF MATERIAL AFTER PICKUP FROM WAREHOUSE. CONTAMINATION INCLUDED MIXING CARBON/STAINLESS FILMS IN TRUNK BEDS/BOXES AND SECURING OF STAINLESS STAINLESS PIPE AND FITTINGS BY CARBON STEEL CHAIN/HOOKS. (QIC HAS DETAILS)	1.2.4, 2.2, 2.3.4, 2.5.4, 3.1.4, 3.2, 5.1.4, 6.4, 7.1.4, 7.2.4	

CONCERN NUMBER	CAT	SUB CAT	PLT LOC	PLANT APPL B F	B L	S Q	W B	QTC/NSRS INVESTIGATION REPORT	P* S R	CONCERN DESCRIPTION	REFERENCE SECTION # CAILGORY - MC SUBCATEGORY - 404	
IN 85 627-013 T50196	III MC	000 404	WBN	N REPORT	N	N	Y		NO	WAREHOUSE DOCUMENTS INACCURATELY LISTED MATERIAL AS RECEIVED AND IN STORAGE. (NAMLS/DETAILS TO THE SPECIFIC CASE ARE KNOWN TO QTC AND WITHHELD TO MAINTAIN CONFIDENTIALITY). CONSTRUCTION DEPT. CONCERN. CI HAS NO FURTHER INFORMATION.	1.2.8, 2.2, 2.3.8, 2.5.8, 3.1.8, 3.2, 4.8, 5.1.8, 6.8, 7.1.8, 7.2.8	IR4
IN-85-845-003 T50136	MC	404	WBN	N REPORT	Y	N	Y	I-85-480-WBN	SR	INSTRUMENT STORAGE. MAIERIAL CONTROL AND ISSUANCE IS QUESTIONABLE. INSTRUMENTS ARE BEING GIVEN TO FIELD PERSONNEL, STORED IN GANG-BOXES FOR LONG PERIODS OF TIME, THEN INSTALLED. NO SPECIFICS WERE GIVEN. HOWEVER, CI MENTIONED PUBLIC SAFETY OFFICE MIGHT HAVE MANY INSTANCES OF VIOLATION OF INSTRUMENTS FOUND IN TOOL BOXES. CONSTRUCTION DEPT. CONCERN.	1.2.2, 2.2, 2.3.2, 2.5.2, 2.6.2, 3.1.2, 3.2, 4.2, 5.1.2, 6.2, 7.1.2, 7.2.2	IR4

CONCERN NUMBER	CAT	SUB CAT	PLT LOC	PLANT APPL B B S W F L Q B	QIC/NSRS INVESTIGATION REPORT	P* S R	CONCERN DESCRIPTION	REFERENCE SECTION # CATEGORY - MC SUBCATEGORY - 404
IN-85-927-X01 T50093	MC	404	WBN	N Y N Y REPORT	I-85-480-WBN	SR	INSTRUMENT STORAGE REQUIREMENTS NOT BEING MAINTAINED AFTER IT LEAVES THE WAREHOUSE AND BEFORE IT IS INSTALLED. A "MINI WAREHOUSE" IN THE FIELD IS A HOLDING FACILITY AND HAS NO CLASS OF STORAGE. ALSO, PHYSICAL PROTECTION AFTER INSTRUMENT IS INSTALLED IS NOT ALWAYS BEING PROVIDED. C/I HAS NO FURTHER INFORMATION. NO FOLLOW UP REQUIRED.	1.2.1, 1.2.2, 2.2, 2.3.1, 2.3.2, 2.5.1, 2.5.2, 2.6.1, 2.6.2, 3.1.1, 3.1.2, 3.2, 4.1, 4.2, 5.1.1, 5.1.2, 6.1, 6.2, 7.1.1, 7.1.2, 7.2.1, 7.2.2
IN-85-978-007 T50208	MC	404	WBN	N N N Y REPORT		SR	TVA ROUTINELY VIOLATED MATERIAL HANDLING AND STORAGE PROCEDURES, BUT NO ONE EVER TOOK CORRECTIVE ACTION. CRAFTS (KNOWN) EXPEDITERS WOULD DUMP MATERIALS (EG., IRON WORKER STEEL) OFF OF TRUCKS AND DAMAGE THEM, WOULD LEAVE MATERIALS (EG., INSULATION) EXPOSED TO RAIN DAMAGE, AND DID NOT TAPE OR COVER PIPE OR CONDUIT OPEN ENDS.	1.2.3, 2.2, 2.3.3, 2.5.3, 2.6.3, 3.1.3, 3.2, 4.3., 5.1.3, 6.3, 7.1.3, 7.2.3

CONCERN NUMBER	CAT	SUB CAT	PLT LOC	PLANT APPL B F	B L	S Q	W B	QIC/NSRS INVESTIGATION REPORT	P* S R	CONCERN DESCRIPTION	REFERENCE SECTION # CATEGORY - MC SUBCATEGORY - 404	
IN-85-978-007 (continued)										QC WAS ONLY CONCERNED WITH INSPECTING WAREHOUSE STORAGE CONDITIONS. MATERIALS WERE NEGLECTED BETWEEN THE WAREHOUSE AND THE PLANT. CI HAS NO FURTHER INFORMATION. CONSTRUCTION		
IN-85-978-013 T50223	CO CO CO MC MP QA	101 102 109 404 706 806	WBN	N	N	N	Y	REPORT NOTE: Only the underlined portion of the concern is addressed by this subcategory.	SR	TVA USES PROCEDURES AND DOCUMENTATION FOR "SHOW" ONLY. THEY HAD NO INTENTION OF ABIDING BY PROCEDURES. EXAMPLES: <u>BAD MATERIAL HANDLING PRACTICES</u>, BAD BACKFILLING PRACTICES, BAD CABLE PULLING METHODS, BAD CONCRETE POURING PRACTICES, AND EQUIPMENT THAT WAS UNSAFE TO OPERATE WERE ALL ENCOURAGED, AND WERE NOT FULLY OR ADEQUATELY DOCUMENTED. TIME FRAME: 1974 TO DATE. SPECIFIC EXAMPLES OF THESE INCIDENTS ARE CONTAINED AS OTHER CONCERNS IN THIS FILE. CI HAS NO FURTHER INFORMATION. CONSTRUCTION DEPT.	1.2.1, 2.2, 2.3.7, 2.5.7, 3.1.7, 3.2, 4.7, 5.1.7, 6.7, 7.1.7, 7.2.7	IR4

CONCERN NUMBER	CAT	SUB CAT	PLT LOC	PLANT APPL B B S W F L Q B	QIC/NSRS INVESTIGATION REPORT	P* S R	CONCERN DESCRIPTION	REFERENCE SECTION # CATEGORY - MC SUBCATEGORY - 404	
IN-86-035-001 T50186	MC	404	WBN	N N N Y REPORT		SR	THERMO LOG MATERIAL (FROM THERMO SCIENCE INC.) CAME IN ON A HEATED TRAILER DURING SEVER COLD PERIOD 1984 AND WAS UNLOADED ON THE DOCK AND LEFT ALL WEEKEND. RECEIVING/STORAGE/MAINTENANCE PROGRAM IS INADEQUATE. CI HAS NO MORE INFORMATION. CONSTRUCTION DEPT. CONCERN UNIT 2.	1.2.2, 2.2, 2.3.2, 2.5.2, 2.6.2, 3.1.2, 3.2, 4.2, 5.1.2, 6.2, 7.1.2, 7.2.2	IR4
IN-86-282-001 T50241	MC	404	WBN	N N N Y REPORT		SR	IN 1982-83 Q AND NON-Q MATERIALS WERE STORED IN THE WAREHOUSE ADJACENT TO EACH OTHER IN THE SAME BINS. MATERIALS INCLUDED VARIOUS TYPES AND SIZES OF STAINLESS FITTINGS (ELBOWS, COUPLINGS, REDUCERS, ETC.) DURING THE SAME TIME PERIOD, TUBING AND PIPE WERE STORED IN SHEDS OUTSIDE THE WAREHOUSE IN THE SAME MANNER. CI HAS NO ADDITIONAL INFORMATION CONSTRUCTION DEPARTMENT CONCERN.	1.2.5, 2.2, 2.3.5, 2.5.5, 3.1.5, 3.2, 4.5, 5.1.5, 6.5, 7.1.5, 7.2.5	IR4

CONCERN NUMBER	CAT	SUB CAT	PLT LOC	PLANT APPL B B S W F L Q B	QIC/NSRS INVESTIGATION REPORT	P* S R	CONCERN DESCRIPTION	REFERENCE SECTION # CATEGORY - MC SUBCATEGORY - 404	
WBN-223	MC MC	404 407	WBN	N N N Y REPORT	NOTE: Only the underlined portion of the concern is addressed by this subcategory.	NO	THE INSTRUMENT SHOP AREA, IN THE TURBINE BUILDING, IS NOT ENVIRONMENTALLY SUITABLE FOR CERTAIN INSTRUMENTATION AND PARTS. INDIVIDUAL IS ALSO CONCERNED THAT THE PROCEDURE FOR TRACKING THE PARTS IS INADEQUATE.	1.2.1, 2.2, 2.3.1, 2.5.1, 2.6.1, 3.1.1, 3.2, 4.1, 5.1.1, 6.1, 7.1.1, 7.2.1	IR4
WI-85-036-001 T50011	MC	404	WBN	N N N Y REPORT		SR	AT THE WAREHOUSE AND STORAGE AREAS THERE IS STAINLESS STEEL MATERIAL (PIPE) MIXED WITH CARBON STEEL MATERIAL- NO SEGREGATION. (CI WILL NOT DIVULGE ADDITIONAL INFORMATION	1.2.4, 2.2, 2.3.4, 2.5.4, 3.1.4, 3.2, 4.4, 5.1.4, 6.4, 7.1.4, 7.2.4	IR4
WI-85-089-001 T50204	MC	404	WBN	N N N Y REPORT		SR	QA MATERIAL IS BEING SENT TO SHACKS #565 AND #319 AND IS NOT BEING RECEIVED NOR STORED IN ACCORDANCE WITH QA PROCEDURES. CONSTRUCTION DEPT. CONCERN. CI HAS NOT FURTHER INFORMATION.	1.2.9, 2.2, 2.3.9, 2.5.9, 3.1.9, 3.2, 4.9, 5.1.9, 6.9, 7.1.9, 7.2.9	IR4

CONCERN NUMBER	CAT	SUB CAT	PLT LOC	PLANT APPL B B S W F L Q B	QIC/NSRS INVESTIGATION REPORT	P* S R	CONCERN DESCRIPTION	REFERENCE SECTION # CATEGORY - MC SUBCATEGORY - 404	
WI-85-091-14 T50197	MC MC MP	403 404 711	WBN	N N N Y REPORT	1-85-713-WBN NOTE: Only the underlined portion of the concerns is addressed by this subcategory.	SR	<u>IVA HAS VERY POOR CONTROL OVER SNUBBERS IN THE MANNER IN WHICH THEY ARE STORED AND HANDLED</u>. THESE EXPENSIVE SNUBBERS ARE FREQUENTLY SCRAPPED AND LATER RETRIEVED FROM THE SCRAP YARD FOR INSTALLATION. CI HAS NO FURTHER INFORMATION. CONSTRUCTION DEPT. CONCERN.	1.2.2, 2.2, 2.3.2, 2.5.2, 2.6.2, 4.2, 5.1.2, 6.2, 7.1.2, 7.2.2	IR4
WI-85-100-040 T50213	MC	404	WBN	Y Y Y Y REPORT		SR	HANDLING OF EQUIPMENT IN STORAGE AND DURING AND AFTER CONSTRUCTION IS POOR. EQUIPMENT IN MANY CASES IS IN POOR CONDITION AND FILTHY DIRTY INSIDE AND OUTSIDE. ENVIRONMENTS AND FIRE PROTECTION FOR STORAGE IS INADEQUATE. CI HAS NO FURTHER INFORMATION. ANNONYMOUS CONCERN VIA LETTER.	1.2.1, 1.2.10, 2.2, 2.3.1, 2.3.10, 2.6.1, 3.1.1, 3.1.10, 3.2, 4.1, 4.10, 5.1.1, 5.1.10, 6.1, 6.10, 7.1.1, 7.1.10, 7.2.1 7.2.10	
XX-85-094-008 T50150	MC	404	BLN	N Y N Y REPORT	1-85 596-BLN	SR	BELLEFONTE: THE STORAGE AND MAINTENANCE PROGRAM DID NOT MEET CODE REQUIREMENTS UNTIL THE LAST 2-3 YEARS. CONSTRUCTION DEPT. CONCERN. CI HAS NOT FURTHER INFORMATION. NO FOLLOW UP REQUIRED.	1.2.11, 2.2, 2.3.11, 2.5.11, 3.1.11, 3.2, 4.11, 5.1.11, 6.11, 7.1.11, 7.2.11,	IR4

CONCERN NUMBER	CAT	SUB CAT	PLT LOC	PLANT APPL B F	B L	S Q	W B	QIC/NSRS INVESTIGATION REPORT	P* S R	CONCERN DESCRIPTION	REFERENCE SECTION # CATEGORY - MC SUBCATEGORY - 404
XX-85-122-045 T50215	MC	404	SQN	Y REPORT	Y	Y	Y	I-85-990-SQN	SR	SEQUOYAH: HANDLING OF EQUIPMENT IN STORAGE AND DURING AND AFTER CONSTRUCTION IS POOR. EQUIPMENT IN MANY CASES IS IN POOR CONDITION AND FILTHY DIRTY INSIDE AND OUTSIDE. ENVIRONMENTS AND FIRE PROTECTION FOR STORAGE IS INADEQUATE. CI HAS NO FURHTER INFORMATION. ANONYMOUS CONCERN VIA LETTER.	1.2.1, 1.2.10, 2.2, 2.3.1, 2.3.10, 2.5.1, 2.5.10, 2.6.1, 3.1.1, 3.1.10, 3.2, 4.1, 4.10, 5.1.1, 5.1.10, 6.1, 6.10, 7.1.1, 7.1.10, 7.2.1, 7.2.10
XX-85-122-046 T50222	MC	404	BLN	Y REPORT	Y	Y	Y	I-85-126-BLN	SR	BELLEFONTE - HANDLING OF EQUIPMENT IN STORAGE AND DURING AND AFTER CONSTRUCTION IS POOR. EQUIPMENT IN MANY CASES IS IN POOR CONDITION AND FILTHY DIRTY INSIDE AND OUTSIDE. ENVIRONMENTS AND FIRE PROTECTION FOR STORAGE IS INADEQUATE. CI HAS NO FURTHER INFORMATION. ANONYMOUS CONCERN VIA LETTER.	1.2.1, 1.2.10, 2.2, 2.3.1, 2.3.10, 2.5.1, 2.5.10, 2.6.1, 3.1.1, 3.1.10, 3.2, 4.1, 4.10, 5.1.1, 5.1.10, 6.1, 6.10, 7.1.1, 7.1.10, 7.2.1, 7.2.10

CONCERN NUMBER	CAT	SUB CAT	PLT LOC	PLANT APPL B B S W F L Q B	QIC/NSRS INVESTIGATION REPORT	PSR	CONCERN DESCRIPTION	REFERENCE SECTION # CATEGORY - MC SUBCATEGORY - 404
XX-85-122-047	MC	404	BLN	Y Y Y Y REPORT	1-85-152-BFN	SR	BROWNS FERRY -HANDLING OF EQUIPMENT IN STORAGE AND DURING AND AFTER CONSTRUCTION IS POOR. EQUIPMENT IN MANY CASES IS IN POOR CONDITION AND FILTHY DIRTY INSIDE AND OUTSIDE. ENVIRONMENTS AND FIRE PROTECTION FOR STORAGE IS INADEQUATE. CI HAS NO FURTHER INFORMATION. ANONYMOUS CONCERN VIA LETTER.	1.2.1, 1.2.10, 2.2, 2.3.1, 2.3.10, 2.5.1, 2.5.10, 2.6.1, 3.1.1, 3.1.10, 3.2, 4.1, 4.10, 5.1.1, 5.1.10, 6.1, 6.10 7.1.1, 7.1.10, 7.2.1 7.2.10

*PSR Codes:
SR - Nuclear Safety-Related
SS - Nuclear Safety Significant
NO - Not Nuclear Safety-Related

ATTACHMENT B
SUMMARY OF ISSUES

Report Number: 40400
Revision: 4

ISSUE	DESCRIPTION	PROCEDURES, REQUIREMENTS AND CRITERIA (a)	FACTUAL (b)	PROBLEM (c)	SUMMARY OF FINDINGS COMMENTS	SUBCATEGORY FOR STORAGE AND HANDLING CORRECTIVE ACTION
1. Storage Facilities	Storage facilities both in the warehouses and field are inadequate	2, 5, 6, 8, 11-14 16 and 18	yes	yes	Overall the storage facilities were adequate but exceptions did exist	Provided by line management CATD's 40400-SQN-01 40400-BFN-01 40400-BLN-01 40400-WBN-01
2. Storage Levels	Material and equipment are not stored in the appropriate nuclear storage level.	2, 4-6, 8, 11-14 16 and 18	yes	yes	The vast majority of items were stored in the appropriate levels although exceptions did exist	Provided by line management CATD's 40400-SQN-01 40400-BFN-02 40400-BLN-04 40400-WBN-02 40400-BLN-09
3. Protective Covers and Seals	Caps, plugs and/or tape were not used to seal openings in items having sensitive internal surfaces and to protect threads as well as weld end preparation.	2, 4-6, 8, 11-16, 18 20, and 21	yes	yes	Most items requiring caps or plugs were in fact with a few exceptions. However, it was not common practice to cap stainless steel fittings.	Provided by line management CATD's 40400-SQN-01 40400-BFN-03 40400-BLN-03 40400-WBN-03 40400-WBN-04
4. Austenitic Stainless Steel	The contamination of austenitic stainless steel with carbon steel.	2, 4-6, 8, 11-16 and 18	yes	yes	It was not common practice to store stainless steel and carbon steel together, although isolated cases did exist.	Provided by line management CATD's 40400-SQN-01 40400-BFN-04 40400-BLN-05

ISSUE	DESCRIPTION	PROCEDURES, REQUIREMENTS AND CRITERIA (a)	FACTUAL (b)	PROBLEM (c)	SUMMARY OF FINDINGS COMMENTS	SUBCATEGORY FOR STORAGE AND HANDLING CORRECTIVE ACTION
5. Segregation	The segregation of safety (CSSC) and non-safety related (non-CSSC) materials were not segregated sufficiently to prevent inadvertant mixing.	1-8, 10-14, 16-19	yes	yes	Segregation of safety (CSSC) and non-safety related (non-CSSC) materials were not segregated in all cases.	Provided by line management CAID's 40400-SQN-01 40400-BFN-05 40400-BLN-06 40400-BLN-07 40500-WBN-02
6. Identify-cation and marking	Material did not have proper identification and marking.	1-8, 10 14 and 16-19	No	No	Material did not always have identification and marking on material several cases did exist.	Provided by line management CAID's 40400-SQN-01 40400-BFN-06 40400 BLN-02 40400 BLN-08
7. Material Handling	Material was not handled in a manner to prevent damage.	5, 16, 18	No	No	No evidence of poor material handling practices was found.	None required
8. Document-action	Material was not properly received and documented before being placed in storage.	5, 16, 17, 18	Yes	No	No significant problem was found with warehouse documents in accurately listing material as re-received and in storage.	None required
9. Receiving	Material was being sent to field before being received by the Material Service Unit.	5, 16, 17, 18	No	No	No evidence was found to show material was not being received before going to the field.	None required

ISSUE	DESCRIPTION	PROCEDURES, REQUIREMENTS AND CRITERIA (a)	FACTUAL (b)	PROBLEM (c)	TABLE 4-1 SUMMARY OF FINDINGS COMMENTS	SUBCATEGORY FOR STORAGE AND HANDLING CORRECTIVE ACTION
10. Fire Protection	Warehouse did not have adequate fire protection.	5	Yes	No	All warehouse did not run automatic sprinkler fire suppression system. They were protected by fire hydrants and fire extinguishers.	None required
11. Storage and Maintenance Program	The maintenance and storage practices at BLN did not meet code requirements for the last two years.	5, 8, 9, 16, 18	No	No	The BLN and WBN sites upgraded the maintenance and storage programs after INPO reviews.	None required.

a. See Section 3.2 of this report for the procedures, requirements and standards corresponding to the reference number.

b. Factual. Yes means the concern has been observed.

c. Problem. Yes means a violation of a procedure, requirement or standard has occurred.